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IEEE 1547 Revision: Distributed Wind Potential Issues

Distributed Wind Energy Association - Sustainable Manufacturing, Advanced Research and Technology (SMART) Wind Consortium

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Major Transition

- The Institute of Electrical and Electronics Engineers (IEEE) 1547 standard originally specifically required distributed energy resources (DER) to disconnect when grid events occurred
- Several amendments have been added to allow some alternate approaches when approved by authority having jurisdiction (AHJ)
- High penetrations of photovoltaic (PV) power in some areas have increased the need for a complete revision.

Support Needed from DER

- When DER become a significant part of the power supply, they need to support the grid during and after events
- This means ride-through, reactive power (VAR) support, voltage support, etc.
- Ride-through will be required
- What will the limits required for ride-through be?

Synchronous Generators Have Limits

- Synchronous generators are very common and have significant physical limits for ride-through in under-voltage events
- Minimum level of ride-through requirement needed to accommodate these limits
- PV with inverters can provide much more
- For high penetration systems, all DER at minimum level may not be sufficient for grid stability.

Second Level of Ride-Through

- A specification for an enhanced level of ride-through is being developed
- Neither level is technology-specific
- IEEE 1547 will not specify the level required; that is for the AHJ (usually the utility) to decide
- May vary by feeder or even location on feeder.

Impact on Distributed Wind

- **Inverter-based systems will need to be updated to a new listing standard that will be developed to test to the new 1547**
- **Induction generator based systems could have a problem**
  - Especially stall-regulated systems
  - How can stall-regulated induction generator systems stay excited and in phase?

Ride-Through Limits Draft Discussion

- **Forthcoming.**

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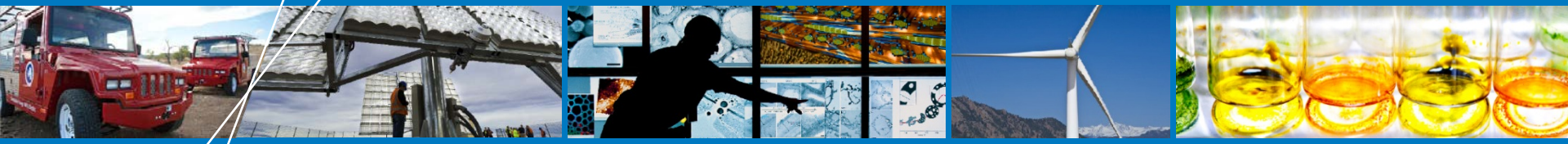

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