Joint Utilities Presentation

- National Grid's paper is not meant to be in contrast to the Joint utility position. The Joint Utility position simply had a more narrow initial focus to move towards as much consensus as possible on the most commonly experienced situations.
- DTT for anti-islanding
    - Increases cost of Interconnection]
    - Limits operational flexibility
- Inverter Capabilities and Limitations
    - Anti-islanding functions are different from inverter to inverter
    - Different inverter models can interfere with each other's' functions
- Benchmarking Key Findings
    - Collaborated with many Utilities, public service agencies, and industry participants
        - Found that NY is quite unique due to CDG/RNM up to 2 MW vs. behind-the-meter resources typically constructed in other high solar penetration states
    - Non UL-1741 inverters and synchronous machines may still require DTT
- Where the SANDIA screens are required
    - Going to continue to utilize the screen
        - If project fails, offering ROI Study
    - Following CESIR Results customer can request ROI study
        - Failure to request the study may result in DTT or reclose blocking, depending on the flow charts.
- Older Inverter projects may not be UL-1741 certified
    - In this case, existing non-UL1741 systems in aggregate have to be less than 50kW or DTT or reclose blocking MAY be required.
- Risks Associated with DTT alternatives
    - Instantaneous reclosing is not compatible with reclose blocking
        - Extending reclose cycles will result in more customer complaints
            - Blinking clocks, computers reset…etc.
            - Will negatively impact reliability statistics as fuse saving has to be reduced due to complaints
    - Reclose blocking gives less flexibility for distribution automation schemes, so the need for DTT vs reclose blocking will need to be evaluated on a case-by-case basis for systems that do not meet the revised five-parameter conditions and fail the Sandia Screens and, if opted for, fail a ROI Study. While unique cases are always open to individual evaluation, the flowcharts are intended to capture the vast majority of all systems and deviations are expected to be the exception not the rule.
        - In the future as DMS' are fully implemented and complex control could be centrally controlled, this may not be a concern, but today it will have a negative impact.
    - Slight increase to the public safety risk

        - Especially on delta systems.
- DTT alternatives being reviewed/tested:
    - Con Edison is moving to a synchrophasor scheme as an alternative to DTT
        - Much lower cost, usually less than $50k, because it does not involve substation work in their case
    - National Grid uses Power Line Carrier Communication (PLCC) as a standard option/alternative to other DTT communication methods. Central Hudson is planning an R&D project on a similar technology.
    - National Grid allows DTT over radio in some cases, and Central Hudson is evaluating this technology as its 5.8GHz network is rolled out.
- Summary
    - Eliminating DTT in many cases
    - As the standards are revised, will continue to evolve position
    - All going to offer ROI study if the Sandia Screen is failed
    - What are the key items to focus on?
    - Need to resolve the legal and risk sharing issues
        - This is the logical next step in order to keep moving forward

Industry Presentation: Perspectives on the JU Proposal

- See opportunity to simplify and expand the number of systems subject to the new protection methodology
- Misinterpretations
    - Aggregate vs. System size
- Would like clarification…what are the requirements?
- Concerns regarding systems greater than 2MW as the SIR includes up to 5MW
    - If this is aggregate DG then it's a different set of questions
- Dual track requirements for systems > 1MW
    - Aggregate DER greater than 50% line section min load
    - Industry questions replacing the more robust Sandia screens including the already conservative 67% min load screen in some territories.
    - Recommends just one pathway for all systems over 1MW
        - Full set of Sandia Screens
- JU proposal as amended by these recommendations would substantially reduce the need for high cost supplemental anti-islanding protection while maintaining the safety and reliability of the system.
- Serious concerns regarding the feasibility of the following from the JU proposal:
    - "As a result of these proposed changes, the NYSSIR will need to be updated to require proof of insurance and liability from the developer or customer for equipment and public damage in the event an island is formed."
        - Solar Industry sees no realistic possibility at present to provide the type of insurance called for
            - No other utility jurisdictions have a similar requirement, and thus this is not a standard insurance product available on the market

        - To create such a product the Utilities would have to have demonstrated the forensic capability to determine precise and detailed information regarding an incident.
- Serious concern regarding the following
    - "…the utility shall be able to reserve the right to require DTT at the developer's expense, should problems arise or non-inverter based generation be added to the feeder."
        - Especially the "should problems arise" portion
        - It should be the future system that is requiring the upgrade who should be responsible, not the existing inverter based DG, at least for installation (pending future cost sharing)
        - There needs to be a very high bar for proof of responsibility in order to require an upgrade like DTT 5, 10, or 15 years in the future.
- Recommendations
    - Delay of no more than 20 days between the adoption and the implementation of the new methodologies
    - All projects who pay for CESIRs after the implementation delay be studied with the new scheme
    - Given the potential bottleneck, utilities should report to DPS the timing for ROI studies
- Conclusion
    - Welcomes the overall direction of the JU proposal and supports the adoption of reclose blocking as the primary form of supplemental anti-islanding protection when the Sandia Screens and ROI are failed

NREL

- It is the job of testing labs to BREAK anti-islanding schemes so we can see where the limitations are
    - Have to keep in mind that the lab studies are intended to provide guidelines
    - Studies are showing us that it is extremely difficult to find real world situations to match the lab setting ability to sustain an unintended island
- Power Quality
    - Islands should not persist longer than 2 seconds
    - Ground fault overvoltage is a concern that needs more study
- Public and worker safety
    - Persistent island condition is unlikely
    - Not confirmed as a high risk in the field
- Multifunctioning inverter
    - Inverter plus rotating generation may require additional study based on lab tests
- Changes to protection schemes
    - Impact to reliability should be minimal, may require additional investigation of revised settings and implementation practices.

DTT Discussion

- Clarify parameter number 3 on the JU proposal
    - The cap is not necessarily straight to DTT
    - JU's do not expect many feeders to have rotating machines
        - The vast majority are going to be solar PV
- Let's take something and move forward and address major concerns as we go.
    - It's going to take time to develop a position on some of the issues
    - What are the priorities?
        - Move on past the DTT issue
        - Create a completed methodology before adopting anything
        - JU are happy to move in either direction
- A lot of projects are 2MW
    - If there is any DG at all on a feeder, in many cases the first project won't even fall under this new methodology
        - A lot of these in rural areas are going to be most cost effective with a dedicated feeder
            - DTT is a non-issue at this point
    - The intent is NOT to require DTT for a 2MW project because there is some small DG on the feeder already.
        - This first draft was not all inclusive of potential outcomes and situations
- 2MW Aggregate is a concern
    - industry believes that the pathways are in good faith, but has a problem with the uncertainty of what will be required of a majority of the projects in the queue
    - At 5MW, it will probably be a dedicated feeder situation anyway, so there isn't anything to worry about.

Summary of Lunchtime Discussions

- The concern of liability and the legal requirements related to liability, are being taken over by the Interconnection Policy Working Group with the understanding that it is a high priority issue and progress is very important. The JU requested documentation from Staff supporting this.
- Proposal by developers to have the utility cover the insurance through their existing insurance vehicles and maybe have some cost recovery from the developers. This will be discussed in IPWG.
- DPS needs to figure out potential reliability issues with delayed reclosing and distribution automation impacts.
- A commitment that JU concerns will be prioritized as well as a written understanding from Staff regarding the reliability impact, is necessary to move forward with the proposal.
- JU rework the flow chart slides to include today's discussions and agreements for the short term (lift 2MW aggregate cap, including all distribution voltage levels).
    - Will be wrapped up sometime before Thanksgiving.

- JU will evaluate the ability to move to a higher cap on subdivided parcels within a month.

Next Meeting

- December Webinar with EPRI
    - Book 90 mins for an update on today's topic as well
- Mid-January for the next ITWG meeting
- Topics
    - Control and Monitoring
    - 3Vo
    - Outcome of O&R Considerations