

COMMUNIQUE OF BI-ANNUAL JOINT OPERATIONS, GENERATION AND DISCOS PLANNING MEETING HOSTED BY TCN HEAD QUARTERS, ABUJA ON 17TH & 18TH MARCH 2021.

The Bi-Annual Joint Operations, Generation and Discos Planning meeting was held as indicated above. The following highlights and recommendations have been put forward for Stake-holders' consideration and implementation.

S/N	ISSUES	ACTION
1A	<p><u>INTRODUCTION</u></p> <p>The meeting reviewed generation data in terms of units' availability, water inflow into the reservoirs, transmission system/network challenges and relative availability of gas supply in the last plan period (March 2020 – February 2021).</p> <p>A summary of appraisal of generation in the period under review is presented below. Machine unavailability, water and gas supply constraints as well as low load utilization by DISCOs especially between March 2020 – February 2021 posed challenges to generation and caused appreciable shortfall in total output to the National Grid.</p> <p>In addition, Transmission Network management challenges and load rejection by DISCOs are key issues that affected performance. Furthermore, maintenance constraints, ageing and inadequate infrastructures were major issues highlighted by many Transmission Regions, Generating stations and general liquidity challenges.</p>	All stakeholders

B**Appraisal of Peak Generation (MW) in the last plan period
March 2020 – February 2021****MONTHLY NATIONAL DEMAND FORECAST, PROPOSED PEAK
AND ACTUAL PEAK GENERATION (March 2020 – February
2021)**

MONTH	NAT. DEMAND FORECAST (MW)	PROPOSED PEAK (MW)	ACTUAL PEAK (MW)
MAR. 2020	27890	5685	4803.
APR. 2020	28880	6236	5316.4
MAY 2020	28570	6675	5295.
JUN. 2020	28290	6704	5173.4
JUL. 2020	28010	6744	5271.7
AUG. 2020	28290		5420.3
SEPT. 2020	28450		5195.4
OCT. 2020	28570		5520.4
NOV. 2020	28730		5517.2
DEC. 2020	28850		5504.2
JAN. 2021	19798		5584.4
FEB. 2021	19798		5615.4

All
stakeholders**1C****Peak Generation Forecast (MW) for the Current Plan Period
(March 2021 – August 2021)**

Having reviewed the previous plan and based on current situation in the face of instability in areas of gas, hydrological inflow, machine availability, transmission lines and infrastructure reliability, the following generation profile has been projected for the next six (6) months.

MONTH	NAT. DEMAND FORECAST (MW)	AVERAGE NAT. DEMAND FORECAST (MW)	PROPOSED PEAK GENERATION (MW)
March	19798	15838	5842.4
April	19798	15838	6010.1
May	19798	15838	6329.1
June	19798	15838	6050
July	19798	15838	6880.6
August	19798	15838	6980.1

All
stakeholders

<p>2 A</p> <p>B</p>	<p><u>GRID INSTABILITY</u></p> <p>In the period under review (March 2020 – February 2021), a total of four (4) system collapses occurred; three (3) total and one (1) partial collapse.</p> <p>Transmission circuits and generating units tripping were the major causes of these system disturbances. In view of this, the meeting recommends proper maintenance of transmission lines, distribution feeders and generating units.</p> <p>The constant overloading of the Omotosho – Ikeja West 330kV line (cct M5W) causes grid instability, hence the urgent need for a second transmission line.</p> <p>There are some switchgear equipment in Olorunsogo TS that require urgent attention and repair to enhance grid stability.</p> <p>The period under review had improved grid stability when compared to what we had prior to May 22nd 2017 when implementation of free governor control mode on all generating units were deployed, however the formation of Taskforce on frequency compliance by the MD/CEO of TCN significantly helped in frequency stability and safety of generators within the appraisal period.</p> <p><u>Gas supply</u></p> <p>The meeting observed that there was substantial deficit in gas supply during the period under review. This resulted in generation short fall from Thermal plants which mostly affected power plants without an effective Gas Supply Sales Aggregation Agreement (GSAA) and Gas Transportation Agreement (GTA).</p>	<p>GENCOs, DISCOs, MD/CEO (TCN)</p> <p>TCN</p> <p>TCN</p> <p>NGPTC, GENCOs FMoP</p>
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<p>3A</p> <p>3B</p>	<p><u>REHABILITATION/REPLACEMENT OF BREAKERS AND ISOLATORS IN THE GRID</u></p> <p>The meeting recommends that the TCN Management should embark on rehabilitation/replacement of faulty 330kV and 132kV circuit breakers and isolators in all 330kV and 132kV stations.</p> <p>Other breakers also in urgent need of rehabilitation or replacement include the following:</p> <ul style="list-style-type: none"> (i) Omotosho phase I 330kV T/S – Tie breakers. (ii) Omotosho T/S 3322 CB trip coil motor in the switchyard is burnt. (iii) Omotosho T/S 3373 CB spring charging motor, control and protection card requires replacement. (iv) Rehabilitation of aged/defective isolators and circuit breakers in the 330kV Olorunsogo switchyard to include the line breakers 3343, 3322 & 3323. (v) Replacement of faulty Turn-in-Turn-Out CB at Konar-Dangora 132kV TS. (vi) Ikeja-West T/S 2# 330kV Tie CBs. (vii) Oke-aro T/S 1# 330kV Tie CB. (viii) Ajaokuta T/S 30MX shunt reactor breaker. (ix) Adiabor T/S 150MVA 330/132kV Transformer T1. (x) Provision of station service transformer at Ikot-Ekpene TS and expedite installation of the reactors at Ikot-Ekpene, Ugwuaji and Markurdi T/S. (xi) Need to Install shunt reactors at Gwagwalada 330kV T/S (xii) Benin 75MX Shunt Reactor 6R1, sharing common primary breaker with 150MVA 330/132/33kV Transformer 6T1 should be unbanked (the breaker to be separated). (xiii) Egbin T/S CB 52-4,8 & 11 are bad and need replacement. (xiv) Replacement of the 330kV/132kV Inter-bus transformer at Delta T/S. (xv) Need to install shunt reactor at Ganmo 330kV T/s. <p>The meeting acknowledged TCN Management’s commitment in repairing some of the faulty breakers. However, there is the need to speedily complete all on-going projects.</p>	<p>MD/CEO (TCN) ED (TSP)</p> <p>MD/CEO (TCN)</p>
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<p>4</p>	<p><u>SCADA/EMS</u></p> <p>The World Bank/PMU SCADA Projects presently in use at NCC covers only the Legacy stations. A lot of TCN, NIPPs, and IPP projects have since come on stream. The integration of these projects in the SCADA/EMS requires the interfacing of the associated communication systems with the existing communication infrastructure in TCN.</p> <p>For effective and efficient energy management, system monitoring and control, the SCADA/EMS facilities at NCC and the Regional Control Centres covering the entire nation should be made functional as soon as possible.</p>	<p>MD/CEO (TCN) FMoP</p>
<p>5 5a.</p>	<p><u>SPINNING RESERVE FACILITIES IN TRX/ GEN. STATIONS</u></p> <p><u>Spinning Reserve</u></p> <p>During the period under review, NO power plant provided any spinning reserve. TCN is advised to embark on procurement of spinning reserve from power stations for improved system stability.</p>	<p>MD/CEO (TCN) /NERC/GENCOs</p>
<p>5b.</p>	<p><u>Primary Frequency Responsiveness</u></p> <p>The meeting encouraged all other GENCOs who have not placed their units on frequency responsive mode (4% droop setting) to do so immediately as this will help sustain a more reliable, secure and stable Grid.</p>	<p>GENCOs</p>
<p>6</p>	<p><u>GRID EXPANSION:</u></p> <p>The grid expansion aimed at securing a smooth operation and quality power delivery should be pursued with utmost vigor by fast-tracking the completion of the under listed proposed and on-going projects:</p> <ol style="list-style-type: none"> 1. Onitsha/Obite/Owerri 330kV DC 2. Alagbon/Ijora/Akangba 330kV DC 3. Osogbo/Akure/Benin 330kV DC 4. Afam/Onne 330kV line 5. Akwanga/Abuja 330kV DC 6. Alaoji/Owerri/Nnewi/Onitsha 330kV DC 7. Kaduna/Jos 330 kV line II 8. Kaduna/Kano 330 kV Line II 9. Delta/Onne 330 kV line 10. Ikot Abasi/Ikot Ekpene 330 kV DC 11. Ikeja-West/Sakate 330kV line 2 	<p>MD/CEO(TCN) MD NDPHC</p>

12. Ajaokuta/Ihovbor 330kV line
13. Ihovbor/Agbor 132kV DC
14. New Haven/Nsukka/Ayangba/Ajaokuta 132kV DC
15. Abakaliki/Ikom/Ogoja 132kV DC
16. Umuahia/Mbano 132kV DC
17. Okigwe/Orlu/Mbaise and Egbema 132kV TS
18. Yenagoa/Omoku 132kV line
19. Ganmo/Ogbomoshosho 132kV line
20. Onitsha/Ihiala 132kV line
21. Oke-aro/Alausa/Ogba 132kV line
22. Makeri/Pankshin 132kV line
23. Benin/Omotosho(B5M) 330KV line
24. Omotosho/Okitipupa 132KV line

The meeting also recommends the upgrading of the following 132kV lines to higher thermal rating due to old age and under rated size of conductor for more load evacuation to the load centers:

1. Ayede/ Mcpherson/Sagamu/Ijebu-Ode,
2. Alaoji/Owerri,
3. Delta/Effurun,
4. Afam-PortHarcourt lines,
5. Itu-Uyo line
6. Uyo-Eket lines.
7. Ajaokuta/Itakpe/Okene/Okpella/Irrua,
8. Karu/Keffi/Akwanga
9. Osogbo/Akure.
10. Aba/ Itu/Calabar
11. Kumbotso/Dan-Agundi
12. Kumbotso/Dakata
13. Gombe/Biu/Damboia/Maiduguri
14. Osogbo/Ilesha/Ife

The following projects under construction equally require urgent completion. They are:

- a. Afam/Ikot Ekpene 330kV lines.
- b. Complete the installation of 100MVA and 300MVA Power transformers at Egbin T.S.
- c. 132/33Kv Transmission Substation at Biliri-Gombe Area Control Centre.
- d. Installation of 1 × 150MVA 330/132KV Transformer at Jos T/s.

	<p>e. Reconducting of Onitsha-New Haven 330KV single circuit line.</p> <p>f. Installation of 1 × 150MVA 330/132/33KV transformer at New Haven 330KV Ts.</p> <p>g. Installation of turn-in/turn-out on 132kV Delta/Benin line at Amukpe 132kV T/S.</p> <p>Power and current meters on 330kV ccts J3R, J7R, R1M and R2M are defective and make data collection at North South Power Limited (NSPL) very cumbersome.</p> <p>Recommendation is hereby made to replace the faulty power and current meters at NSP control room and provision of energy meters at Jos T/S on the Kaduna - Jos and Makurdi/Jos line 1 & 2 330kV lines.</p>	
<p>8</p>	<p><u>UPGRADING/REHABILITATION OF TRANSFORMERS AND LINES</u></p> <p>The meeting commended the effort of TCN Management in upgrading some overloaded transformers in the system. It is however recommended that TCN Management should not relent in her effort to upgrade the remaining transformers in various stations and reinforce transmission lines in view of the improving power generation to enhance delivery of power supply to customers across the nation.</p> <p>Upgrading the existing 40MVA 132/33kV Transformer T1 at Konar-Dangora TS to avoid limitation as a result of transformer overloading.</p> <p>Upgrading the existing 2X60MVA 132/33kV transformers at Effurun TS to 2X100MVA.</p> <p>Replacement of 330/132KV inter bus transformer at Delta Ts which is affecting generation in delta 2 & 3. Benin Ts 132/33KV T21-60MVA transformer and T22 60MVA transformer at Effurun T/S.</p> <p>There is need for a station service transformer to be installed at Ikot Ekpene 330KV T/S. This is to provide the station with station auxiliary instead of depending on the Disco for supply.</p> <p>There is also the need for double circuiting of the following lines that</p>	<p>MD/CEO TCN</p>

	<p>are already being loaded beyond their thermal capacity:</p> <ol style="list-style-type: none"> 1. T4A 330kV line from Alaoji to Onitsha 2. Osogbo/IIesa/Ife 132kV line 3. 330kV Jos/Gombe line 4. 330kV Kaduna/Kano line 	
7	<p><u>GANG OPERATION OF SYSTEM EQUIPMENT</u></p> <p>Individual (separate) Circuit Breakers should be provided for system Reactors which presently share CBs with loaded transformers. This is to minimize the interruptions usually encountered when there is need to switch on or off the reactors especially in Jebba, Kaduna and Benin T/S.</p> <p>Equally, all CBs controlling two or more lines or equipment should be unbanked for proper system operation.</p>	MD/CEO (TCN)
8	<p><u>POWER EVACUATION CHALLENGES</u></p> <p>Power evacuation, especially in the Eastern axis, is observed to constitute great challenges as bulk power is usually stranded within the region mainly due to lack of adequate line capacity to evacuate Ibom and Gbarain Power generation.</p> <p>The Adiator-Itu 132kV line has been out of operation for reconductoring for more than a year now and is yet to be completed. There is load limitation of more than 100MW on Aba/Itu 132kV line. This calls for urgent attention.</p> <p>Replacement of burnt relay/control room at Afam V 330kV T/S to enable the evacuation of power from 2 X 138MW GT19 and GT20 Afam V GS units.</p> <p>Replacement of damaged Benin/Delta 132KV towers (No 41 & 42) and 150MVA 330/132KV inter bus transformer at Delta Ts that has excluded Delta 132KV and Effurun 132KV Ts from the national grid is highly recommended. Also Delta/Benin 132KV line need to provided with a turn-in/turn-out capability to enable reliable supply of power to Amukpe 132KV T/S.</p>	MD/CEO TCN
9	<p><u>LOW LOAD UTILIZATION BY DISCOs</u></p> <p>The meeting observed that the current load management practiced</p>	

	<p>by DISCOs has negatively impacted on Grid stability and power evacuation.</p> <p>DISCOs are therefore encouraged to comply with the planned load forecast for the next six months.</p> <p>The meeting also requested that the DISCOs submit their updated contact persons (name, email address and phone numbers), their future expansion projects and network Single Line Diagrams (SLDs) to the Transmission ROCs before the next meeting.</p>	MD CEOs DISCOs
10	<p><u>RECRUITMENT/TRAINING OF PLANT AND SYSTEM OPERATORS</u></p> <p>The meeting observed that the operators in the system are being reduced on daily basis through retirement. In the recent past the meeting noted that some operators were recruited, which is commendable. However, adequate efforts should be put in place for more recruitment, continuous training and provision of adequate personal protective equipment (PPE) to staff.</p> <p>There is the need for a minimal qualification and basic certification for all operators in the system.</p>	MD/CEOs TCN, NAPTIN NIPP, IPP & GENCOs
11	<p><u>NEED FOR EFFECTIVE COMMUNICATION ON THE GRID</u></p> <p>The meeting discussed the effectiveness of communication in the system and noted that communication is not reliable in most stations. It is therefore recommended that adequate communication facilities like PLC, Hotline, PLS, Radio, Optic Fibre, internet and VOIP facilities be provided in all stations to connect NCC, GENCOs, DISCOs and all 330kV and 132kV Transmission sub-stations. In fact, virtually all Regions require effective communication equipment.</p> <p>The meeting was informed about the lingering challenges regarding internet communications in the Grid network. In view of this, it was highly recommended that urgent installation of VSAT at all RCC stations and strengthening of existing internet facilities at the GENCOs and DISCOs be provided for effective online communication.</p> <p>The need for urgent completion of the ongoing fibre optic projects on</p>	MD/CEO TCN, NDPHC GENCOs

	<p>Kaduna – Jos and Jos – Gombe 330kV lines was emphasized in the meeting. It was therefore strongly recommended that the TCN Management should endeavour to expedite action on completion of these projects.</p> <p>It was emphasized that TCN should provide the DISCOs with access to adequate meter data for preparation of market report. While effort is put in place for Automated meter reading (AMR) across all metering infrastructure.</p>	
<p>12</p>	<p><u>HIGH/LOW VOLTAGES IN THE SYSTEM</u></p> <p>The High/Low voltage being experienced in parts of the system nationwide e.g. Kaduna, Katampe, Makurdi, Kano, Gombe, Benin, Jos, Shiroro, Omotosho, Ugwuaji, Ajaokuta, Gwagwalada, Ganmo, Sakete, Birnin-Kebbi, Ikot-Ekpene, Lagos Complex, Olorunsogo, Mubi, Wukari, Jebba Transmission and Afam should be addressed. Reactors, Capacitors, synchronous VAR compensators and other forms of FACTS compensation facilities should be installed or rehabilitated where they exist in the Grid. This will improve the voltage profile and reduce the load shedding in these areas.</p> <p>The Dorowa 33kV feeder radiating from Makeri TS in Jos is very lengthy (600km route length), hence experiences very low voltage at the tail end. There is need to expedite completion and commissioning of the Pankshin 2X30MVA, 132/33kV TS.</p> <p>There is poor voltage profile on Ashaka 132kV line radiating from Gombe T/S and the 132kV bypass to Ashaka. There is need to complete the construction of 2 Nos 132kV towers across the riverbank.</p> <p>Pronounced voltage imbalance amongst the three phases at 330kV voltage level is cascaded down to 132kV, 33kV and 11kV voltage levels in Jos Franchise states of Gombe, Bauchi, Plateau and Benue. The resolution agreed with TCN was to transpose the 330kV Enugu – Makurdi – Jos 330kV Double circuit.</p> <p>There is low voltage at Mubi ,Takum and Wukari axis there is need to prioritize the execution of the Mubi – Madagali 132kV project. There is also the need for urgent commissioning of Takum and Wukari 132/33KV T/S to allow for proper utilization of those investment.</p>	<p>MD/CEO TCN MD/CEO NDPHC</p>

<p>13</p>	<p><u>SECURITY CHALLENGES</u></p> <p>The meeting was informed that some power installations across the country are often invaded by restive youths, whenever there is prolonged power outage. The stations are often forced to shut down to avoid harm to staff operating in those stations.</p> <p>It is strongly recommended that relevant stakeholders should liaise with appropriate authorities and ensure the deployment of security personnel to such regions.</p> <p><u>INSURGENCY</u></p> <p>Security seriously needs to be beefed up and intensified in the North East, North West and North Central states. Possible incentives provided for operators in the affected areas.</p> <p><u>GENERAL INFRASTRUCTURAL CHALLENGES</u></p> <p>There is urgent need for the provision of station service transformer at Ikot-Ekpene switching station. Presently, the station runs on generator and public power supply.</p> <p>The HMI system in Omotosho, Afam VI, Olorunsogo NIPP and Odukpani TCN Control Rooms have been nonfunctional for quite a long time, making operations quite difficult. The meeting therefore recommends urgent action.</p> <p>There is need to complete the installation of 330kV CB on GT20 in Delta 330kV T/s.</p>	<p>All Stakeholders</p> <p>MD/CEO TCN</p>
<p>14</p>	<p><u>NEED FOR PROMPT SUBMISSION OF GENCO DAY AHEAD DECLARATION AND ANNUAL MAINTENANCE SCHEDULES TO NCC OSOGBO</u></p> <p>It was observed that some stations are not responding to the request for submission of Power stations Day ahead declarations and Annual Maintenance Schedule as expected. The meeting advises the management of Gencos to comply accordingly. Also, the outage plans of the DISCOs should be merged with that of TCN during Interface meetings.</p>	<p>All Stakeholders</p>
<p>15</p>	<p><u>NEED FOR FAMILIARISATION TOUR TO NCC BY GENCOs' OPERATORS AND VICE VERSA</u></p> <p>The meeting observed the need for GENCO operators to visit NCC</p>	<p>MD/CEO GENCOs MD/CEO TCN</p>

	<p>Osogbo to acquaint themselves with the role of NCC in operating the National Grid and vice versa. This will enhance their operation and enable them to appreciate the interface between the GENCOs and NCC.</p>	
<p>16</p>	<p><u>BI-ANNUAL MEETING HOSTING</u> The meeting agreed that a year hosting schedule is as follows: August 2021 – Azura Edo February 2022 – Pacific Energy</p>	<p>Secretariat</p>
<p>17</p>	<p><u>COMPOSITION OF MEETING</u> The meeting agreed that the composition of meeting should be expanded to include the following: GENCOs DISCOs TCN NBET Gas Companies NERC</p>	<p>All Stakeholders</p>
<p>18</p>	<p><u>POOR IMPLEMENTATION OF COMMUNIQUE</u> The meeting agreed on the need to constitute a committee to monitor and report progress on issues cited in the bi-annual communique report at the end of every meeting. The following persons were nominated as members of the follow up committee and are expected to work with all stakeholders in the Power industry for the adoption and resolution of issues raised in this communique. They are:</p> <ol style="list-style-type: none"> 1. Engr. Tunde Kareem – TCN(HQ)-ISO (08129458477, tunde_kareem2000@yahoo.co.uk) 2. Engr. Emmanuel Umoh-NCC (08033500292, uwemcas@gmail.com) 3. Engr. Lawal Aliyu- Kano Disco(08035958228, engrlawalakt@gmail.com) 4. Engr. Dahunsi Aderonke- P/H Disco(08038108765, aderonke.dahunsi@phed.com.ng) 5. Engr. John Onimisi – MELS (08029959593, john.onimisi@mainstream.com.ng) 6. Engr. Kubiati Ekereke – NIPP(Odukpani) (08035522490, sankubiati@yahoo.com) 7. Engr. Solomon Ekwueme – IPP(FIPL) (07036809538, 	<p>GM (SO)</p> <p>All Stakeholders</p>

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The communique deliverables should be appraised at every meeting.

The meeting is of the opinion that copies of the communiqué should be presented to all stakeholders and critical decision makers for timely implementation of decisions reached in the meeting. Distribution list should include:

19

- (i) Office of the Vice President.
- (ii) Honorable Minister of Power
- (iii) Permanent Secretary, Federal Ministry of Power.
- (iv) Chairman, NERC.
- (v) Chairman, Senate Committee on Power.
- (vi) Chairman, House Committee on Power.
- (vii) MD, Gas Companies
- (viii) MD/CEO, GENCOs.
- (ix) MD/CEO, DISCOs.
- (x) MD/CEO, NDPHC.
- (xi) MD/CEO, TCN.
- (xii) ED ISO.
- (xiii) ED TSP.
- (xiv) GM NCC.

ATTENDANCE

Attendance and active participation at this important planning meeting is mandatory for all GENCOs, DISCOs, Gas companies, TCN. This is in view of the fact that crucial decisions regarding grid operation and management are taken during deliberations in the meeting. All stations must be represented by at least two (2) persons.

20

The meeting was pleased to have representatives from Jos, Ibadan, Port Harcourt, Eko, Kaduna, Ikeja, Abuja, Kano and Yola DISCOs which is a remarkable improvement against previous year's record however, we still implore all other DISCOs to participate in future meetings.

All efforts should be made to persuade the other DISCOs and the gas companies to regularly attend/participate in this bi-annual meeting. Their attendance should be enforced by NCC, as all planning without

the cooperation of the DISCOs and other market participants will not support the actualization of our collective aspiration.

NCC should, during invitation for meetings, send the presentation formats to all participants along with the letters of invitation.

NEXT MEETING

The next meeting is tentatively to be hosted by Azura-Edo on 11th – 13th August 2021. And in February 2022 by Pacific Energy.

Done this day, 18th March 2021 at the Transcorp Hilton, Abuja.