**5/10/18 - ITWG - NYSERDA**

**CESIR Standardization**

Solar Industry (Brice) mentioned that the CESIR standardization efforts by the JU has gotten positive feedback from Solar Industry. There remain some details that that need to be clarified (i.e. SCADA section pass/fail wording). New application going forward to use new CESIR format by June 15th.

JU CESIR Draft discussion (led by Heather):

* Battery storage not considered at this draft, will be added later
* More a guidance document. Customers can decide how they meet the requirements.
* Contingency vs. variance discussion, SIR allows 25% contingency across the board
* It would be great to mention at CESIR what needs to be known before going out to field for deployment
* National Grid (Chris Vance) offered to start using the document and provide feedback as needed

**Effective Grounding – Solar Industry (Shay)**

There were some concerns from utility reps regarding diagrams in Shay’s slides.

* Shift in industry to 1500V inverters
  + Labor savings (saves 4-5 cents/watt)
  + Projects cannot be built without these inverters
  + No 4-wire configuration
* Goal
  + 3 and 4-wire UL listed inverter to be permitted
  + Agreed upon approach to interconnection design that mitigates utility concerns for 3-wire inverters
* Shay Banton to look at providing their internal grounding table to the ITWG

Conclusions from slide:

* The limitations placed on the use of three-wire inverters in some territories drastically limit the available options for inverters and should not be condoned.
* The concerns of using three-wire inverters can be addressed and mitigated through the selection and sizing of the interconnection equipment which should be made standard across the utilities.
* Assistance with solving interconnection issues such as backfeeding should be given by the JU to increase developer understanding of the utility’s concerns and ultimately find an agreed upon solution in a timely manner.

**Effective Grounding – JU**

Effective grounding risks and mitigation:

* Single phase ground fault can cause overvoltage (up to 173% of nominal) on other phases which can damage utility/customer equipment and is also a safety concern
* Effective Grounding limits overvoltage to 125-138% of nominal voltage
* Effectively grounded systems allow utility fault protections to detect the fault

Protective Equipment:

* Multiple ground sources from DG/ESS can cause utility protection schemes to not work as designed because schemes may not be able to see the fault
* Mitigation of this is to require DG/ESS to limit their fault current or zero fault current when not generating

Effective Grounding Benchmarking:

* Grounding transformers
* Effective grounding requirements reference IEEE 1547.2
* Require neutral reactor

Conclusions from JU Slide:

* Generation to load ratio is an important factor in how quickly an island will be detected and the consequences of an overvoltage.
* The white paper authored by Solectria indicates that a grounding transformer with a wye‐grounded to wye‐grounded transformer is required when the inverters are not grounded.
* Inverters primarily act as current sources, but not under all conditions.  When acting as constant power sources, voltage rise becomes a more significant challenge.
* Without models detailing negative sequence impedances, the results are inconclusive.  The paper authored by Advanced Energy also supports additional testing.
* Effective grounding is important to the reliability of the utility system, operation of customer equipment, and public safety.
* Advances in IEEE Standards may influence how inverter based systems can be effectively grounded.
* Additional lab testing and inverter model information is required to validate model results presented in recent whitepapers.

**SIR Updates and Comments**

* JU and Solar Industry seem to be ok with the updates for the most part.
* There are some errors and typos that need to be corrected from DPS side.

**Technical Screens**

* Discussion on simple pass/fail vs. other descriptors
* Automated screens
* DPS going to Phase 2 (prelims are same, supplementary screens are/will change)
* Discussion on voltage flicker stiffness test
* Suggestion to look at the screens in monthly calls

**NYSERDA PON for Grid Modernization**

* Dave Crudele mentioned that NYSERDA is now accepting proposals on an open PON for grid modernization

**Suggested agenda items for 6/20 ITWG meeting:**

* 3V0 analysis by Pterra
* Interconnection projects review under NYSERDA PON 3404
* Monitoring and control
* Smart inverters