

# Workshop on the T&D benefits of distributed energy in Ontario

## Summary and minutes

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This document attempts to capture the main content that was discussed during the breakout session and ensuing discussion. The main points are first highlighted along with potential next steps, followed by the detailed notes that were taken during the respective sessions.

### Workshop objectives

The central focus of the workshop was to explore practical and cost-effective methodologies that can determine the value that clean DE can bring to the planning and operation of distribution and transmission systems, with one of the main benefits being T&D upgrade deferral. A primary goal was to show LDCs and especially distribution system planners that they should be actively considering DE as a viable and sometimes preferred option to conventional system expansion. The goals were to discuss: what has been done in other jurisdictions; what initiatives have already been launched in the province itself; and to identify specifically how federal funding could best be used to help move things forward.

### Summary of discussions and outcomes

The workshop discussion showed that there is a fairly good consensus that DE can bring value to the distribution system and it should have a role to play in distribution system planning. However, there are still a number of areas that will require more effort before this becomes standard practice. Some of the main challenges that will need to be addressed:

- Communication between all stakeholders needs to be improved; educate regarding the technologies, benefits and the different options.
- Technical impact assessment needs to be linked with value assessment.
- DE does not always go where there is the greatest benefit. Analytical tools can shed light on where DE may best be deployed but most don't use DG as a part of

their planning because there is no incentive to do so; in fact it's probably fair to say that there's a disincentive built into most regulatory regimes for LDC's to accommodate DG. Standing offer programs are not location specific – debate is unresolved as to whether locational aspects should be included in the program or as incentives.

- Both equipment and project implementation (transaction) costs need to be brought down and the appropriate incentives and/or regulatory measures need to be in place to ensure greater uptake.
- Need to resolve the apparent conflict of customer-ownership versus utility operation/control of generation.

In order to address these points, the following next steps were suggested as possible courses of action:

- Mechanisms for improving communication and dissemination of knowledge, e.g. DG Collaborative for Ontario (Canada), possibly in collaboration with the Electric Distributors Association, APPrO and all stakeholders; a targeted taskforce; annual, bi-annual, quarterly workshops. (It should be noted that the Massachusetts DG collaborative was mandated by the State government—funded by the State's systems benefits charge—to address and resolve barriers to DG. A similar push may be needed from the Ontario government (Ministry of Energy) to push the more reluctant players (i.e. LDCs) into actively and positively participating in such a thing here.)
- As the Clean Energy Standard Offer Program rolls out in Ontario, work in cooperation with the OPA to establish quantitative methodologies to analyze new applications and their associated costs and overall net benefits—document lessons learned and address contentious issues. This would be complementary to pilot projects which are targeted at specific system needs identified by LDCs.
- Support one or more pilot or demonstration projects in Ontario which are carefully selected to apply DE-based solutions to address specific distribution system planning issues—opportunity to test out assessment methodologies (e.g. the Navigant Model), new technologies and put things into practice. Note that a good pilot needs to focus on quantifying the anticipated benefits.

### Additional remarks

- There are conflicting and confrontational messages when incentives provided to developers to promote DE are subjected to clawbacks by LDCs (e.g. stand-by charges, interconnection agreement costs, exit fees). It would be desirable to have incentives designed to reward the LDC as a partner sharing the incentive \$'s instead.
- It was noted that there is a difference between the larger LDCs and many of the smaller ones in terms of their respective appetites for embracing DE aggressively and as a potential business opportunity.
- Should an immediate next step be suggested?: Key stakeholders (NRCan, Ministry of Energy, OPA and a few of the more “DE-progressive” LDCs) should meet within a month to review the key lessons and messages of the Workshop and initiate the next steps that need to be taken.

- It might make sense to engage the other stakeholders now as well—pick a few key people and invite them to review the info. on the website?

## Breakout sessions – summary

The group was broken into four groups, each addressing one of the following questions. In addition, three common issues were to be answered within each of the four main topics.

- 1- Are the analytical tools and findings presented this morning applicable to the Ontario/Canadian situation? Similarities, differences, changes needed?
- 2 –What are the potential impacts of DE on Ontario’s LDCs? How can (should?) system planners actively incorporate DE into their planning processes?
- 3 –What policy and regulatory measures are needed to support the growth of DE in Ontario/Canada, and how do we put them in place?
- 4 –What makes the most sense in terms of distributed energy ownership: utility-owned, customer-owned, or a hybrid of the two?

### Common Issues:

- What are the major challenges and/or drawbacks that need to be addressed?
- How could R&D funding best be used to facilitate this process?
- Where do we go from here? What are the necessary next steps?

Question 1: Are the analytical tools and findings presented this morning applicable to the Ontario/Canadian situation? Similarities, differences, changes needed?

### Similarities:

- have energy problem, really peaking problem
- system benefits are greater than distribution benefits
  - o not quantified
  - o no policy to capture (avoiding high costs of new infrastructure)
- reliability comparing the different options
- same resources issues and constraints
- value proposition is distributed over stakeholders
- utility ownership issues
- some areas are growing while others are not

### Differences:

- different regulatory structure
- load profile?
- Generation (fuel) resources
- Maturity of energy market
- 90 local distribution companies versus 4
- Weather
- More urgent transmission than generation

### Changes needed:

- other benefits would have to be quantified

- clarity in defining DE – which side of the meter?
- More emphasis on contracting (risk management, penalties)
- Targeted incentives
- How much DG is needed on a local level.
- Consistent planning process including what are the values.
- Political and policy dimension
- Good technology needs greater demonstration and market transfer activities (public good charges, e.g. California)
- Resistance to change
- Redefine the business model
- This is totally new for customers
- Technical challenges exist
  - o Can be solved but at a cost

Question 2: What are the potential impacts of DE on Ontario's LDCs? How can (should?) system planners actively incorporate DE into their planning processes?

- How do we incorporate reliability or other performance indicators?
- How much DE makes sense?
- Where does it make sense?
- Tools
  - o Software tools
  - o New tools, e.g. Optimal Technologies – value is questionable
- Need to get LDC's to understand the benefits and consider DG as a planning tool.
- System value assessment needs to be done in parallel (or possibly prior to) the impact assessment.
- Should be customer driven
  - o what are the roles of customer, utility, regulator?
  - o Provide an environment where the customer will do it.
- Customers will be more aware of the benefits and risks of DE
  - o Culture of conservation
- Maintenance aspects are negative
- R&D
  - o Universities
    - Cheap source, low risk
    - Additional benefit of training future employees
  - o Demonstration projects, e.g. Enbridge
- Collaboration – both internally and between organizations can help speed up the process, benefit from other's experience. Lines of communication need to be open.

Question 3: What policy and regulatory measures are needed to support the growth of DE in Ontario/Canada, and how do we put them in place?

1. Economics:
  - a. Capital costs are high

- b. Incentives/rebates for utilities and customers
- 2. Construction standards
  - a. Include DE in building
  - b. Higher volumes will bring price down
  - c. Product standards aimed at efficiency
- 3. Communications
  - a. Needs to be increased
  - b. Education of customers to the value of DE
  - c. The message needs to get out
- 4. Net-metering standard offer program
  - a. Confusion DCs
  - b. With customer
  - c. Needs to be clarified or made simpler.
- 5. Zoning
  - a. “NIMBYism”
  - b. Conflicting governmental regulations – Ottawa bylaws was passed to not allow wind turbines.
- 6. Rules on LDC to help connect and develop more DG
  - a. Incentives to get LDCs more involved
  - b. Locational incentives should be developed
- 7. Utilities
  - a. Lots are too small to handle the requirements
  - b. Regulations / rules to get the word out
  - c. EDA – a potential voice for the group in Ontario?

Question 4: What makes the most sense for the business model for DE – utility-owned, customer-owned, or a hybrid approach?

- Customer
  - o Financial
    - Disadvantage – kWh lost, utility revenue affected
    - Advantage – customer driven / needs
    - Advantage – could be less than utility connection
    - Advantage – capital is supplied by the customer
  - o Operational/technical
    - Disadvantage – generation is not necessarily where it is needed
    - Disadvantage – for planning and system protection the size of the DE needs to be considered.
    - Disadvantage – reliability impact is likely negative
- Utility (LDC)
  - o Financial
    - Disadvantage – equity ROI?
    - Disadvantage - may not want to consider, not part of its core business.
    - Large enough?
  - o Operational/technical

- Advantage – can locate DE where it makes the most sense.
  - Advantage – planning/operations benefit
- Hybrid
  - A customer-owned DE that is utility controlled? The optimum mix?
  - Contract negotiated agreement; may be difficult (or impossible) to close the agreements.
- Private enterprise / affiliate
  - Larger DG / CHP
  - Available capital to finance numerous projects
  - Benefit several customers
  - Concept of an aggregator

Comment: peak charges and losses – regulatory mechanisms do not recognize this benefit.

### Where do we go from here?

- Should we have an Ontario DG collaborative?
  - Planning guide for DG.
  - Link to the Massachusetts DG collaborative and the CEC?
- Should we jump into a pilot project?
- Would a similar study be useful in Ontario?

### Comments:

- Ontario needs to do something now.
- The true value of DG has not yet been realized
  - Lessons learned from Ontario
  - Share knowledge with other provinces
- Pilot projects
  - Once implemented you need to measure and quantify the benefits that you are trying to realize.
  - Guide for the designing good pilots from National Grid.
  - Pilot would need to be very well structured.
- Pilot projects:
  - Based on the results from CDM projects how do you design a pilot which could do this or better and the necessary regulatory support.
- Pilots not the way to go
  - Support the OPA programs.
  - Get 200 MWs out on the grid and see what happens, another pilot will take too long.
- OPA support
  - Could work with the OPA to analyze the applications and see what the problems are and what worked well.
  - It could be another 5 years before the argument is resolved. We need to start by implementing projects and work towards addressing the problems.