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**DRAFT CONSULTATION PAPER ON THE TERMS AND  
CONDITIONS FOR ESTABLISHMENT OF AN INDEPENDENT  
SYSTEM OPERATOR (ISO)**

**May 2015**

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## 1. Background

The Nigerian Electricity Regulatory Commission (NERC) is an independent regulatory agency established by the Electric Power Sector Reform Act (EPSRA), 2005 which was inaugurated on 31st October 2005.

The Act provides the legal and regulatory framework for the Nigerian Electricity Supply Industry (NESI) in Nigeria. The Act empowers the Commission to regulate the electricity sector in the country, including Generation, Transmission, System Operations and Distribution and Retailing.

Sections 65 and 66 of the Act identify the Transmission Service Provider (TSP) and System Operations (SO) activities as two separate regulated activities which can be performed by the Transmission licensee. This is until the time when an Independent SO is established pursuant to Section 26(7) of the Act which provides:

***“At any time following the declaration of a substantially privatised market under section 24, the successor company identified in section 25 (b) may transfer the function of system operation to an independent system operator on such terms and conditions as the Commission may direct and on such transfer, the independent system operator shall be subject to the same powers and duties as have been imposed on the transferring successor company under this Act in relation to system operation.”***

Based on the above, the Commission is empowered to decide the terms and conditions for the transfer of functions of Market and System Operations to the Independent System Operation (ISO). Following the commencement of the Transition Electricity Market (TEM), the Commission considers the market ripe for the establishment of an ISO.

Preparatory to the establishment of an ISO, the Commission by an Order dated 31<sup>st</sup> day of May, 2012, and in line with the Terms and Conditions of the licence issued to the Transmission Licensee, requested the surrender of the Transmission licence to allow for the issuance of two separate licences for Transmission and System Operation. This action facilitated the ring-fencing of the functions of the SO and MO from TSP to forestall any interference by TCN in Market and System Operations.

Critically, reorganising TCN to enable the MO and SO operate as a separate entity i.e. an Independent System Operator, shows good practice, and will enable the system operate optimally and facilitate the achievement of the objectives of the Roadmap for Power Sector Reform of establishing a bilateral wholesale electricity market over the medium term.

This consultation paper aims at publishing a draft Order by the Commission that sets the timetable and activities ahead of establishing the ISO. This paper is divided into six parts; part 2 will state the role of the ISO with particular reference to what will be expected of the MO & SO. Part 3 covers the proposed model/scope of the ISO. Part 4 will identify all the resources needed, Part 5 will state the set up of the Board of the ISO and lastly Part 6 will highlight the issues for stakeholder input.

## **2. Role of the ISO**

Pursuant to the Market Rules, the ISO when established will be saddled with the responsibility of planning, coordinating, controlling and monitoring the Nigerian electricity transmission grid. It shall provide non-discriminatory and efficient system operation and market administration services to all Participants. In the discharge of its functions, the ISO shall comply with the provisions of the Act, Grid Code and Market Rules. The roles and responsibilities of the ISO will include both system and market operations.

### **2.1 System Operation**

The Independent System Operator shall be responsible for planning, dispatch and operation of the Power System and implementation of open access and new connections of equipment or loads in collaboration with TSP, to the Transmission System in line with the functions contained in the Grid Code, and its licence. To this end, the Independent System Operator shall:

- 2.1.1. Implement and enforce the Grid Code, and shall draft and implement such Operating Procedures as may be required for the proper functioning of the Power System;
- 2.1.2. Undertake system planning of both generation and transmission;
- 2.1.3. Implement and supervise open access to the Transmission System in collaboration with TSP;
- 2.1.4. Provide demand forecasts;
- 2.1.5. Undertake operation planning and maintenance outages;
- 2.1.6. Undertake dispatch and generation scheduling;
- 2.1.7. In the event that available Generation is not sufficient to satisfy all loads, schedule Energy allocated to each Load Participant;
- 2.1.8. Ensure Reliability and availability of Ancillary Services;
- 2.1.9. Undertake real time operation and SCADA system;
- 2.1.10. Undertake administration of system constraints (congestion), emergencies and system partial or total recovery; and
- 2.1.11. Undertake coordination of regional Interconnectors.

## ***2.2. Implementation of the Grid Code***

The Independent System Operator shall implement the Grid Code and may draft such Amendments thereto as may be required to:

- 2.2.1. guarantee efficient, predictable and non-discriminatory system operation service and open access to all Participants;
- 2.2.2. adapt the Grid Code to regional Wholesale Electricity Markets or Regional Interconnector Agreements;
- 2.2.3. improve the procedures including those for Demand forecast, planning and Dispatch in the system; and
- 2.2.4. maintain reliability and quality in the Power System.

## **2.3. Market Administration**

The ISO shall implement and operate the Market in a manner designed to:

- 2.3.1. guarantee an efficient, transparent and non-discriminatory market administration service to all Participants,
- 2.3.2. facilitate the development of a sustainable competitive Wholesale Electricity Market; and
- 2.3.3. adapt to regional Wholesale Electricity Markets or regional electricity trading agreements.

## ***2.4. Implementation of the Market Rules***

The ISO shall perform the following functions in relation to the Market Rules:

- 2.4.1. Implement the Market Rules, draft and implement any and all requisite Market Procedures;
- 2.4.2. Review the efficiency and adequacy of Market Rules and Market Procedures, and propose such Amendments as may be required to ensure their efficacy and adequacy;
- 2.4.3. Admit and register Participants;
- 2.4.4. Organise and maintain a Participants' Register;
- 2.4.5. Centralise the information required for market administration, and organise and maintain the related data base;
- 2.4.6. Verify that each Connection Point where a Participant injects or extracts Energy has proper commercial metering related to physical exchange of Energy and other necessary commercial transactions;
- 2.4.7. Calculate and recover Ancillary Service and must run Generation costs, when necessary;

- 2.4.8. Centralise and process commercial metering data;
- 2.4.9. Administer the Wholesale Electricity Market settlement process and Wholesale Electricity Market payment system;
- 2.4.10. Settle payments in respect of Ancillary Services and other costs of operating the system and administering the Wholesale Electricity Market;
- 2.4.11. Calculate and settle payments in respect of Transmission charges;
- 2.4.12. During the Transitional Stage:
  - a) Receive Contract information and maintain Contract Register;
  - b) Use forecast Load projections to prepare the Generation Adequacy Report; and
  - c) Calculate Contract Imbalance Quantities in aggregate, by Contract and by Participant, using Metered Quantities adjusted as necessary for losses in each month;
- 2.4.13. During the Medium Term Market:
  - a) Calculate Contract Imbalance Quantities, Uninstructed Imbalance Quantities and Instructed Imbalance Quantities in aggregate and by Participant - adjusted as necessary for losses in each and every Dispatch Period;
  - b) Determine the System Marginal Price for each and every Dispatch Period; and
  - c) Issue Invoices and arrange recovery and payments of charges for Imbalance Energy and Ancillary Services and the System Operation and Market Administration Charge from, and to, the Participants;
  - d) Such other functions as may be necessary following the evolution of the market.
- 2.4.14. Manage Wholesale Electricity Market billing including issuance of Invoices and operating the settlement and payment system in accordance with the Market Rules;
- 2.4.15. Recover the TUOS Charge from the Participants and remit it to TSP and other Transmitter(s), if any; and
- 2.4.16. Supervise Participants compliance with, and enforce the Market Rules and Grid Code.
- 2.4.17. Receive and validate Dispatch Nominations by Generators, and dispatch in accordance with the Grid Code;
- 2.4.18. Confirm and/or report on Generating Unit Availability;
- 2.4.19. Confirm and/or report on Generating Unit Start-up;
- 2.4.20. During the Transitional Stage, During the Medium Term Market, decide and order Market Suspension.

### **3. Scope**

Regarding the scope of the Independent System Operator, the Commission proposes that a “small ISO” model be adopted for the NESI. By this proposal, the small ISO will own the National Control Centre (NCC) and Regional Control Centres, and controls the live high voltage system, but will not operate the transmission substations. The substations will be operated by the TSP which will be responsible for the physical switching. If this position is adopted, the ISO will not have a direct physical interface with the distribution companies. It is important to understand that the ISO will require strict separation from the TSP and that the implementation of a small ISO will require organisational transfer of assets to TSP.

### **4. Resources**

The resources of the ISO will largely comprise human (or skills); financial; physical (including inventory); and information resources. In this regard, the Commission hereby recommends as follows:

- 4.1. The right candidates should be recruited to carry out the assigned duties of the ISO as prescribed by the EPSR Act 2005. These candidates should fill the gaps seen in the recent gap analysis in TCN during the ring fencing exercise.
- 4.2. The ISO should continuously engage in training needs analysis (TNA) for better performance of its staff as the business advances. This is important to ensure that staff skills and motivation are always aligned with the aims and objectives of the ISO.
- 4.3. Both new and existing staff should be re-oriented to be able to take up their new assignments under the restructured TCN.
- 4.4. The ISO may operate in a separate building from TSP. This is important for the ISO to be recognised as a separate legal entity from TSP and to reduce inappropriate contact.
- 4.5. Boundaries should be set out and communicated clearly for the staff of the ISO and TSP. Both parties are encouraged to respect each other’s jurisdiction.
- 4.6. Equipment that will be moved to the ISO will be determined by the decisions made by the existing TCN Equipment Review Panel (ERP) exercise that is ongoing alongside the TCN ring-fencing exercise.
- 4.7. A good communication strategy that will identify communication protocols should be set up by the ISO to ensure that information within it is well managed.
- 4.8. Market data held by the TSP/MO/SO should be tidied up and integrated to be part of the ISO appropriately.
- 4.9. The ISO is expected to maintain data as concerns the sector and make such data/information available to the public.

## 5 Set Up of Board

Having considered different models of ISOs obtainable internationally and best practice, the Commission suggests that the ISO should be a not-for-profit institution owned by market participants (to include Discos, Gencos, Transmission, large users, eligible customers, traders (particularly on interconnectors), who would be issued shares upon its establishment. The following are proposed guidelines for the setting up the ISO board:

- 5.1 *Subject to the provisions of Section 245 of the Companies and Allied Matters Act, 2004, Directors should be appointed to oversee the activities of the ISO.* This Board shall begin to oversee the operations of the ISO within TCN until complete separation is achieved.
- 5.2 The Board should provide directions and governance for the ISO and establish a practice of quasi-independent operation, while respecting the formal authority and responsibilities of the TCN board. The TCN board should support and facilitate this arrangement.
- 5.3 The ISO Board should be nominated by the future owners, and shall become the formal board upon establishment of the ISO.
- 5.4 The Board should represent the interest of future owners and support the existing TCN board in fulfilling its proper and on-going functions, while ensuring that the SO and MO functions are carried out properly and efficiently in the interests of market participants and system users.
- 5.5 The Board should oversee and support the on-going work within the ISO; promote the ISO's visions, values and mission which includes safeguarding its independence; approve strategies, business and action plans and budgets on behalf of the ISO (within delegated authority, or subject to approval of the TCN board)
- 5.6 Upon completion of the separation of the ISO from TCN, the board shall become the independent board of the ISO
- 5.7 The ISO board should consist of a representative(s) from every market participant category, with the board member(s) being elected to represent their constituency by the shareholding members of each category
- 5.8 Each shareholder should have an equal vote in the elections of board members
- 5.9 The Commission will appoint an independent representative to be on the Board
- 5.10 Board membership should be balanced so that no market class can dominate activities and decision making.
- 5.11 New Entrants into the market should be accommodated through an annual procurement process which could be open to existing members.



## 6. Some Issues for stakeholder discussion

### 6.1. Declaration of a substantially Privatized Market:

S. 24 of the Electric Power Sector Reform (EPSR) Act 2005 mandates the National Council on Privatization (NCP) to privatize the PHCN successor electricity companies. The section provides:

*“The National Council on Privatization may, at any time and by such means as it deems appropriate, begin the process of privatization of the successor companies that are holders of generation, distribution licences or a transmission licence, in accordance with the provisions of the Public Enterprises (Privatisation and Commercialization) Act.”*

The provisions of sections 25(e)(i), 25(f)(i) and 26(7) are basically on **the declaration of a substantially privatized market**. The implication of this is that upon the completion of its mandate under S. 24 of the EPSR Act, a declaration of a substantially privatized market is to be made. However, the EPSR Act is silent on who should make such a declaration. The declaration is essential because it is a condition precedent for certain activities to be conducted within the Nigerian Electricity Supply Industry (NESI) such as contracts arrangement or selling of ancillary services between Independent Power Producers (IPPs) and Nigerian Bulk Electricity Trading Company Plc, Distribution Companies and Eligible Customers as well as the establishment of an Independent System Operator (ISO).

6.2. **Scope:** is there a better option than the suggested small ISO that will suit better in the NESI.