Reactive Testing Guidelines

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Reactive Power Compensation Task Force
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M14D Attachment E

- General Requirements
- Testing Requirements
- Notification and Reporting Requirements
  - GO Actions
  - TO Actions
  - PJM Actions

GO Actions

- MVAR Test ticket – Submit 3 days ahead.
- Desired MW and MVAR output.
- Telemetry Verification.
- Contact PJM 3 hours prior to the start of the test.
- If unable to achieve desired MVAR capability due to:
  - external operational limitations or,
  - internal operational limitations caused by an external condition, such as high or low transmission system voltage,

  GO must communicate this issue to the TO and PJM prior to completing the test.

TO Actions

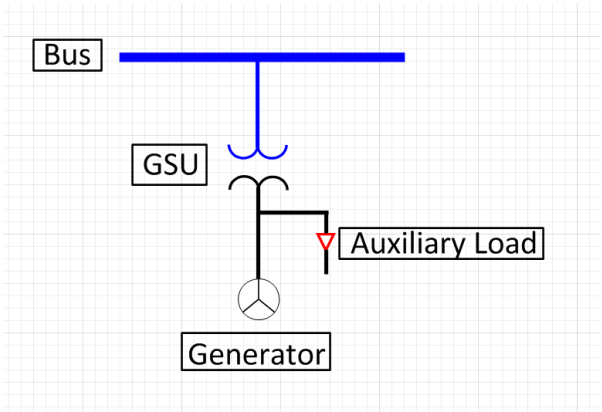
- Conduct studies in accordance with established company procedure in order to determine the effect of scheduled testing on their systems
- Discuss, coordinate, and implement any actions necessary as required by mitigation strategies with PJM prior to the start of testing.
- Coordinate the implementation of their portion of the exit strategy with PJM, if required.

PJM Actions

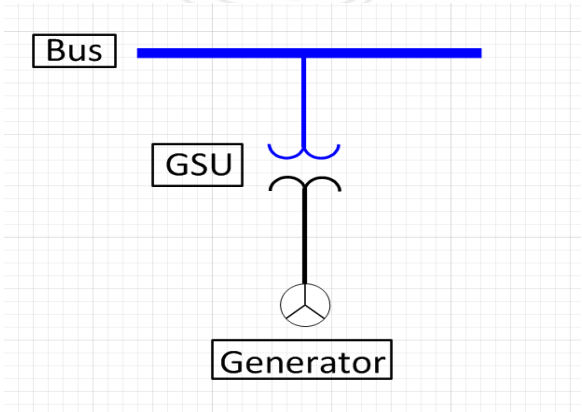
- Review and approve the test.
- Contact TO to initiate transmission study process.
- Discuss possible mitigation strategies with TO.
- Contact GO whether mitigation steps will be required.
- Coordinate with GO and TO in order to implement the selected mitigation strategy.
- Coordinate the implementation of the exit strategy with the GO and TOs, if required.
  - PJM will NOT allow operation over any applicable post-contingency emergency rating.
  - PJM will NOT allow operation over any applicable pre-contingency normal rating.

Generator models

Low Side Gross

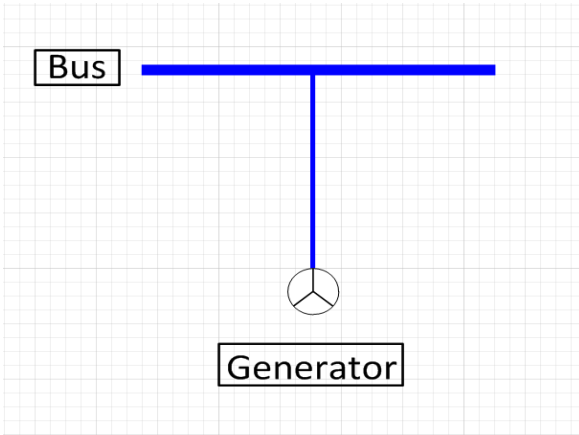


Low Side Net



LSN = LSG – Aux Load

High Side Net



HSN = LSN – GSU Losses

- MW and MVAR telemetry should be paired at the same location
- D-curve could be based on LSG, LSN or HSN

Low side vs High side Capability

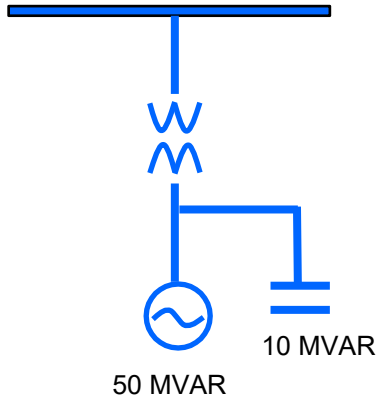
Example:

	Lagging	Leading
GO Data	100	-40
PJM Data	80	-60
New D-curve	80	-60

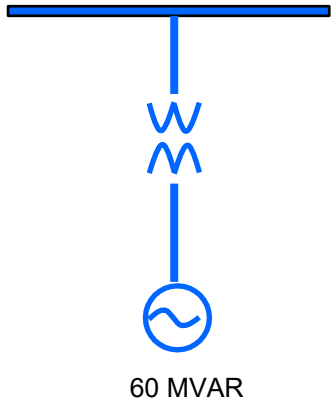
- GO data could be LSN if GSU losses = 20
- PJM may request GO to provide LSN telemetry links
- New D-curve will stay HSN until LSN enabled
- Total MVAR capability unchanged
  - LSN = 100 + |-40| = 140
  - HSN = 80 + |-60| = 140

Capacitor Banks

- Capacitor banks might be modeled standalone or imbedded in generator:



D-curve includes generator only



D-curve includes generator and capacitor banks

Note: must be automatic voltage-regulating capacitor banks

Co-located Units

- Multiple units connected to the same bus can be tested with “push and pull” method:
  - The unit being tested in one direction can be supported by other units in opposite direction
- Should notify PJM and verify individual telemetry

- *PJM proposal: Must notify PJM if units share GSU and there are limitations on the shared GSU*
  - *PJM will require units that share a GSU to test all at once as an aggregated unit*

Contact

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Reactive Testing Guidelines

Member Hotline

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