

# TCN PRESENTATION (MO BALANCING MECHANISM)



Presented by:

**UG. MOHAMMED**

INTERIM MD/CEO, TCN

Date: 23<sup>rd</sup> August 2017

Venue: TCN Auditorium

# POLICY DECLARATION BY HMPW&H- (ELIGIBILITY STATUE)



## **OBJECTIVE:**

The policy is aimed at achieving the following for the industry:

1. Capacity and load growth
2. Improving Market Liquidity

## **STRATEGY:**

Allow for power purchase by Eligible Customers from Generators with uncontracted Capacities through bilateral contracts.

## **REQUIREMENTS:**

For this policy to be effectively implemented at this stage of the Market, the following are required:

1. Development of Balancing Mechanism by MO and participants, to be approved by the Commission
2. Amendment of the MR to allow for Bilateral Contract at this stage of the Market.(MR sections 20.1.4&20.1.5)

# SCENARIOS FOR SUPPLYING THE ELIGIBLE CUSTOMER



The Eligible Customer under this policy can be supplied through the following 5 scenarios:

## 1. **DIRECT**

A Generator is either embedded in the Customer's premises or has built the connection line.

## 2. **SUPPLY THROUGH DISCO NETWORK:**

A Generator supply an Eligible Customer through a Disco network. Two things are possible;

- a. Generator pay Disco for using it's network(through DUOSC Agreement)
- b. Disco can enter in to contract with a Generator to supply Customers or cluster of customers with in it's franchise

# SCENARIOS CONTINUED



## 3. SUPPLY FROM THE POOL THROUGH DISCO NTW:

An Eligible Custom is fed from the Pool through Disco network. These are the possibilities;

- (a) Generator pay Disco and TSP for using their network (through TUOSC and DUOSC Agreement).
- (b) Disco can also participate by entering in to contract with a Generator to supply a customer or cluster of Customer with in it's franchise

## 4. SUPPLY FROM THE POOL:

This apply only to Eligible Customer on 330kV and 132kV levels. The Generator pay TSP for using it's network (through TUOSC Agreement).

## 5. SUPPLY BY GENERATOR TO 330kV OR 132kV CUSTOMER:

The 330kV or 132kV customers taking supply direct from a Generator.

# IMBALANCES DUE TO ENERGY DIFFERENCES



Energy differences may arise when:

1. A Generator is un able to deliver contracted quantities.(-ve imbalance)
2. An Eligible Customer un able to take generated contracted quantities.(+ve imbalance)

The MR section **20.1.5** says MO and Participants should develop the balancing mechanism required to deal with the energy differences under this arrangement.

Sections **29.3.1(f)** and **29.3.2** went further to show how the balancing should be done.

**Note**: No balancing is required if Generator deliver contracted quantities and Customer take the full contracted quantities.

## EXAMPLE OF BALANCING MECHANISM

### SCENARIO: SUPPLY THROUGH THE POOL USING DISCO NETWORK

#### (A) ASSUMPTIONS:

- i. ELIGIBLE CUSTOMER –E
- ii. CONTRACTED CAPACITY -20MW
- iii. GENERATOR –G
- iv. DISCO –K
- v. -10 INTERRUPTIONS/month(FORCE MAJUERE)/ 30 hrs duration/month
- vi. 80% CAPACITY FACTOR

#### (B) CALCULATIONS (SHORTFALL ENERGY)

- i. EXPECTED ENERGY/ANNUM =  $20 \times .8 \times 1000 \times 730 \times 12 = 140,160,000 \text{ kWh}$
- ii. FORCE MAJUERE ENERGY /ANNUM =  $15 \times 1000 \times 30 \times 12 = 5,400,000 \text{ kWh}$

## EXAMPLE OF BALANCING MECHANISM

- iii. METERED ENERGY =  $14 \times 1000 \times 730 \times 12 = 122,640,000$  KWH
- iv. DELIVERED ENERGY =  $122,640,000 + 5,400,000 = 128,040,000$  KWH
- v. ENERGY SHORTFALL =  $140,160,000 - 128,040,000 = 12,120,000$  KWH
- vi. LIQUIDATED DAMAGE PAYMENT

(a) FROM G TO MO=

Energy shortfall x Liquidated damage charge (should be higher than the average retail charge)

$$= 12,120,000 \text{ KWH} \times \text{N}35/\text{KWH}$$

$$= \text{N}424,200,000$$

### NOTE:

1. Eligible Customer(E) has taken supply from the pool to make up for the difference
2. MO pay the Generators that supplied the difference energy



## EXAMPLE OF BALANCING MECHANISM cont'd

### C. GENERATION BY-G > DEMAND BY-E

Generation from other Gencos – Z KWH

Consumption by all Disco – M KWH, where  $M \text{ KWH} > Z \text{ KWH}$

Extra Energy Supplied to the Grid =  $M \text{ KWH} - Z \text{ KWH} = N \text{ KWH}$

- Payment by (Discos and E) =  $N \text{ KWH} \times (\text{retail price} + \{N35/\text{KWH} - \text{retail price}\})$

### NOTE:

Payment under the balancing mechanism to be first line charge





Thank you