

**Electric System Reliability Impacts  
Associated with Joint Utilities'  
Anti-Islanding Proposal**

IPWG Meeting January 11, 2017

# Joint Utilities' Anti-Islanding Proposal

- As part of the charge to the Interconnection Technical Working Group (ITWG) during the 4<sup>th</sup> qtr. of 2016, the Joint Utilities developed a common position on anti-islanding schemes for DG, particularly PV systems.
- Position addressed four areas:
  - Updated anti-islanding criteria with a list of concerns re: inverter performance
  - Established common Joint Utilities' position on Sandia Criteria Analysis
  - Established common Joint Utilities' position on risk-of-islanding studies
  - Established common Joint Utilities' position on reclose blocking schemes as an alternative to DTT where possible

# Power Quality and Reliability Impacts of Implementing Reclose Blocking Schemes

- Power Quality Impacts:
  - DTT schemes, through a communication channel, trip DG system off line. This allows the utility to employ instantaneous reclosing which avoids customer complaints associated with flickering lights for transient faults.
  - In order to implement reclose blocking, must disable instantaneous reclose to allow for the DG system to trip offline prior to distribution protection device reclosing. The reclose delay will result in increased customer complaints associated with flickering lights.

# Power Quality and Reliability Impacts of Implementing Reclose Blocking Schemes

- Reliability Impacts:
  - As the ability for a utility to use instantaneous reclose is reduced, the use of electronic reclosers and feeder head relays for fuse saving will be negatively impacted.
    - In order to avoid power quality complaints the reach (transient fault protection) of electronic reclosers and feeder head relays will need to be reduced.
    - Reducing the reach of electronic reclosers and feeder head relays will result in an increase in permanent interruptions and an increase in SAIFI for faults that would otherwise have been temporary in nature.

# Power Quality and Reliability Impacts of Implementing Reclose Blocking Schemes

- Reliability Impacts:
  - Inability to implement additional distribution automation (DA) and fault location, isolation, and service restoration (FLISR)
    - DTT schemes can ensure that the DG system remains offline while DA schemes operate to restore customers affected by an outage.
    - Use of Reclose Blocking schemes or where anti-islanding schemes are determined to not be required, will limit the application of DA where DG is located on the circuit unless the CESIR, screens and risk-of-islanding studies analyze all potential circuit configurations (normal and emergency) at the time of application review.
    - The utility would not be able to add DA to a circuit with DG in the future unless it performed these analyses on its own and addressed any needed protection upgrades on its own.
    - Limiting the further deployment of DA will significantly limit further reliability improvement as DA is one of the most cost-effective tools to improve System Average Interruption Frequency Index (SAIFI).
    - There may be some ability to mitigate this with the implementation of DMS functionality, however having this capability on a wide-scale basis is many years away.

# Power Quality and Reliability Impacts of Implementing Reclose Blocking Schemes

- Reliability Impacts:
  - Increased SAIFI where DG systems remain online
    - DTT schemes can ensure that the DG systems are tripped offline and remain offline during a distribution system event.
    - The use of reclose blocking schemes, and where anti-islanding schemes are determined to not be required, the distribution system is awaiting the tripping of the DG system before it attempts a reclose or reconfigure, potentially subjecting customers to extended outages.