EB-2018-0287 Utility Remuneration and EB-2018-0288 Responding DERs

Energy Probe Comments

October 18, 2019

Executive Summary

Integration of DER's could result in deterioration in reliability and the rebuilding of the distribution grid to deal with it. Ontario should not embark on a costly re-building of its electricity distribution and transmission systems to integrate DERs without a rigorous examination of costs and benefits. Energy Probe has provided comments on the questions posed by the OEB in this consultation but believes that this approach to the issues of utility remuneration and responding to DER's is unlikely to result in outcomes that will protect ratepayers as the issues at stake have not been adequately scoped. It appears that the OEB is under intense pressure from DER promoters and utilities and is being pushed into a course of action. Energy Probe proposes that the OEB hold a public hearing where claims of electricity distributors and DER promoters can be subjected to discovery, including oral cross-examination. After the OEB has assessed the evidence and considered the arguments of the parties it should decide if DER integration is in the public interest. Only if the OEB decides that it is in the public interest to proceed with DER integration, it could consider utility remuneration. There are significant risks in the adoption of any new technology such as DERs. It should not be assumed that ratepayers would bear all of the risks.The guideline for utility remuneration that is adopted by the OEB should ensure that DER promoters and utilities bear some of the risks of DER integration.

Comments on Specific Issues

Energy Probe participated in the EB-2018-0287 and 0288 consultation meeting and made a presentation. Several other parties made presentations. Based on the knowledge gained from the presentations and the discussions that followed Energy Probe is providing the following submission to the OEB.

The OEB's letter of July 19, 2019 set out the terms of reference for the consultation that was held on September 17, 18 and 19. In the letter the OEB asked that participants provide comments on the following three questions.

1. ***What objectives should the Utility Remuneration and Responding to DERs initiatives aim to achieve?***
2. ***What specific problems or issues should each initiative address?***
3. ***What principles should guide the development and selection of policy options?***

Lack of a common definition of what is a Distributed Energy Resource ("DER") is fundamental problem that needs to be solved before we deal with any other issues[1]. Several parties provided an answer to that question by quoting the definition of DER provided by the IESO.

DERs are electricity-producing resources or controllable loads that are connected to a local distribution system or connected to a host facility within the local distribution system. DERs can include solar panels, combined heat and power plants, electricity storage, small natural gas-fuelled generators, electric vehicles and controllable loads, such as HVAC systems and electric water heaters. These resources are typically smaller in scale than the traditional generation facilities that serve most of Ontario demand.[2]

Environmental Defense provided a definition from NARUC.

A DER is a resource sited close to customers that can provide all or some of their immediate electric and power needs and can also be used by the system to either reduce demand (such as energy efficiency) or provide supply to satisfy the energy, capacity, or ancillary service needs of the distribution grid. The resources, if providing electricity or thermal energy, are small in scale, connected to the distribution system, and close to load. Examples of different types of DER include solar photovoltaic (PV), wind, combined heat and power (CHP), energy storage, demand response (DR), electric vehicles (EVs), microgrids, and energy efficiency (EE)."
National Association of Regulatory Utility Commissioners, NARUC Manual on Distributed Energy Resources Rate Design and Compensation, 2016 (LINK), pp. 45 & 49-50.[3]

Energy Probe provided its own definition in its presentation.

DERs stands for distributed energy resources: customer owned power generation devices such as rooftop solar and power storage batteries including batteries in plugged in electric vehicles. DER integration is a method of allowing two-way flow of electricity between DERs and the power grid. [4]

[1] Hydro One presentation, September 17, 2019
[2] IESO website
[3] Environmental Defense presentation, September 19, 2019
[4] Energy Probe presentation, September 18, 2019

Although definitions vary, connection to the electrical distribution grid is essential to the definition of a DER. For example, rooftop solar panel that generates electricity and is connected to the electrical distribution grid is a DER. Rooftop solar panel that heats water for domestic or industrial use but is not connected to the electrical distribution grid is not a DER. High efficiency gas furnace or boiler is not a DER unless it is also generating electricity that is available to the electrical distribution grid. Is an electric vehicle a DER? For example, electric vehicles that are permanently connected to the grid such as streetcars, LRTs and subways are not considered to be DERs but battery powered EV's are[5]. Energy Probe does not agree with this. Battery powered EVs can provide power stored in their rechargeable batteries to the grid while they are plugged in. Permanently connected subways, LRTs and streetcars can also supply power to the grid through generative braking. Since there is two-way flow of electricity between the vehicle and the grid, both battery-powered vehicles while they are plugged in and permanently connected vehicles are DERs. However, if there is no two-way flow of electricity between the grid and the energy resource, is the energy resource a DER? Energy Probe submits that an unplugged EV is not a DER. Its power is not available to the grid while it is unplugged.

Comments on OEB's Questions

Regarding the three questions posed by the OEB, the following is the answer of Energy Probe to each of the three questions.

1) What objectives should the Utility Remuneration and Responding to DERs initiatives aim to achieve?

The question does not state who does the responding. If we accept that DERs are energy resources connected to the electricity distribution grid, then the electricity distributor is the entity that must respond to them. DERs are not all the same and they do not pose the same problems for the electricity distributor. There are significant differences between problems caused by a fast charging and slow charging EVs.[6] The first response by the distributor is to assess any potential problems that a potential DER may cause to the distribution grid and the costs of dealing with these problems. After the distributor has made its assessment it can decide if it can connect the DER or not. A refusal to connect a potential DER is a response.

Electrical distributors should respond to a request by the owner of a potential DER that requests that the distributor connect the DER to the grid. It is an established principle that utilities have an obligation to serve. That obligation to serve is not absolute. It is dependant on the capacity of the distribution grid and the costs of providing the service. The first response by the distributor is to assess any potential problems that a potential DER may cause to the distribution grid and the

[5] Electric Vehicle Society presentation, September 18, 2019
[6] EPCOR presentation and London Hydro presentation, September 18, 2019

costs of dealing with these problems. After the distributor has made its assessment it can decide if it can connect the DER or not. If the costs of providing service to a prospective customer are higher than can be justified by the revenues from that customer, distributors demand that the customer pay a contribution to offset the cost of providing service. If the customer pays the requested contribution the distributor is obliged to serve that customer.

Energy Probe agrees with the objectives put forward by OEB Staff and two of the objectives proposed by SEC.[7]

Economic Efficiency and Performance: *The regulatory framework promotes economic efficiency, cost-effectiveness and long-term value for consumers.*

Customer Focus: *The regulatory framework encourages cost containment, demonstrable value to customers, greater customer choice and control, and customer confidence in the sector. It also encourages efficient choices.*

Stable yet Evolving Sector*: The regulatory framework maintains the opportunity for utilities to earn a fair return; it neither precludes alternative business models that may be desirable nor impedes the entry of new entities.*

Regulatory Simplicity: *The regulatory framework is practical to administer in terms of cost and complexity while enabling appropriate oversight; it is predictable insofar as its rules and requirements are applied consistently in similar circumstances; it is also resilient, adaptable, flexible and sustainable.*

In addition to these, Energy Probe supports two additional objectives proposed by SEC.

Regulation Only When Necessary: *The regulator actively limits its rate regulation to the natural monopoly components of the sector, and facilitates competition where effective competition is possible.*

Customer Protection: *Regulated utilities should operate regulated natural monopolies, and should generally not engage in competitive activities. Utility affiliate participation in competitive parts of the sector should be based on a level playing field, in which no aspect of being connected to a utility gives any advantage over new market entrants. Utility affiliates competing should face the same business, financial and other risks (and rewards) as new market entrants.*

2) What specific problems or issues should each initiative address?

[7] SEC presentation, September 17, 2019

DERs can provide benefits to the electrical distribution grid, but they can also cause problems. As pointed out in Energy Probe's presentation[8], there are many potential problems caused by integration of DERs according to NERC[9].

- *Non-dispatchable ramping/variability*
- *Response to faults: lack of low voltage ride through, lack of frequency ride through*
- *System protection*
- *Under frequency load shedding*
- *Under voltage load shedding*
- *Visibility and controllability*
- *Coordination of system restoration*
- *Scheduling/forecasting impacts on base load and cycling load generation*
- *Reactive power and voltage control*
- *Impact on forecast of apparent load seen by the transmission system*

These problems are not unsurmountable. All it takes is money. Unless there are offsetting benefits, there will be upward pressure on rates.

In dealing with DERs distributors may be inclined to set up their own system operators. If that happens, there is significant possibility that such system operators would duplicate some of services provided by the IESO. This could also cause upward pressure on rates.

In summary, problems and issues that responding to DERs initiative could raise are the following:

- **deterioration in reliability,**
- **duplication in services if each distributor sets up its own IESO,**
- **increase in rates above the rate of inflation because of costs dealing with reliability and the cost of duplication of IESO services.**

Regarding the utility remuneration initiative, there are two potential sources of remuneration: ratepayers who own DERs, or all ratepayers including those with DERs and those without DERs. There are also two classes of potential DER's: the DER's in front of the meter, and DER's behind the meter. The area behind the meter is part of the competitive market and is currently not regulated by the OEB. The potential problems and issues are related to utility remuneration are:

[8] Energy Probe Presentation, September 18, 2019

[9] North American Electric Reliability Corporation, Special Report, Potential Bulk System Reliability Impacts of Distributed Resources, August 2011

- **Should the OEB extend its regulation to the competitive market behind the meter?**
- **Should customers who do not own DER's subsidize customers that own DER's?**

3) What principles should guide the development and selection of policy options?

In its presentation, Energy Probe proposed the following principles

> ***Users pay principle*** *– non-users don't pay – no cross-subsidies*
> ***Benefits follow costs principle*** *– those who benefit must pay the costs*
> ***Profits follow risks principle*** *– those who want to profit must have profits at risk – no risk- free investments*

It is Energy Probe's position that utility ratepayers with DERs who request that their DERs be integrated by the utility must pay full incremental costs of integration and should not be subsidized by other ratepayers. This is similar to OEB's policy for natural gas system expansion.[10]

Assets behind the meter should not be in utility rate base. If a utility spends money on assets behind a customer's meter that customer should pay the entire cost.

The provision of electricity to the grid by DERs must be strictly controlled by the grid operator on an instantaneous basis to prevent voltage and frequency fluctuations outside specified ranges. Utilities should be at risk of not recovering their costs if there is a deterioration in reliability or an increase in rates above the rate of inflation. These could result from bad decisions, wrong design, poor installation by utilities, or excessive costs.

As can be seen from the large number of parties in this consultation there are opportunities for profits in the provision of DERs to customers and utilities. Businesses hoping to make a profit are promoting the DERs as a solution to the needs of utility customers and Energy Probe referred to them as DER Promoters in its presentation. DER Promoters are suppliers of batteries, solar panels, electrical switchgear, computer hardware and software, DER engineering consultants, DER installation contractors, and others who hope to make a profit in the DER business. DER promoters should be at risk if what they are promoting does not work as intended. These problems could result from faulty equipment and software, poor design or bad installation.

[10] EBO 188 OEB Guidelines for Assessing and Reporting on Natural Gas System Expansion in Ontario

In its presentation Energy Probe proposed a regulatory model that would ensure that utilities and DER promoter bear some of the risks[11]. If there is deterioration in reliability and increase in rates above the rate of inflation, utility returns and promoter's profits would be at risk. Create a DER Integration Deferral Account ("DERIDA") that would collect utility investments on DER integration. The DERIDA would be subject to review and clearing on an annual basis. If there is a deterioration in reliability and/or an increase in rates above inflation, the OEB could disallow cost recovery of a portion of DERIDA balance through rates from ratepayers. For regulated, in front of the meter utility assets, the utility would withhold a percentage of the payment to the DER promoter until the OEB approves the balance in the DERIDA for addition to utility rate base and recovery from ratepayers. If there is a disallowance the utility would ensure that the DER promoter shares in the disallowance.

Conclusion

Energy Probe believes that Integration of DER's could result in deterioration in reliability and the rebuilding of the distribution grid to deal with it. Ontario should not embark on a costly re-building of its electricity distribution and transmission systems to integrate DERs without a rigorous examination of costs and benefits. The OEB should hold a public hearing where claims of electricity distributors and DER promoters can be subjected to discovery, including oral cross-examination. After the OEB has assessed the evidence and considered the arguments of the parties it should decide if DER integration is in the public interest. Only if the OEB decides that it is in the public interest to proceed with DER integration, it could consider utility remuneration. The guideline for utility remuneration that is adopted by the OEB should ensure that DER promoters and utilities bear some of the risks of DER integration. The IESO should continue to be the system operator and should manage power supply from DERs.

Respectfully submitted,

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[11] Energy Probe Presentation, September 18, 2019