

Grid-LDC Interoperability Framework Information Webinar

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Objectives of LDC Outreach

- Inform the LDC community of the coordination Initiative
- Describe the information that we have collected so far
- Seek initial feedback
- Next Steps

Background

- Higher penetrations of energy resources within the distribution system and an evolving distribution sector
- IESO needs to understand the impact of these changes on the operation of the bulk power system
- Potential impacts include:
 - offsetting system demand
 - deferring, reducing or removing the need for new wires
 - provision of reliability services

Grid-LDC Coordination Initiative

- PowerStream's POWER.HOUSE project was initiated to study the feasibility of distributed energy resources as an alternative to the traditional wires solution for delivering electricity to the customers
- Due to the complimentary nature of these efforts IESO began work with PowerStream on a Grid-LDC Coordination Initiative

Objectives of PowerStream Collaboration

- Enhance reliability and efficiency through coordination of IESO and LDC-Controlled resources
- Establish a framework for data sharing and coordination between the IESO and LDCs
- Explore the feasibility for further growth of virtual power plant technology such as POWER.HOUSE

Grid-LDC Interoperability - Achievements to date

- Draft Grid-LDC Interoperability and Data Sharing Framework includes:
 - Current Interactions with the IESO
 - Future Collaboration Opportunities

Current LDC Interactions with the IESO

Existing Real-Time Market and System Information

- Current Ontario Demand
- IESO Market and System Data
- Data Submission tools
- Ontario Reliability Compliance Program Schedules
- Marketplace Training
- Market Rules and Manuals

Testing and Confirmation of Operational Data

- Rotational Load Shedding Schedules
- Voltage Reduction Tests
- Satellite Phone Testing

Emergency Preparedness and System Restoration

- Emergency Preparedness Task Force (EPTF)
 - chaired by the IESO's Chief Operating Officer
 - helps coordinate market participants' Emergency Preparedness Plans
- The IESO conducts workshops to review the bulk electricity system and its operation
- Interactive tabletop exercises of system restoration following large scale blackouts
- Evolution of the Ontario Power System Restoration Plan (OPSRP) as it pertains to LDCs and Distributed Energy Resources (DER)
 - The changing nature of the grid may require modifications to the OPSRP
 - Coordinating this effort could improve reliability to the customer.

Cyber/Physical Security Information & Awareness

Participation in IESO Cyber Forum:

- Increase awareness around national cyber security initiatives
- Develop and collaborate on best practise
- Review current information about incidents, threats, and vulnerabilities that have been analyzed by trusted experts
- Discuss information and awareness about emerging technologies with an emphasis on possible vulnerabilities and risks
- Share information concerning information security management practices
- Lessons learned and expert advice

Reliability Compliance

Reliability Standards Standing Committee

- Assists market participants to develop a more comprehensive understanding of their reliability obligations
- Notify participants of reliability-related information on new and developing reliability standards
- Open to any stakeholder wishing to join
- Conducts quarterly meetings at the IESO's downtown Toronto office
- Meeting materials available on Committee webpage at <http://www.ieso.ca/Pages/Participate/Stakeholder-Engagement/Standing-Committee/Reliability-Standards-Standing-Committee.aspx>

Future Collaboration Opportunities

Embedded Generation (EG) Visibility

- All variable generation resources greater than 5 MW are required to register with the IESO and submit real time telemetry
- Telemetry from these resources is used for forecasting as well as situational awareness/ visibility in control room
- The IESO would see value in receiving additional telemetry that LDCs may have for < 5 MW facilities aggregated at the station level

Solar Variable Generation Forecast

- Any aggregated telemetry received would be used to produce a forecast which would then be made available to the LDC
- Forecast reports are produced hourly for the next 48 hours as well as twice a day with forecasts for days 2-7

Geomagnetically Induced Current (GIC) Values /GMD Response Plans

- GICs in transformers can result in increased harmonics and reactive power consumption
- The IESO is expanding efforts to study these events and can work with LDCs to increase awareness and readiness by doing the following:
 - LDCs identify the GIC susceptible transformers (IESO can help with this)
 - LDCs install GIC monitoring on these transformers and provide monitoring to IESO
 - IESO expand its GIC instructions to include LDC transformers that have supplied telemetry

Coordination of Load Transfers

- There may be times that the LDC or the IESO could take action within their system to manage loading concerns
- Having prior knowledge of what transfers are possible and load distribution details could help with restoration plans and coordinating difficult outages

Increased Understanding of Shifting Load Patterns

- Feedback on the effect of time-of-use pricing and any emerging trends
- Implementation of load management programs, demand response
- This information could be useful in demand forecasting as well as developing future conservation programs

Comments / Feedback

- Are there any barriers and/or opportunities that may not have been contemplated in the draft Framework document?
- Are there better ways to make this information available?
- The IESO would be pleased to work with LDCs individually to explore the mechanics and value of data sharing going forward

Next Steps

- Send comments/feedback to engagement@ieso.ca by December 9
- IESO to continue discussions with PowerStream and other LDCs with an interest in exploring data sharing methods
- IESO to finalize framework in January 2017 and will report back on results
- Ongoing Standing Committee will be created to discuss new items and implementation