

GRID METERING DATA ADMINISTRATION IN NESI AND ISSUES

Presented by

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METERING STATUS

*ADEQUATE COMMERCIAL METERING FOR TRADING DURING TEM HAD BEEN ACHIEVED BY THE MO. OUTSTANDING METER REPROGRAMMING FOR THE PURPOSES OF AMR IS ON-GOING IN THE FIELD.

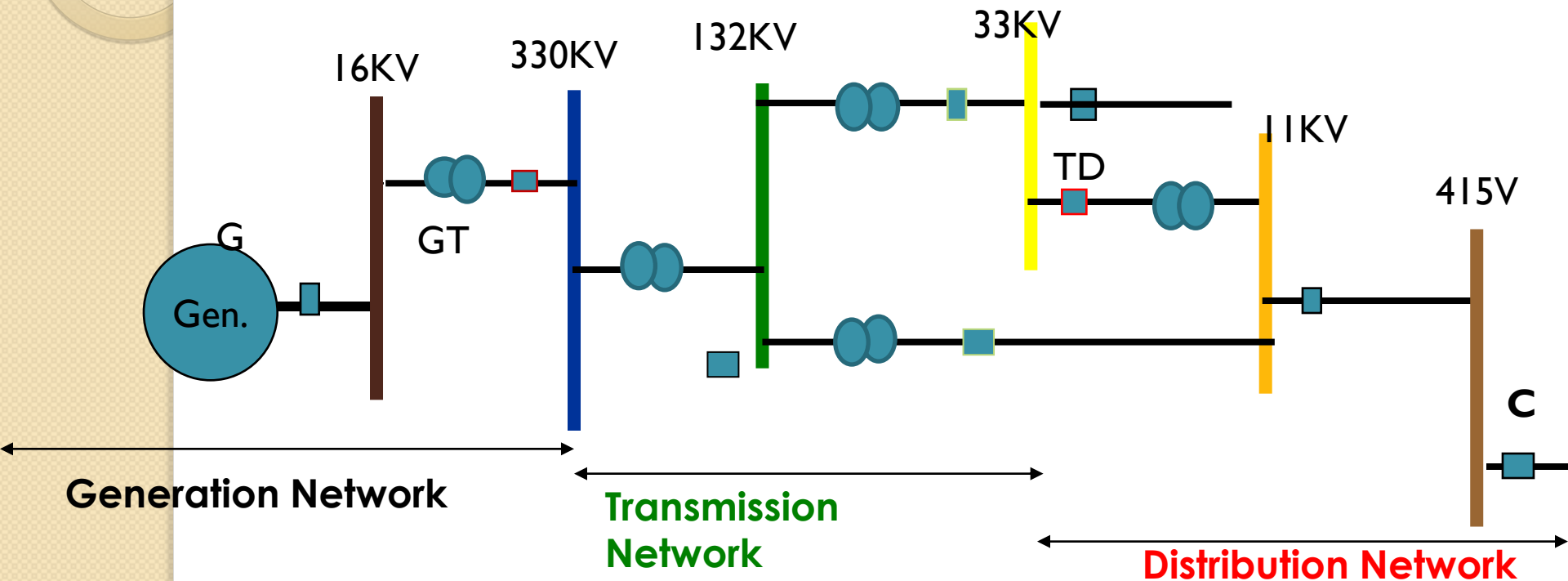
*ALL TRADING POINTS ARE METERED AND ARE CURRENTLY READ FOR MONTHLY ENERGY AUDIT AND BILLING

*THE MO CONSTANTLY REQUIRE ONLY SPARE ENERGY METERS TO TAKE CARE OF ANY NEW METERS BEING INSTALLED AND FAULTY ONCE TO BE REPLACED.


METER LOCATIONS: TRX/DISCO

- TRADING POINT METERS ARE LOCATED AT BOTH THE **TF INCOMER** TO THE BUSBAR AND THE **FEEDERS** WHICH RADIATE FROM THE BUS, ALL OF WHICH ARE LOCATED IN THE TRANSMISSION SWITCH-YARD.
- BY THE METERING MARKET PROCEDURE, THE MO ASSUMED THE OUTGOING FEEDERS AS THE TRADING POINTS FOR OBVIOUS TECHNICAL REASONS (SUBSTATION CONTROL, LOSSES ON THE BUS AND ASSOCIATED LINE COMPONENTS LIKE ISOLATORS AND BREAKERS).
- THIS ASSUMPTION RUN CONTRARY TO THE METERING CODE WHICH PUT THE TRADING POINT AT THE TRANSFORMER INCOMER FEEDER, WITHOUT CONSIDERING THOSE TECHNICAL REASONS ADVANCED BY THE MO

GRID NETWORK SINGLE LINE DIAGRAM



KEY:

- GT** – Generation/Transmission Interface
- TD** – Transmission/Distribution Interface
- C** – Customer interface
-  – Metering points

METER LOCATION CONT.

- BOWING TO THE ARGUMENT BY THE TSG/NERC, THAT THE RULE MUST BE FOLLOWED (METERING CODE) **WRONG** OR **WRITE**, THE MO NOW WOULD WANT TO REVERT TO THE METERING CODE SPECS, TAKING THE INCOMER METERS AS THE TRADING POINTS, WHILE THE OUT-GOING FEEDER METERS BECOME THE CHECK METERS.
- THIS WILL, ACCORDINGLY, BE CHANGED IN THE “**METERING MARKET PROCEDURE**”.
- **NOTE:** ALL INCOMERS AND THE FEEDERS HAVE METERS INSTALLED ON THEM, EXCEPT WHERE ARE NEWLY INSTALLED TRANSFORMERS AND FEEDERS, WHICH ARE TAKEN CARE-OF AS SOON AS WE ARE INFORMED.

WHY MO SUGGESTS USING FDRS AS TRX/DIX TRADING POINTS

- The Market Operator observes there are obvious TSP's operations by the field staff which have been dealing a devastating blow to the Market Operation's effort at accurately capturing and accounting for all energy generated and evacuated by the TSP through the grid to the DISCOs
- Recall that the interface between the TSP and any Distribution Company is defined as the low voltage bushing of the 132/33KV step-down transformer located within the Transmission sub-station yard. **Recall, all the line components ranging from the circuit breakers, isolators, current transformers, voltage transformers, the cablings, etc are owned and maintained by TSP.**
- The trading point energy meters belonging to both the TSP and the Distribution companies are installed at the electrical panel inside the TSP's control rooms. These facts make it obvious that the TSP has an overwhelming influence on the performance of the Trading Point Meters and Transmission Loss Factor (TLF).

TSP's OPERATIONAL IMPACT ON ENERGY METERING

- Each time the PC&M staff carries out any maintenance that requires feeder line outage, the operation of that trading point energy meter is affected, energy flow is affected;
- Each time the Current Transformer (CT) of any feeder goes faulty or upgraded, the energy flow through the energy meter is disrupted ;
- Each time a new Transformer is commissioned and feeders radiated without informing the MO to install meters, energy flows unaccounted;
- If the current Transformer Ratio (CTR) which is one of the energy meter integrating factors changes due to CT replacement or upgrade, the reading of the meter becomes inaccurate;
- If, during a maintenance work, the CTs are shorted or the VT is switched-off, the energy meters become blind to the energy flow in the feeders.
- **The overall impact of using the TF meter as the TP: Part of TLF is transferred to DLF, increasing the DISCO's ATC loss aggregate .**

METER LOCATION:

GENCO/TRX

- MOST GENCOs DO NOT HAVE SECONDARY METERING INSTRUMENTATION. THESE GENCOs GIVE THEIR MACHINE OUTPUT FROM THE PRIMARY SIDE OF THEIR MACHINE TRANSFORMERS.
- THIS METERING POSITION IS NOT IN ACCORDANCE WITH THE METERING CODE.
- THE RESPONSIBILITY TO PROVIDE HV-VT/CT IS NOT THAT OF THE MARKET OPERATOR. THIS SITUATION HAS SEVERALLY BEEN RAISED WITH THE TSG/NERC BUT NO PRACTICAL THING HAD BEEN DONE BY THE TEM DRIVERS TO SEE THAT THOSE WHO ARE RESPONSIBLE PROFER SOLUTION.
- THE TSP WHO IS WORSE AFFECTED BY THIS SITUATION ALSO DOES NOT SEEM TO APPRECIATE THE NEED TO PUSH THE GENCOs TO PROVIDE THE NEEDED INSTRUMENTS TO AVOID SWEEPING GENERATOR-TRANSFORMER LOSSES TO TSP.

GENCO/TRX METERING CONT.

- THE GENCOs THAT ARE INVOLVED IN THE WRONG METERING LOCATIONS ARE:
 - - SHIRORO
 - - EGBIN
 - - AFAM IV
 - - IHOVBOR
- THESE GENCOs URGENTLY REQUIRE SECONDARY INSTRUMENTATION FOR PROPER METERING.
- ON THE INTERIM, LOSS ADJUSTMENT FACTOR WILL BE APPLIED ON THE METER PRIMARY READING (THIS PRIMARY METER MUST BE A COMPLIANT DIGITAL METER) TO SAFEGUARD THE TSP AND THE ENTIRE MARKET FROM GENCOs' PRIMARY LOSSES.

METERING OWNERSHIP

I. TRADING POINT METERS ARE OWNED BY THE MARKET PARTICIPANTS:

- a. GENERATORS
- b. TSP
- c. DISCOS

* BELIEVING THAT DURING THE TEM, NOT ALL THE DISCOS WOULD HAVE BEEN PRIVATISED OR SOLD, THE METRING MARKET PROCEDURE HAD EARLIER STIPULATED THAT MO MAINTAINS THE GRID METERS FOR THE FIRST 24 MONTHS OF TEM BEFORE HANDING THEM OVER TO THE PARTICIPANTS. THIS PROPOSAL HAS BEEN CHANGED.

OWNERSHIP

- INSTEAD OF 24 MONTHS, THE MO WOULD NOW HAND-OVER THESE METERS TO THE PARTICIPANTS WITHIN THE FIRST **12** WEEKS OF THE **TEM**, WITH EACH PARTICIPANT'S DELINEATION MAP. WITHIN THESE **12** WKS, THE METER INFORMATION REGISTER (MIR) SOFTWARE DESIGNED AND "DONATED" TO MO BY NIAF WOULD HAVE BEEN POPULATED AND METERING SYSTEM DEROGATIONS MADE WHERE NECESSARY AS MAY BE APPROVED BY THE REGULATOR.
- MEANWHILE, NEW OWNERS WHO WANT TO CARRY OUT ANY METERING JOBS ARE ADVISED TO FOLLOW THE DUE-PROCESS, THROUGH THE MO'S TECHNICAL DIVISION TO MAINTAIN STANDARDS .
- **AFTER THE HAND-OVER, THE MO'S METERING RESPONSIBILITIES, ACCORDING TO MARKET RULE, WOULD BE LIMITED TO CERTIFICATION OF ANY METER THAT WOULD BE INSTALLED BY ANY PARTICIPANT.**

DELINEATION OF DISCO

ASSETS

- THE MO CAN ONLY DELINEATE DISCOS' ELECTRICAL METERING ASSETS AND NO MORE THAN THAT.
- THE MO MAY NOT BE IN THE POSITION TO STRICTLY GO INTO GEOGRAPHICAL DELINEATION.
- ALREADY, THE DELINEATION MAP HAD BEEN PRODUCED BY THE MO AS IT IS ELECTRICALLY CONVENIENT, WITH RESPECT TO METERING.

DEROGATION OF METERING SYSTEMS

- ON HANDOVER OF THE METERS TO THE OWNERS, THE MO WOULD ADVISE EACH MARKET PARTICIPANT ON ANY METERING ITEMS THAT WOULD REQUIRE DEROGATION.
- BASED ON MO'S ADVICE, THE PARTICIPANT WILL SEND A DEROGATION APPLICATION TO MO WHO WOULD FORWARD SAME TO THE REGULATOR WITH SOME RECOMMENDATION FOR APPROVAL.
- THE REGULATOR, BY RULE, SHOULD REACT WITHIN 20 DAYS OR THE MO WOULD ASSUME APPROVAL.

NEW STATION METERING

- NETWORK EXPANSION HAS MADE EMERGENCE OF NEW STATIONS AND FEEDERS INEVITABLE. THIS MEANS METERING IN EVERY ELECTRICITY MARKET IS A CONTINUOUS EXERCISE.
- SUBJECT TO AVAILABILITY OF FUND, THE MO INTENDS TO PROCURE ADDITIONAL METERS TO FILL ANY NEW EMERGIN METERING GAPS RESULTING FROM NEW INSTALLATIONS AND FOR REPLACEMENT OF FAULTY METERS.
- ON FORMAL HAND-OVER OF METERS TO THE PARTICIPANTS, THIS RESPONSIBILITY WOULD STOP.

METERING MARKET PROCEDURE

THE METERING MARKET PROCEDURE (MMP) IS ONE OF THE MO'S OPERATING PROCEDURES ARTICULATED ACCORDING TO THE MARKET RULES (MR), TO STREAMLINE THE PROCESS OF OBTAINING THE MONTHLY METERED QUANTITIES FOR EFFECTIVE COMMERCIAL BILLING AND SETTLEMENT .

THE MMP STATES:

- **- THE PROCEDURE AND TIME FRAME FOR SUBMISSION OF BILLING DATA ACCORDING TO THE SETTLEMENT CALENDAR**
- **- FINES FOR NON-COMPLIANCE WITH THE MARKET CALENDAR**
- **- THE PROCESS OF READING METERS AT MONTH-ENDS: THE PARTICIPANTS AND THE SYSTEM OPERATOR (SO) STAFF WOULD READ THE METERS AND SUBMIT SAME TO MO FOR RECONCILIATION AND VALIDATION PENDING WHEN THE AMR SYSTEM WILL BE FULLY FUNCTIONAL.**

PARTICIPANTS CONTRACT REGISTRATION

- **THE PARTICIPANTS ARE EXPECTED TO REGISTER ALONG WITH ANY COMERCIAL CONTRACT THEY HAVE ENTERED INTO FOR ELECTRICITY TRADING.**
- **THE MO IS YET TO KNOW FOR SURE IF ANY CONTRACTS HAVE BEEN SIGNED SINCE NONE HAD BEEN REGISTERED WITH THE MO.**
- **ON DECLARATION OF TEM, MO WILL INSIST ON ENFORCING FULL COMPLIANCE WITH THE MARKET RULES AND MARKET PROCEDURE.**
- **NON-COMPLIANT PARTICIPANTS WOULD BE BLOCKED FROM TRANSACTION IN THE MARKET IRRESPECTIVE OF WHO HAS ENTERED INTO COMMERCIAL CONTRACT WITH THE PARTICIPANT.**

QUESTIONS/SUGGESTIONS

**THANKS FOR YOUR
AUDIENCE**

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