

Ancillary Services Manual Update: Changes to Voltage Support Services (VSS)

Harris Miller, Operations Engineering Engineer
Raji Narayana, Associate Operations Engineering Engineer

MIWG

September 14, 2020

Agenda

- **Manual updates for Voltage Support Services (VSS)**
 - Inclusion of Inverter-Based Resources
- **Next Steps**

Ancillary Services Manual Section 3 (Voltage Support Service)

Sections with Proposed Revisions

- **Section 3 – Voltage Support Service**
 - 3.2. – Supplier Qualification
 - 3.3. – Responsibilities for Service
 - 3.6. – Reactive Power Capability Testing or Demonstration
 - 3.6.2. – Test Procedure for Generators
 - 3.6.4. – Test Procedures for Energy Storage Resources

Changes throughout Section 3:

- **Replace references to Automatic Voltage Regulator (AVR) with “automatic voltage controlling equipment”**
 - Automatic voltage controlling equipment includes inverters (for inverter-based resources) as well as AVRs (for non-inverter based resources)
- **Replace references to “D-curve” with [reactive power] “capability curve”**

Supplier Qualifier/Responsibilities

Section 3.2. – Supplier Qualification

- Add a capability curve example for inverter-based resources in addition to the existing non inverter-based resources' capability curve

Section 3.3. – Responsibilities for Service

- Add that “Suppliers are required to provide updated documentation (such as capability curves, inverter block diagrams, automatic voltage controlling equipment documentation) if any equipment is changed.”

New Definitions

Section 3.6. – Reactive Power Capability Testing or Demonstration

- Add two new definitions
- Charging Mode – State of operation of an Energy Storage Resource where real power flows from the grid, through the inverter, to be stored in the Energy Storage Resource for later injection back onto the grid at the same location.
- Discharging Mode – State of operation of an Energy Storage Resource where real power flows from the Energy Storage Resource, through the inverter, onto the grid.

Clarification for multiple resources behind a Point of Injection:

3.6.2. – Test Procedure for Generators

- Clarify that “The verification of Reactive Power capability for facilities with multiple resources that share a single Point of Injection and/or are dependent upon one another for normal operation shall be based on the Reactive Power capability of the facility at the Point of Injection, and not the sum of the capabilities of the individual generators.”

New Section:

Section 3.6.4. Test Procedures for Energy Storage Resources

- Each ESR providing this service will be required to demonstrate its leading and lagging capabilities while discharging and charging.
- The lower of the two demonstrated leading capabilities and the lower of the two demonstrated lagging capabilities, as verified by metering data, will be the basis of compensation for the following calendar year

Next Steps

Next Steps

- October 8, 2020 - SOAS
- October 14, 2020 - BIC
- October 15, 2020 - OC

Questions?

Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the power system

