PREPARATION AND PROMULGATION OF ELECTRICITY SECTOR CODES

Distribution Code

Work Shop 2

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Contents

Distribution Code Development Approach

a. Stakeholders consultations and inputs.

b. Recognize need to minimize level of disruption to system operations.

c. Recognize Existing Agreements and Contracts.

d. Allow for the increasing penetration of variable renewable resources power plants.

e. Recognizing potential compliance issues.

Comparison of Distribution Codes

Draft Distribution Code

- Distribution Planning Code (DPC)
- Planning Studies (DPC 3)
- Maintenance Standard (DGC 8)
- Distribution Connection Code (DCC)
- Method of Connection (DCC 2)

- Power Quality Standard (DCC 3)
- Numbering & Nomenclature (DOC 10)
- Distribution Metering Code (DMC)
- Communication & Control (DCC 6)
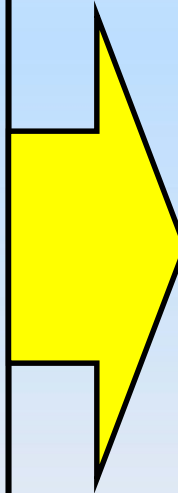
Proposed Distribution Code

- Long Term Network Planning (DC 3)
- Planning Studies (DC 5)
- Maintenance Standard (DC 8)
- Distribution Connection (DC 10)
- Method of Connection (DC 11)
  - Variable Renewable Power Plant (DC 11.5)
- Power Quality Standard (DC 12)
- Numbering & Nomenclature (DC 16)
- Distribution Metering (DC 18)
- Communication & Control (DC 15)

Distribution Code Migration Process

Draft Distribution Code

- System Control (DOC 7.4)
- Operational Planning (DOC 3)
- Testing & Monitoring (DOC 4)
- Demand Control (DOC 5)
- Operational Communications (DOC 6)
- Safety & Co – Ordination (DOC 7)
- Contingency Planning (DOC 8)

Proposed Dispatch Code

- System Control (DSC 17)
- Operational Planning (DSC 12)
- Testing & Monitoring (DSC 13)
- Demand Control (DSC 14)
- Operational Communications (DCS 15)
- Safety & Co – Ordination (DSC 16)
- Contingency Planning (DSC 7)

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Technical Requirements

Draft Distribution Code

Frequency Limits	
Grid Frequency	50Hz ± 0.2 Hz
Embedded Generation	49.5 Hz to 50.5 Hz

Bus Voltages % of Nominal	
Normal Operation	± 5%
Contingency Condition	± 10%

Proposed Distribution Code

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Technical Requirements
Variable Renewable Power Plant (VRPP)

Voltage Support & Criteria

Bus Voltages % of Nominal	
Normal Operation	± 5%
Contingency Condition	± 10%

Frequency Requirements

Frequency Limits	
VRPP trip if	f < 49.8 Hz or f > 50.2 Hz
VRPP sustained operation	49.5 Hz to 50.5 Hz

Relay Trip Settings (% of $V_{nominal}$)	Maximum Time to Disconnect
V < 50%	0.16 sec (8 cycles)
50% < V < 88%	2 secs (100 cycles)
110% < V < 120%	1 sec (50 cycles)
V > 120 %	0.16 sec (8 cycles)

Technical Requirements
VRRP Connection Conditions

- **Conditions to be satisfied**
  - Frequency
  - Voltage
  - Voltage Flicker
  - Harmonic Distortion
  - Phase Imbalance & Negative Sequence Handling
  - Anti – Islanding
  - Safety
  - Communication and Control Requirements
  - Data Requirements & Studies
    - ➢ To include accurate Forecasting

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Key Issues & Next Steps

- Complete formatting of the code

- Standardized the definitions in the code

- Fully incorporate JPS's, Interconnection Technical Guidelines, for Distributed Generators into the code

- Working with JPS to harmonize some of the available dataset

- Review some of the definitions used in the proposed code

- Need to get a better understanding from MSET with regards to the approach that it will adopt In developing and executing a long term Distribution Expansion Plan

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Takeaways

- The proposed Distribution Code:

    - Does not introduce any new guidelines or operating criteria that will impact the performance of the Distribution System

    - Make accommodations for Renewable Energy generation addition

    - Comply with existing guidelines

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THE END