

TRANSMISSION COMPANY OF NIGERIA

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

DAILY OPERATIONAL REPORT OF WEDNESDAY 12/09/2018

FOR: EVENTS OF TUESDAY 11/09/2018

1.0 EXECUTIVE OPERATIONS SUMMARY:

1.1 GENERATION PROFILE: NATIONAL STATISTICS

DETAILS	MW	HRS	DATE
PEAK DEMAND FORECAST (CONNECTED + SUPPRESSED LOAD)	22,680	22:00	11/09/2018
GENERATION CAPABILITY	7290.6	-do-	-do-
UNITS ON BAR CAPABILITY AT PEAK	4420.9	-do-	-do-
PEAK GENERATION	4156.1	-do-	-do-
LOWEST GENERATION	2453.1	03:00	11/09/2018
8-HOURLY DURATION PEAK	3017.2	0100-0800	-do-
	3498.7	0900-1600	-do-
	4156.1	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	356	Makurdi T/S	03:00
LOWEST VOLTAGE FOR THE DAY	300	Yola, Gombe & Kumbotso T/S	11:00, 11:00 & 16:00

1.3 FREQUENCY RANGE

DETAILS	HZ	HRS
NOMINAL FREQUENCY	50	
STATUTORY LIMITS	49.75-50.25	
HIGHEST FREQUENCY	50.90	03:04
LOWEST FREQUENCY	48.85	19:01

1.4 SYSTEM COLLAPSE UP DATE

Date of last total collapse: 4th Sept, 2018		No. of days since last total collapse: 08												
Date of last partial collapse: 12 th April, 2018		No. of days since last partial collapse: 152												
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	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	4	2	22	
	Partial	--	--	--	--	--	--	--	2	--	--	--	2	
2014	Total	2	--	0	2	0	3	1	0	0	1	0	9	
	Partial	--	--	0	0	1	0	0	0	0	2	1	4	
2015	Total	1	0	1	0	2	0	1	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	22	
	Partial	--	--	1	0	1	3	1	0	0	0	0	6	
2017	Total	5	3	0	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	1	1	--	--	9	
	Partial	0	0	0	1	0	--	--	--	--	--	--	1	

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

STATION	TURBINE	PEAK GEN. (MW)	OFF-PEAK GEN.(MW)		
1 KAINJI	HYDRO	238	114		
2 JEBBA	HYDRO	421	243		
3 SHIRORO	HYDRO	450	387		
4 EGBIN ST2 - 5	STEAM	417	253		
5 SAPELE	STEAM	53	30		
6 DELTA	GAS	297	147		
7 AFAM IV-V	GAS	0	0		
8 GEREGU GAS	GAS	141	80		
9 OMOTOSHO GAS	GAS	121.3	121		
10 OLORUNSOGO GAS	GAS	140.1	113.9		
11 GEREGU NIPP	GAS	0	0		
12 SAPELE NIPP	GAS	102.9	53		
13 ALAQJI NIPP	GAS	111.6	0		
14 OLORUNSOGO NIPP	GAS	107.5	0		
15 OMOTOSHO NIPP	GAS	109.8	69		
16 ODUKPANI NIPP	GAS	111.8	75		
17 IHOVBOR NIPP	GAS	111.2	67.9		
18 OKPAI	GAS	213	178		
19 AFAM VI	GAS	256	103		
20 IBOM POWER	GAS	0	0		
21 ASCO	GAS	0	0		
22 A.E.S	GAS	0	0		
23 OMOKU	GAS	39.8	47.3		
24 TRANS AMADI	GAS	42.3	49.6		
25 RIVERS IPP	(GAS)	105	0		
26 AZURA - EDO IPP	(GAS)	305	126		
27 EGBIN ST6	(GAS)	190	130		
28 PARAS ENERGY	(GAS)	71.8	65.4		
29 GBARAIN NIPP	GAS	0	0		
TOTAL		4156.1	2453.1		
1.6 ENERGY GENERATED/ENERGY SENT OUT:					
STATION	TURBINE	ENERGY GENERATED		ENERGY SENT OUT	
		MWH	MWH/H	MWH	MWH/H
1 KAINJI	HYDRO	7137.00	297.38	7121.50	296.73
2 JEBBA	HYDRO	9161.00	381.71	9135.28	380.64
3 SHIRORO	HYDRO	10038.00	418.25	10008.70	417.03
4 EGBIN ST2 - 5	STEAM	7643.00	318.46	7280.00	303.33
5 SAPELE	STEAM	1220.50	50.85	1161.20	48.38
6 DELTA	GAS	8492.57	353.86	8281.30	345.05
7 AFAM IV-V	GAS	0.00	0.00	0.00	0.00
8 GEREGU GAS	GAS	2656.90	110.70	2637.74	109.91
9 OMOTOSHO GAS	GAS	2930.00	122.08	2907.60	121.15
10 OLORUNSOGO GAS	GAS	3086.25	128.59	3058.13	127.42
11 GEREGU NIPP	GAS	0.00	0.00	0.00	0.00
12 SAPELE NIPP	GAS	2331.85	97.16	2315.60	96.48
13 ALAQJI NIPP	GAS	1318.62	54.94	1297.18	54.05
14 OLORUNSOGO NIPP	GAS	1113.90	46.41	1066.70	44.45
15 OMOTOSHO NIPP	GAS	2240.30	93.35	2220.10	92.50
16 ODUKPANI NIPP	GAS	2060.69	85.86	2040.99	85.04
17 IHOVBOR NIPP	GAS	1840.00	76.67	1817.34	75.72
18 OKPAI	GAS	5455.00	227.29	5319.20	221.63
19 AFAM VI	GAS	3409.94	142.08	3322.81	138.45
20 IBOM	GAS	0.00	0.00	0.00	0.00
21 ASCO	GAS	0.00	0.00	0.00	0.00
22 AZURA - EDO IPP	GAS	3895.80	162.33	3873.60	161.40
23 A.E.S	GAS	0.00	0.00	0.00	0.00
24 OMOKU	GAS	818.10	34.09	796.19	33.17
25 TRANS AMADI	GAS	1025.90	42.75	999.10	41.63
26 RIVERS IPP	GAS	881.50	36.73	879.70	36.65
27 EGBIN ST6	STEAM	3520.00	146.67	3331.00	138.79
28 PARAS ENERGY	GAS	1660.80	69.20	1653.30	68.89
29 GBARAIN NIPP	GAS	0.00	0.00	0.00	0.00
TOTAL		83,937.62	3,497.40	82,524.26	3,438.51

1.7A GENERATION POSITION AT 06:00HRS WEDNESDAY 12/09/2018

	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 50.17Hz.	REMARKS
PRIVATISED COMPANIES	KAINJI HYDRO	8	1G6, 11 & 12 3	320	275	1G6, 11 & 12 3	275	228	1G5 - Tripped on governor fault. 1G7 - Out on stator winding failure. 1G8 - Out due to oil leakage on governor runner head. 1G9 - Out due to burnt 7.5MVA 33/0.415kV & 183.6MVA 16/330kV station service transformer and generator transformer. 1G10 - Shut down due to thrust bearing temperature problem.
	JEBBA HYDRO	6	2G1 - 5 5	475	450	2G1 - 5 5	450	420	2G6 - Out due to burnt generator winding and AVR.
	SHIRORO HYDRO	4	411G2 & 3 2	300	300	411G2 & 3 2	300	300	411G1 - Tripped on generate ground fault. 411G4 - Tripped on protective shut down.
	EGBIN STEAM	5	ST1, 2 & 4 3	660	414	ST2 & 4 2	414	381	ST1 - Out due to refusal to send report of tripping on 04/09/2018. ST3 - Out on high vibration since 19th June 2017. ST5 - Shut down due to boiler pump trouble. ST2 - Generation reduced due to low load demand by the Discos.
	SAPELE (STEAM)	6	ST2 1	120	52	ST2 1	52	52	ST1 - Shut down due to alarm on inlet gas guide control trouble. ST2 - Generation reduced due to low load demand by the Discos. ST4 & 5 - Awaiting major overhaul. ST6 - Out on gas control valve not following reference point.
	DELTA (GAS)	18	GT9 - 13, 15, 16 & 18 - 20 10	625	605	GT9 - 12 & 15 5	195	192	GT3 & 5 - Out due to generator winding fault. GT4 - Out on loss of excitation. GT6, 8 & 14 - Out on major overhaul. GT7 - Out on fault. GT13, 16, 18, 19 & 20 - Out due to low load demand by the Discos. GT17 - Tripped on bearing vibration more than maximum.
	AFAM IV & V (GAS)	8	0 0	0	0	0 0	0	0	GT1 - 12 - De-commissioned and scrapped. GT13 -16 - Out on blade failure. GT17 - Out due to technical issues. GT18 - Tripped on operating malfunction. GT19 & 20 - Awaiting major overhaul.
	GEREGU GAS	3	GT11 - 13 3	435	435	GT11 1	145	140	GT12 & 13 - Out due to gas constraint.
	OMOTOSHO GAS	8	GT1 - 8 8	336	304	GT2 & 5 - 7 4	152	139.9	GT1, 3, 4 & 8 - Out due to low load demand by the Discos.
	OLORUNSOGO GAS	8	GT1 - 8 8	336	304	GT2, 4, 6 & 7 4	152	141.9	GT1, 3, 5 & 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, 3 & 4 3	337.5	337.5	GT3 1	112.5	95.5	GT1 - Out due to low load demand by the Discos. GT2 - Out due to high air inlet differential pressure. GT4 - Out due to gas constraint.
	ALAOJI NIPP GAS	4	GT1 & 2 2	250	120	GT1 1	120	114.4	GT2 - Out due to low load demand by the Discos. GT4 - Tripped on over voltage lockout relay trip.
	OLORUNSOGO NIPP	6	GT1 - 3 3	375	360	GT2 1	120	109.1	GT1 & 3 - Out due to low load demand by the Discos. 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	GT4 1	120	109.3	GT1 & 2 - Out due to low load demand by the Discos. GT3 - Out due to oil leakage on the unit.
	ODUKPANI NIPP	5	GT4 1	125	115	GT4 1	115	105.4	GT1 - Out on fault. GT2 - Out due to malfunctioning gas regulating valve. GT3 - Out on high air inlet differential pressure. GT5 - Tripped on high inlet filter pressure.
	IHOVBOR NIPP	4	GT1, 2 & 4 3	337.5	337.5	GT1 1	112.5	104.8	GT2 & 4 - Out due to low load demand by the Discos. GT3 - Tripped on high vibration.
	GBARAIN NIPP GAS	1	GT2 1	112.5	112.5	0 0	0	0	GT2 - Out due to Gbarain host community protest.
	IPP	OKPAI GAS/STEAM	3	GT12 & ST18 2	300	220	GT12 & ST18 2	220	192
AZURA - EDO		3	GT11 - 13 3	461	461	GT12 & 13 2	306	249	GT11 - Out due to low load demand by the Discos.
AFAM VI GAS/STEAM		4	GT11 - 13 & ST10 4	650	640	GT11 1	150	134	GT12 - Out due to low load demand by the Discos. GT13 & ST10 - Out due to gas constraint.
IBOM POWER GAS		3	0 0	0	0	0 0	0	0	GT1 & 2 - Out due to fire outbreak on the control panel. GT3 - Out on fault.
AES		0	0 0	0	0	0 0	0	0	Out of production since 27/09/2014.
ASCO		2	0 0	0	0	0 0	0	0	ST1 - Shut down due to leakage in the furnace.
OMOKU GAS		6	GT1 - 2 & 5 3	75	60	GT2 & 5 2	38.5	38.5	GT1 - Out due to low load demand by the Discos. GT3 - Tripped on over speed. GT4 - Awaiting major overhaul. GT6 Out on maintenance.
TRANS-AMADI		4	GT1, 2 & 4 3	75	63.6	GT1, 2 & 4 3	63.6	63.6	GT3 - Out on fault.
RIVERS		1	0 0	0	0	0 0	0	0	GT1 - Tripped on pressure control valve failure.
SUB TOTAL		131	76	7370.5	6616.1	43	3613.1	3310.4	Frequency = 50.17Hz.

1.7B GENERATION POSITION AT 06:00HRS OF WEDNESDAY 12/09/2018 FOR UNITS ON BILATERAL AGREEMENT

EGBIN	1	ST6		220	190	ST6		190	190	Available unit on bar.
		1	1			1	1			
PARAS ENERGY	8	GT2 - 9		70.2	70.2	GT2 - 9		70.2	70.2	Available units on bar.
		8	8			8	8			
SUB TOTAL	9	9		290.2	260.2	9		260.2		
GRAND TOTAL	140	85		7660.7	6876.3	52		3,873.30	3,570.60	Frequency = 50.17Hz

1.7C

BILATERAL AGREEMENT UNITS DISPATCH - TUESDAY 11/09/2018.							
EGBIN ST6 120MW GENERATION TO IKEJA ELECTRICITY DISTRIBUTION COMPANY							
FEEDERS NAME	MAX. LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HRS IN SERVICE	TOTAL (MWH)	REMARK
OGBA	U-STEEL	ON	0100HRS		17		PLANNED OUTAGE BY DISTRICT RECONNECT ADENIYI JONES INJ SS TO FEEDER 2
	PTCEXPRESS	ON	0100HRS		17		PLANNED OUTAGE BY DISTRICT RECONNECT ADENIYI JONES INJ SS TO FEEDER 2
	SANKYO	ON	0100HRS		17		PLANNED OUTAGE TO RECONNECT THE FEEDER FROM INDOOR BREAKER TO OUTDOOR BREAKER
	FEEDER 8	12	1100HRS		17		PLANNED OUTAGE TO RECONNECT THE FEEDER FROM INDOOR BREAKER TO OUTDOOR BREAKER
IKORODU	PULK IT	5	1100HRS		24		NIL
	INDUSTRIAL	8	2100HRS		24		NIL
	SPINTEX	10	0100HRS		24		NIL
	DANGOTE	ON	0100HRS		24		NIL
	LAND CRAFT	18	2300HRS		24		NIL
ALAUUSA	TR4 15MVA	6.1	1600HRS		23		FIRE OUTBREAK AT IKEJA WEST
	TR5 -15MVA	4.6	1200HRS		23		FIRE OUTBREAK AT IKEJA WEST
	ALAUUSA	9.7	1600HRS		17		FIRE OUTBREAK AT IKEJA WEST AND THE FDR TRIPPED ON INST E/F & INST O/C
M/LAND	PTC (MARYLAND)	16	2000HRS		24		NIL

BILATERAL AGREEMENT LOAD DISPATCH							
60MW PARAS ENERGY GENERATION TO CEB OF TUESDAY 11/09/018							
FEEDER	MAX LOAD (MW)	TIME (HRS)	MIN LOAD (MW)	TIME (HRS)	HOURS IN SERVICE	TOTAL (MWH)	REMARK
Ikeja West/Sakete 330kV line	71.8	22:00	65.4	03:00	24	1657	NIL

BILATERAL AGREEMENT MAIN STREAM ENERGY KAINJI LOAD DISPATCH TO THE FOLLOWING COMPANIES OF: TUESDAY 11/09/2018									
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	ON	ON	ON	ON	ON	24	0	SUPPLY NOT INTERRUPTED
KAM STEEL		15.0	2.0	20:00	0.2	01:00	24	12.8	SUPPLY NOT INTERRUPTED
ASAKA CEMENT	33kV feeder	0.0	5.3	21:00	0.1	07:00	24	64.8	LOSS OF SUPPLY
XING 1		0.0	18	10:00	4.5	20:00	24	360.6	SUPPLY NOT INTERRUPTED
XING 2		0.0	27	21:00	5.9	04:00	23	462.6	SUPPLY NOT INTERRUPTED
KAM INTEGRATED		15.0	5.3	16:00	2.0	01:00	24	73.0	SUPPLY NOT INTERRUPTED
OLAM FLOUR MILLS		3.0	3.0	17:00	0.4	06:00	24	19.9	SUPPLY NOT INTERRUPTED
LORDSMITH		0	10	18:00	0.2	01:00	24	16.90	SUPPLY NOT INTERRUPTED

	TOTAL LOAD	89.4						
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3.1 SYSTEM SPINNING RESERVE AS AT 0600HRS OF WEDNESDAY 12/09/2018 = 0MW. FREQUENCY 50.17Hz.

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 Wednesday 12/09/2018 as at 0600Hrs was = 2860MW.

S/NO	STATION	ACTUAL GENERATION CAPABILITY (MW)	GENERATION AT 0600HRS (MW)	UNAVAILABLE GENERATION CAPABILITY (MW)	SUB-TOTAL
4.1 DUE TO GAS CONSTRAINTS:					
1	Geregu Gas GT12 & 13	290	0	290	1032.5
2	Alam VI GT13 & ST10	340	0	340	
3	Geregu NIPP GT22 & 23	290	0	290	
4	Sapele NIPP GT4	112.5	0	112.5	
			0	0	
			0	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 11830.61MMSCF OF GAS (EQUIVALENT TO 6864.8MW) WILL BE REQUIRED WHEN ALL THERMAL UNITS ARE ON BAR.					
4.2 DUE TO LINE CONSTRAINTS					
			0	0	0
			0	0	0
4.3 DUE TO LOW LOAD DEMAND BY THE DISCOS					
1	Ihovbor GT2 & 4	225	0	225	1827.5
2	Azura Edo GT11	153	0	153	
3	Egbin ST2	201	168	33	
4	Sapele NIPP GT1	112.5	0	112.5	
5	Delta GT13, 16, 18, 19 & 20	400	0	400	
6	Alaoji NIPP GT2	120	0	120	
7	Omotosho NIPP GT1 & 2	240	0	240	
8	Olorunsogo NIPP GT1 & 3	240	0	240	
9	Omotosho Gas GT1, 3, 4 & 8 - 8	152	0	152	
10	Olorunsogo Gas GT1, 3, 5 & 8	152	0	152	
			0	0	
			0	0	
4.1 DUE TO WATER MANAGEMENT:					
Grand Total					2860

1.8 HYDROLOGICAL DATA: WEDNESDAY 12/09/2018

	KAINJI	JEBBA	SHIRORO
HEAD WATER ELEVATION (METERS)	138.98	104.29	382.35
TAIL WATER ELEVATION (METERS)	106.99	77.9	274.5
GROSS OPERATING HEAD (METERS)	31.99	26.39	107.85
AVERAGE TURBINE DISCHARGE (M3/SEC)	1048.00	1644.00	434.00
AVERAGE SPILLAGE (M3/SEC)	2772.00	3872.00	2367.00
AVERAGE TOTAL STATION DISCHARGE (M3/SEC)	3820.00	5516.00	2801.00
COMPUTED INFLOW (M3/SEC)	6612.00	4891.00	3461.00
STORAGE DIFFERENTIAL	2792.00	-625	660.00
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 TUESDAY 11/09/2018

	MAXIMUM LOAD (MW)	TIME (HRS)	ALLOCATED LOAD (MW)	MINIMUM LOAD (MW)	TIME (HRS)
ABUJA	518.9	22:00	0.00	286.9	03:00
EKO	0.0	0	0	0	0
IKEJA	465.1	19:00	0	328.9	05:00

2.0 GAS POSITION: WEDNESDAY 12/09/2018

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	356	1100		604	496
DELTA (GAS)	248	915		195	720
OMOTOSHO GAS	101.5	336.8		152	184.8
OMOTOSHO NIPP	76.8	500		120	380
OLORUNSOGO (GAS)	84.4	336		152	184
OLORUNSOGO NIPP	80.4	750		120	630
SAPELE NIPP	81.4	500		112.5	387.5
SAPELE STEAM	50	720		52	668
JAFAM IV-V	0	300		0	300
JAFAM VI	103	650		150	500
GEREGU GAS	90	435		145	290
GEREGU NIPP	0	435		0	435
OKPAI (GAS/STEAM)	177	480		220	260
ALAOJI NIPP	71.2	504		120	384
IHOVBOR NIPP	85.4	450		112.5	337.5
IBOM	0	198		0	198
ODUKPANI NIPP	0	625		115	510
TOTAL	1605.1	9234.80		2370	6864.8

1 MMSCF IS EQUIVALENT TO 3.75MW

3.0 SPINNING RESERVE FOR: TUESDAY 11/09/018

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

5.0 OUTAGES:

5 (A) FORCED OUTAGES (GENERATION):-

- 1 05:48 – 06:29Hrs, Odukpani NIPP GT5 tripped on high air inlet filter pressure. LHR = 85MW.
- 2 10:11Hrs, Trans –Amadi GTs 1, 2 & 4 tripped on reverse power due to the tripping of Afam/Alaoji 132kV line 2 CB at Afam T/S. Total Load loss = 64.3MW
11:03Hrs, GT2 was tied. 11:50Hrs, GT4 was tied.
- 3 11:36 – 12:07Hrs, Shiroro 411G4 tripped on protective shut down. LHR = 150MW.
- 4 13:10 - 15:05Hrs, Rivers IPP GT1 tripped on high vibration. LHR = 110MW.
- 5 14:47Hrs, Trans Amadi GTs 1, 2 & 4 tripped on reverse power due to the tripping of Afam/Alaoji line 2. Total LHR = 62.8MW.
16:31Hrs, GT1 was tied. 16:48Hrs, GT2 was tied. 17:00Hrs, GT4 was tied.
- 6 16:20 – 19:03Hrs, Ihovbor NIPP GT1 tripped on reverse power due to the tripping of cct H7V.
- 7 18:59 through 24:00Hrs, Okpai GT11 tripped on undisclosed fault. LHR = 136MW.
- 8 18:59 – 20:54Hrs, Rivers IPP GT1 tripped on reverse power due to loss of supply from Afam/IPP 132kV line. LHR = 125MW.
- 9 18:59Hrs, Trans Amadi GTs 2 & 4 tripped on reverse power due to loss of supply from Afam/IPP 132kV line. Total LHR = 63.6MW.
20:40Hrs, GT2 was tied. 20:44Hrs, GT4 was tied.
- 10 18:59 – 21:18Hrs, Afam T/S 162MVA 330/132/33kV transformer T1A secondary CB tripped on O/C time delay & lockout. LHR = 93MW.
N/B: Loss of supply on Afam IPP 132kV line was experienced.
- 11 18:59Hrs, Omoku GTs 2 & 5 tripped on reverse power due to loss of supply from Afam IPP 132kV line at Afam 1 T/S. Total LHR = 40.6MW.
21:10Hrs, Omoku GT2 was tied. 21:15Hrs, Omoku GT5 was tied.
- 12 19:18 through 24:00Hrs, Kainji 1G5 tripped on governor fault. LHR = 91MW.
- 13 23:21 through 24:00Hrs, Rivers IPP GT1 tripped on pressure control valve failure. LHR = 130MW.

5(B) FORCED OUTAGES (TRANSMISSION):-

- 1 07:21 - 08:20Hrs, Afam/IPP 132kV line 2 CB tripped at Afam T/S on Micom relay – O/C time delay, O/C instantaneous & E/F. LHR = 65.7MW.
- 2 10:11 - 10:45Hrs, Afam/Alaoji 132kV line 2 CB tripped at Afam T/S only on Siemens relay: O/C Yellow Phase and E/F. LHR = 40MW.
- 3 13:05 - 13:30Hrs, Ayede/McPherson/Shagamu 132kV line CB tripped at Ayede T/S on the following relay indications:
Optimho relay – location = 4.875km, period = 119.5ms.
Micom relay – O/C Red Phase. LHR = 40MW.
- 4 13:05 - 13:30Hrs, McPherson T/S 40MVA 132/33kV transformer T1 primary CB tripped on general trip while the secondary CB tripped without relay indication.
LHR = 0.3MW. The transformer was isolated for checks.
- 5 14:47 through 24:00Hrs, Afam/Alaoji 132kV line 2 CB tripped at Afam 1 T/S on Siemens relay – O/C on Red Phase & E/F. LHR = 27MW.
- 6 16:20 – 16:39Hrs, Osogbo/Ihovbor 330kV line (cct H7V) CBs tripped at both ends on the following relay indications:
At Osogbo T/S: ABB relay – Start LE, start PE fuse VTSZ.
Ohmega relay – Zone 2, Phase B, Earth fault, DEF forward, distance = 70.63km. Other relays: 86A, B C & T/2.
At Ihovbor T/S: Micom relay - Distance protection relay, zone 2 trip, started Phase A, B & C N trip Phase C-N, distance start Z2, Z3, distance trip Z2, O/C start 2 >1, Earth fault start IN >1, fault location= 180.3km. MVAJ - 3 Phase. No load loss as cct V7B was in service. (LHR = 144.4MW).
- 7 16:51 – 17:12Hrs, Delta/Benin 330kV line (cct G3B) CBs tripped at both ends on the following relay indications:
At Delta T/S: Siprotec relay – Relay trip, Red Phase, zone 1 trip, E/F, PU time = 1ms, distance = 145km.
Optimho relay – zone 1, trip location = 14km, Phase A –N. Auxiliary relay – 85X2, Period = 50.5ms.
At Benin T/S: ABB relay – Trip-trip, trip – TRL1, PHS –STFWL1, PE DEF –block, fuse VTSZ, ZM2 & ZM3 –start ZC1P –CSL1, TOC –STL1, fault Loop, L1 –N, distance = 85.9km, Auxiliary MVAJ K86, lockout trip relay, carrier signal received 2. LHR = 87MW.
- 8 21:13 through 24:00Hrs, Adiorbor T/S 150MVA 330/132/33kV transformer T2 secondary CB tripped without relay indication. LHR = 27MW.
- 9 21:13 through 24:00Hrs, Adiorbor/Calabar 132kV line CB tripped at Adiorbor T/S without relay indications. LHR = 27MW.
- 10 21:13 through 24:00Hrs, Calabar T/S 60MVA 132/33kV transformer T4 primary CB tripped on E/F. No load loss as the transformer was on soak.

5 (C) PLANNED OUTAGES:-

- 1 12:30 - 16:15Hrs, Mando/Jos 330kV line (cct M2S) was taken out for maintenance crew to rectify the cause of stiffness of the line isolator Mechanism at Mando T/S. No load loss as cct A2S was in service.

5 (E) EMERGENCY OUTAGES:-

The under mentioned lines were opened on frequency control.

- 1 18:59 – 19:26Hrs, Ayede/Jericho 132kV line. Load loss = 30MW. Frequency was 48.85Hz.
- 2 18:59 - 19:35Hrs, Ayede/Ibadan North/Iwo/Iseyin 132kV line. Load loss = 70MW.
Frequency was 48.85Hz.
- 3 21:55 - 22:05Hrs, Osogbo/Akure/Ado-Ekiti 132kV line. Load loss = 59MW. Frequency was 49.68Hz.

5 (F) AUTOMATIC UNDER FREQUENCY OPERATION:- NIL

5 (G) 330KV LINES THAT ARE OUT ON VOLTAGE CONTROL:- ccts A1K, K4U, U1A & A1S.

5 (H) 330KV LINES THAT ARE OUT ON BREAKER PROBLEM:- cct N4J.

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

5 (J) 330KV LINES THAT ARE OUT ON LINE FAULT:- cct J2H

5 (K) 330KV LINES THAT ARE ON SOAK:- ccts F1K, N4J & B3D.

6 WEATHER REPORT:- Rainfall was reported at Benin.

7 INTERNATIONAL LINES:-

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

Maximum load - 273MW at 20:00Hrs.
Minimum load - 158MW at 02:00Hrs.

B BIRNIN KEBBI/NAMEY 132KV LINE

Maximum load - 103MW at 23:00Hrs.
Minimum load - 75MW at 08:00Hrs.

C KATSINA/GAZAOU/MARADI 132KV LINE

Maximum load - 38.0MW at 23:00Hrs.
Minimum load - 18.0MW at 02:00Hrs.

8 MISCELLANEOUS:-

- 1 01:17 – 13:37Hrs, Olorunsogo NIPP GT2 was shut down due to low load demand by the discos. Load loss = 70MW.
- 2 02:12 – 11:19Hrs, Rivers IPP GT1 was shut down due to low load demand by the discos.
Load loss = 85MW.
- 3 11:24Hrs, Alaoji NIPP GT2 was tied. The unit was out due to low load demand by the discos.
- 4 17:11Hrs, Azura Edo GT12 was tied. The unit was out due to low load demand by the discos.
- 5 19:31Hrs, Afam VI GT12 was tied. The unit was out due to low load demand by the discos.

6 19:33Hrs, Delta GT20 was tied. The unit was out due to low load demand by the discos.

**** **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.**

5(D) URGENT OUTAGES:-

1 14:19 - 15:06Hrs, Ikeja West T/S 150MVA 330/132kV transformer T3 primary CB was taken out by control on emergency due to fire outbreak on the control cable in the switchyard. Load loss = 76MW.

9 GENERATOR MERIT ORDER BASED ON SYSTEM RESPONSE AND GRID RELIABILITY

GROUP 1 - HYDRO UNITS (LEAST COST) ON FREE GOVERNOR CONTROL AND ANCILLARY SERVICE.

GROUP 2A - UNITS FROM ODUKPANI, AZURA, SHELL AFAM VI, AGIP OKPAI, OLORUNSOGO POWER PLC AND OMOTOSHO POWER PLC.

GROUP 2B - OTHER GENERATING UNITS IDENTIFIED TO BE ON FREE GOVERNOR CONTROL.

GROUP 3 - OTHER UNITS IDENTIFIED TO BE OFFERING REGULATORY RESERVE.

GROUP 4 - OTHER UNITS OFFERING SPINNING RESERVE (THE POWER PLANTS CONTRACTED FOR THE ANCILLARY SERVICE).

GROUP 5 - ALL PLANTS DISPATCHED SUBJECT TO TRANSMISSION CONSTRAINT (NOT YET IDENTIFIED).

GROUP 6 - ALL PLANTS PROVIDING VOLTAGE SUPPORT ABOVE STATUTORY LIMIT (NOT YET IDENTIFIED).

10 COMMUNICATION MEDIA

STATIONS	NO INSTALLED	NO. WORKING
PLC/PAX	37	28
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	87	15

12(A) UNAVAILABLE TRANSFORMERS/REACTORS:

SHIRORO REGION:

1 Birnin Kebbi 75MX Reactor R1.

ABUJA REGION

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

KADUNA REGION:

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

BAUCHI REGION:

1 Gombe T/S -30MX Reactor R2A.

ENUGU REGION:

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

LAGOS REGION:

1 Oke-Aro T/S: 75MX Reactor R1.

PORT HARCOURT REGION

1 Ikot-Ekpene T/S: No available reactor.

12 (B) UNAVAILABLE BREAKERS/ISOLATORS

LAGOS REGION:

1 Akangba T/S. 132kV Bus Coupler CB - Serious Air leakage.(Undergoing repair)

2 Egbin/Aja 330kV line 2 (cct N4J) - faulty breaker at Aja T/S

3 Otta/Ogba 132kV line isolator - defective control shaft.

12(D) UNAVAILABLE CAPACITOR BANK:

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

12(E) UNAVAILABLE SKYWIRES

LAGOS REGION

1 Omotosho/Ikeja West line (M5W) and Egbin/Ikeja West line 3 (N6W) - 21 spans.

2 Ikeja West/Olorunsogo line (cct R1W) - 80 spans.

3 330kV Ikeja West/Osogbo line. - 95 spans.

4 Ikeja West/Alimosho/Ogba 132kV lines 1 & 2 - 15 spans.

5 Ikeja West/Akangba 330kV line 2 - 1 span.

6 Ikeja West/ Ilupeju 132kV lines 1 & 2 - 8 spans.

7 Akangba/Itire 132kV lines 1 & 2 - 1 span.

8 Ikeja West/Agbara 132kV lines 1 & 2 - 61 spans.

9 Ikeja West/Otta 132kV lines 1 & 2- 17 spans.

SHIRORO REGION

1 Jebba T/S 330kV Osogbo lines 1 & 2 and Ganmo line - 9 spans

2 Minna T/S 132kV Bida line - 32 spans

3 Shiroro T/S 330kV Jebba line 2 - 28 spans

ABUJA REGION

- 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.

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

12 (F) UNAVAILABLE SYNCHROSCOPES :

- 1 Benin, Ikeja West, Onitsha, Egbin, Uguwaji, Jos, Gwagwalada & Alaaji 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

