LocalEnergyAlliance of Washington

Monday January 9, 2012

Thank you for this opportunity to provide comments on docket UE-112133. The Local Energy Alliance of Washington (WALEA) advocates for the distributed generation industry in the state of Washington. Our comments are aimed at helping the UTC provide an environment for the long-term growth and development of distributed generation for the benefit of all Washingtonians. We have identified five areas where current utility interconnection procedures unnecessarily and unreasonably restrict the growth of distributed generation in Washington.

1. **Insurance**
2. **Redundant Disconnect Switch**
3. **Direct Transfer Trip**
4. **Studies**
5. **Process**

Insurance

Currently, utilities are requiring system owners with interconnected generation tied directly into the distribution system to hold not only liability insurance but commercial property insurance, covering not only their property but the utility's as well. These systems are fully protected from causing any damage to the utility. The minimum premium for these policies (which are designed for very large installations) can exceed the retail value of electricity produced. Therefore, the insurance requirement alone can make otherwise viable projects impossible. Similar systems installed 'behind the meter' do not have the same insurance requirements. For instance, a solar array producing $1,000 worth of electricity in a net metering system would be required to have a $5,000 insurance policy if it were interconnected as a community solar project selling power to the grid. Even an elevator motor pushes power back onto the grid when it is braking, but has none of the protection and power quality assurances of a mid-sized wind turbine for producing power. The main reason for the excessive insurance premiums is the minimum premium, which assumes a much larger scale of commercial generation than current and projected interconnected systems in Washington.

WALEA proposes that the utility should be able to accept safely interconnected DG without additional insurance required of the DG customer. The actual risk to the utility and the ratepayers presented by DG is incredibly small. Utility insurance policies are not likely to see an impact, and even if they did, it would be at a scale many orders of magnitude smaller than the multiple excessive insurance policies held by interconnected DG.

Redundant Interconnect Switch

Solar electrical inverters, the devices which convert Solar-generated DC power to grid-usable AC power, must today be designed and tested to be "grid-interactive" – meaning they detect at all times whether the grid is "on." If there is a local power outage, the inverters are designed to switch off and remain off while utility lines are serviced and power is restored. Nonetheless, many jurisdictions and utilities still require an external disconnect switch for reasons established before all inverters were required to have automatic shutoff capabilities. The legacy requirement to install a redundant disconnect switch that provides no additional safety benefits adds significant additional costs to each solar install, and can delay payback to the customer by a year or more.

WALEA proposes that requirements for external disconnect switches be eliminated in favor of requiring UL 1741-approved solar inverters for grid-connected solar arrays. UL 1741-approved solar inverters already include an automatic shutoff feature. Larger installations for hydro or wind with induction motors and protected by IEEE 1547 certified relays where a lock out – tag out visible disconnect is appropriate, are currently required to have two such switches, one more than necessary.

More information on best practices regarding disconnects and solar inverters is available on the Interstate Renewable Energy Council website here: http://www.irecusa.org/2010/01/utility-external-disconnect-switch-ueds-utilities-that-have-opted-to-abolish-it-seen-as-following-interconnection-best-practices/

Direct Transfer Trip

Direct transfer trip (DTT) is required by some utilities when the cumulative generation of interconnected DG exceeds a threshold of the load on a given line (greater than 50% of minimum load for instance). Many of the lines where DG may interconnect are lightly loaded, and this threshold is reached at fairly small generator sizes.

DTT provides a direct and continuous line of communication between the substation and a relay at the generator such that if the substation goes down or experiences an error it sends a signal that immediately disconnects the generator. This disconnection definitively prevents "islanding", where the load on the line exactly matches the production from the generator, and the generator is "tricked" into staying online while the substation is down. The relay currently required to prevent this costs about $50,000; substation improvements may be required costing $100,000; and the communications path between the substation and relays can cost between $100,000 and $1,000,000.

While it is theoretically possible, it is highly unlikely that a distributed generation device with varying output, connected to inherently variable loads, could maintain voltage and frequency sufficiently close to grid normal for a number of seconds without native protection systems kicking in. Remember, these systems are inherently designed to protect themselves, as well as the grid, by shutting off when the power quality of the grid falls below certain thresholds. DTT is suitable for wind farm or a major dam, but is not necessary to protect the grid and line workers from a single small wind turbine, or micro-hydro project. There are many utilities that simply accept distributed generation's native controller as sufficient protections.

DTT is a crude method of providing ultimate assurance of non islanding that persists in utility standards, but is no longer necessary, given current technology. There is a simpler, cheaper and more effective method to protect against this practically unrealistic, but theoretically possible scenario. Islanding protection can be achieved using a relay or inverter certified to meet IEEE 1547. Such relays and Inverters are fully tested and certified to prevent Islanding; cost $1,000 to $5,000 (a hindered times less than DTT). These devices need to be included as an acceptable anti-Islanding solution for distributed generators.

Both the Interstate Renewable Energy Council and IEEE 1547 specify these devices as acceptable anti-islanding protection. Many large and small utilities and states across the country accept these devices for anti islanding protection. Electrical worker safety is a top concern of WALEA and any responsible generator, but it would be irresponsible for utilities to use electrical worker safety as a cover for excluding DG when alternatives to DTT exist, and are equally safe. If DG is going to have a meaningful chance in this state; Washington utilities need to get up to speed on this issue, and not fall prey to antagonistic and antiquated guidelines.

Studies

Large utilities typically require a series of three studies over a period of 120 days (assuming everything goes smoothly) for DG interconnections: a feasibility study, a system impact study, and a facilities study. The cost of these studies is a source of uncertainty to the generator, with the second two easily costing $10,000 or more apiece. These are the same series of studies that are required for projects with hundreds of megawatts of generation capacity. Our experience working with smaller utilities, such as PUDs & municipalities, has shown that a meeting with the distribution systems engineer can result in an interconnection plan that is developed over the course of a couple of weeks. Many developers attempting to interconnect with the utilities have felt that the cost of these studies has been used to create a barrier to entry, one which often cannot be overcome.

WALEA recommends a standard fee for interconnection that includes all studies a utility feels are necessary to integrate a system. This fee should be a standard amount that escalates based on system size. For example, a fee of $500 plus $1 per kW of system size seems appropriate for non-net metering systems. This flat fee incentivizes the utility to perform the minimum amount of studying necessary to ensure safe, effective interconnection, and develop checklists such as identified in the IREC model procedures mentioned in the next section. If the generator is not satisfied with the results of this abbreviated fixed fee process, then they can have the full three-study process performed by the utility or a third party contractor.

Process

The Interstate Renewable Energy Council (IREC) published Model Interconnection Procedures in 2009 that should, at a minimum, be reviewed by the UTC as a part of their comment process. Those model procedures are hereby incorporated into our testimony by reference. The model is quite conservative and should be considered a guide for state procedures. The state and utilities should be strongly encouraged to investigate procedures more accommodating to DG, and no more restrictive than outlined in Model Interconnection Procedures.

All four points mentioned above (Insurance, Redundant Disconnect Switch, Direct Transfer Trip, Studies) are addressed in this model procedure, as well as several more important barriers to DG.

Of particularly interest in Model Interconnection Procedures is the idea of using checklists to move projects into a fast track process. This process has the discretion to allow projects onto the fast track even if one or two points on the checklist are not met, but are still considered safe by distribution engineers. This idea of a fast track process will work well combined with the fixed application fee mentioned above, encouraging utilities to responsibly move as many projects as onto this fast track as possible.

Interconnection is one of a few important barriers that need to be removed in the state of Washington so a local energy economy can thrive. The beauty of distributed generation is that it serves multiple purposes. The value of DG to the State includes:

- 3 to 10 times the economic impact per MW as compared to large installations that may be owned by out-of-state entities.
- Local job creation.
- Broad distribution of economic benefits among many Washingtonians.
- Development of resources not suited for larger development, which might otherwise remain undeveloped.
- Technological and geographical diversity of renewable generation has less variability in supplying power to the grid as compared to a large installation of a single technology. Collectively, diversity provides capacity.
- Reduced reliance on transmission system, avoiding upgrades.
- An increase in regional self sufficiency.
- Provides customer choice.
- Reduction in green house gasses.
- Leverages private investment, and federal funds, building in-state infrastructure.

Please help this state realize these benefits by removing one of the major barriers to this industry's success.

Thank you

Lauren Craig
Local Energy Alliance of Washington