

NREL

- The JU have identified Advanced Distribution Management System as a key technology deployment to enable functions such as Volt Var Optimization /Conservation Voltage Reduction and FLISR. Having monitoring and control of DER is likely to be needed in a high penetration DER future.
 - The challenge raised by other parties is knowing when / where to deploy monitoring and control in a cost effective manner without needlessly future-proofing and adding undue cost burdens to projects.
- New 1547 - new inverters will have the ability to implement closed loop voltage control to adjust volts/vars to mitigate voltage fluctuations from input power fluctuations.
 - DER tends to push up the voltage in the distribution system but consumes VARs to do so. Those VARs will need to be supplied by the bulk system or the distribution system will need more cap banks or statcoms. However, this is likely to occur at light load conditions as the VARs will generally be available.
- Main concerns
 - Performance
 - Monitoring and control capability
 - Standardization and costs
 - Improved situational awareness
 - Cybersecurity
- Communications options
 - Wireless/cellular
 - AMI
 - Other options (Public switched telephone network, IWR, several pilots underway)
- Hope is to submit draft IEEE 1547 for public review by the end of May 2017, then publish new 1547 by the end of the year.
- Next Steps
 - Dave Narang (NREL) to look at exposure per company with the new queue
 - Draft screening criteria
 - Explore existing or near term lower cost solutions (through some pilots)
 - Dave Narang to assemble a list of smart inverter pilots
 - Lindsey Rogers stated that their EPRI team knows of a few AMI pathways to inverters but they are in the initial stage.

EPRI

- Recommendation 1
 - Evolve screens based on growing application experience
 - Not intended to address aggregate DG, additional protections, or reconfiguration issues.
 - Consider potential for being automated
- Combine Preliminary Screens C and D into one question
 - Is the DG 3 phase and less than the rating of the interconnection
- Screen F Options
 - Is the DG less than 10% of the feeder rating?

- Does the DG cause a voltage rise greater than 3% of nominal?
- Recommendation 2
 - Recast supplemental screens to better define for use in addressing protections, service voltage, and network issues.
- Replace Supplemental Screens G, H, and I with the proposed G, H, I, and J.
- Recommendation 3
 - Run several utility pilots to test drive the new supplemental screening and impact on CESIR
 - Requiring supplemental screens may not be beneficial but rather allowing a bypass option could save time and effort for both the developers and utilities
- Recommendation 4
 - Adopt uniform criterion to scope and report CESIR studies (based on melding of current practice).
- Recommendation 5
 - Provide a mechanism in SIR to address unforeseen site incompatibilities identified during commissioning or after installation.
 - Certain unlikely events are impractical to screen and are already covered in DG certification.
 - Make allowance for contingency review related to DG malfunctions that may affect electric service to other end-use customers.
 - Typical examples requiring follow up are:
 - disturbing light flicker, high harmonic levels, electromagnetic interference,
 - Violations of ANSI voltage range limits in the service to other customers.
 - These should be covered in the interconnect agreement and triggered by reported problems.

EPRI Presentation Discussion

- Need some flexibility with automation
 - The screens are changing, but automation is being pushed by the end of this year
 - We need to get everything right before we start automating it.
 - Getting everything fully worked out is more important than automation.
- Next Steps
 - EPRI to provide report the first week of April
 - DPS to distributed EPRI report the week of April 14
 - Comments back by April 28

IPWG update

- Effects of the landowner consent form
 - Before / After
 - NGrid 550 project / 214ish
 - ORU 267 / 105ish
 - CHGE 315 / 90ish

- AGrid 200 / 80ish
- ConEd none remaining
- Central Hudson noted that the remaining queue is larger than what was indicated – others agreed. It is possible that these are the projects for which a CESIR has not commenced and does not include projects for which a CESIR was completed or is in progress.
- Over 1,000 projects removed from the queue
- Full details visible on April 19th
- Projects that had CESIRs but did not supply consent form remain in the queue until June & July

National Grid GFOV

- Discussion Results
 - Existing National Grid calculation methods for determining when ground fault overvoltage (GFOV) is of concern:
 - Loading data from the period between 8 AM to 8 PM for solar PV generation match comparison.
 - Uses N-1 contingency on substation bus for 67% substation transformer minimum load to aggregate DG match.
 - Inclusion of transmission connected load in calculations – National Grid's position considers it unnecessary where DG adds another source terminal to the transmission line and transmission loads may be switched into different configurations at any time (planned or unplanned) and relying on the transmission loads will limit the utility's switching capability.
 - Inverter inability to "see" the actual system fault condition – Industry continues to evolve on this and other protective functions. Conservative standard inverter models are needed by the utility industry for DG application technical screens and studies.
 - Utilizing negative sequence relaying (NSR) and reliance on system surge arresters
 - Relying on the surge arresters conducting is not acceptable due to the coordination time constraints involved in avoiding surge arrester damage that can fail catastrophically in this condition and, therefore, this operation needs to be avoided for the safety of personnel and equipment in the substation
 - As agreed upon, National Grid will collaborate with others in industry on potential seen in research on this matter.
 - National Grid stands by their present GFOV protection practice under present conditions and current knowledge.
- Next Steps
 - Complete daytime minimum loading period review in collaboration with the NY Joint Utilities
 - SolarCity selected their Livingston County Water and Sewer 672kW, PV project affecting 3V₀ on the Sonora Way 115-13.2kV substation for a pilot GFOV study

project with National Grid to evaluate transmission impacts and possible mitigation

- Target is June 2017 for Pilot GFOV Study results/report
 - Determine how much time is needed to gather the data and perform the analyses to understand the time and resources it takes should there be value in these studies going forward.
 - Reigh Walling stated that he “concurrs with National Grid's conclusion that monitoring arrester current is not sufficient for GFOV protection because just milliamps can destroy the arrester”.
 - July 19th NY ITWG meeting - target update on the Pilot GFOV Study project with SolarCity
- Collaborate with NYSEDA PON 3404 awardees by providing system data in support of industry’s further GFOV protection alternative research
 - Letters of Support sent to NYSEDA on March 17th and 24th for 2 proposed research projects – identified need to correlate same feeder data to test the results consistently among the 2 projects.
- Progressing with a Demonstration Filing on 3V₀ Construction
 - Seeks to test whether National Grid’s initial common system upgrade investment and proposed cost recovery mechanism will encourage more DG projects in NY, helping to achieve the State Energy Plan and Commission’s REV goals.
 - Developing a form for agreement with developers who would like to participate to use the cost allocation methodology
 - Creates lower cost entry for 3V₀ piloting with 2 stations involving 3 transformer banks
 - Provides greater cost certainty, true-up upon completion of construction
 - Success is contingent upon use of proposed cost allocation methodology
 - Chose substations based on queued up DG projects on the substations
 - Working with two substations to start as a pilot
 - Based on results of the pilot, attempt to upgrade 6 station banks per year
 - National Grid has over 200 stations that need this GFOV type of protection

PON 3404 Discussion

- Cannot name names until contracts are finalized on 12 projects awarded
- 2 projects targeting islanding
 - developing analytical tools to assess the needs for anti-islanding
- 3V₀ projects
 - Negative Sequence Relaying study
 - Analytical tool for neutral voltage shift
 - Potential 3V₀ alternative for neutral voltage shift
 - Modeling real world circuits to measure ability of inverters to see faults

- Monitoring and control
 - Potential lower cost method to relay monitoring and control information back to utility in real time
- Hosting capacity
 - Active management of DER to increase hosting capacity
- Results will come back to, and through, this ITWG group

Wrap up/Schedule next meeting

- May 10th at NYSERDA
- Agenda
 - Control and monitoring
 - Follow up for EPRI presentation on technical screens
 - Open to other suggestions