

Notes from Discussion at Interconnection Working Group Meeting held 04/21/2015

The website for this working group is active and can be found at <http://publicservice.vermont.gov/topics/electric/interconnection>.

Below are points made in group discussion of presentations made by VELCO and GMP. The content of presentations is not repeated here but can be found on website.

Discussion re: VELCO presentation of Transmission Perspective on DG Visibility

Real-Time Data Collection (SCADA, telemetry) comes with significant costs. Meeting ISO-NE communication standards are large part of interconnection cost for larger DG projects (which typically have 12 month interconnection process).

VELCO's current real time generation data visibility is restricted to 5 MW and above.

System operators and planners will be conservative (with tendency to discount DG capacity) absent improvement in ability to distinguish load from DG. An aggregated view of hourly DG performance is thought to be sufficient visibility to inform system operator choices. VELCO is not certain that visibility below 500 kW is necessary. GMP requires SCADA for 500 kW and above.

VELCO does not expect to need to control DG output to distribution circuits but is aware of possibility that larger generation could need to be curtailed if/when DG is serving a significant amount of load (e.g. during low net load periods). This is not known to have happened in VT but the ability to see real-time DG output is necessary to know for certain whether DG is causing curtailment of ISO-metered resources. Kingdom Wind has been curtailed during low load periods.

There are physical limits to the ability of generators to ramp up to serve load that has been masked by solar DG during afternoon hours but quickly becomes visible as the sun begins to set. There are also voltage maintenance problems posed by fast ramping. Shutting off larger generation as DG ramps up could also pose problems. Small wind generation later in the day could mitigate some ramping issues but currently VT's wind is almost all transmission scale (visible to VELCO). On some circuits, peak has already moved into either winter or has been pushed later into late summer afternoon.

ePSB is not a tool for collecting real-time or system performance data.

There is a distinction between data acquisition and using that data to control resources. SCADA might not be necessary if you don't need to control resources, though it does provide reliability and security. There is also a policy question concerning ownership of and access to data, which may be addressed by anonymizing and aggregating records. These issues have been raised in docket 7307.

Daily data exchange between VELCO and some Standard Offer generators is near impossible because of poor connectivity. This inhibits smooth financial settlement.

For GMP, lack of DG visibility is less a load balancing than an operational concern. If generation to load ratios are high (as in low load periods with full sun), power can flow back up to subtransmission system

(i.e. reverse flow). This can pose problems for voltage regulation, stability, circuit protection, and can overwhelm capacity of various devices. The point at which these problems emerge is unique to each circuit but in general it is a cumulative threshold and a 500 kW DG system will inevitably contribute to the likelihood of reaching that tipping point (a typical GMP circuit has around 8-10 MW capacity). By how much exactly depends on where the DG enters the circuit, among other things.

Discussion re: GMP Presentation of DR Screening and Solar Map

Developers are commonly asking for information on (1) nearest 3 phase line to their site (3) how much generation capacity can be installed?

Currently around 60 circuits of GMPs 300+ circuits have been characterized and mapped with Solar Mapping tool. DOE Grant money will help to complete the mapping and automated screening tool by end of 2016. The usefulness of the Solar Map tool is that it can highlight constraints before they would be uncovered by a system impact study. This could help reduce uncertainty for developers that receive CPGs conditioned on compliance with the prescriptions of SIS. In effect, an interconnection application process that fails a fast track screen can jump straight to system constraint issues that need to be addressed, whereas the current process can require a full SIS if the fast track screen fails.

Discussion re: the relationship between Interconnection application and 248 application

Developers rarely have an Interconnection Agreement by the time they are applying for 248; CPGs are usually conditioned on subsequently receiving IA. But a 248 application generally includes a System Impact Study or documentation of fast track application along with the results of that screen.

GMP anticipates seeing developers competing for feeder connection to >150 kW sites and sees an emerging need for queue management. Treatment of queue in new interconnection rules will be important.

Next Steps

The next meeting, anticipated for mid-May, will be dedicated to a group review of a straw proposal being developed by the Department. The Department will schedule the meeting after it is sure it will have a straw proposal to present.