Re: Board File Number: EB-2019-0207 - Distributed Energy Resources Connections Review Initiative

About the Clean Air Council

The Clean Air Council (CAC) is a network of 28 municipalities and health units from across the Greater Toronto, Hamilton and Southwestern Ontario Area[1] who work collaboratively on the development and implementation of clean air and climate change mitigation and adaptation actions. More information on the Clean Air Council is available here. CAC representatives are the municipal change agents within leading climate action municipalities and have been working collaboratively across the region for almost 20 years to support and enable progress on clean air and climate change actions. This submission presents the consensus of feedback from the Clean Air Council membership to the above noted EB-2019-0207 - Distributed Energy Resources Connections Review Initiative and was facilitated and is endorsed by the Clean Air Partnership, a charitable environmental organization that serves as the secretariat for the Clean Air Council[i].

Distributed Energy Resources Planning

Municipalities in Ontario have become increasingly engaged in developing Community/Municipal Energy Plans that outline actions that will be undertaken in order to address energy use within the community in order to advance:

- Economic Benefits: reduced energy costs and spending, reduced vulnerability to energy and carbon price increases over time, increasing good quality local jobs, ensuring the right conditions to ensure that the community is able to be a participant in the energy transformation occurring, and retaining energy spending within the local community;
- Environmental Benefits – reduced greenhouse gas emissions (GHGs), healthy ecosystems, more efficient land use;
- Health Benefits – improved air & water quality, reduction in sedentary lifestyle diseases, improved mental health, increased emphasis on prevention of health diseases and reduction in health care costs; and

[1] CAC Municipal and Public Health Unit members include: Ajax, Aurora, Brampton, Burlington, Caledon, Clarington, Durham Region, Guelph, Halton Region, Halton Hills, Hamilton, King, London, Markham, Mississauga, Newmarket, Oakville, Oshawa, Peel Region, Pickering, Richmond Hill, Simcoe-Muskoka District Health Unit, Toronto, Vaughan, Region of Waterloo, Whitby, Windsor, York Region. Municipal staff representatives on the CAC were consulted in the preparation of this submission to reflect the feedback of member municipalities. Direct endorsement of this submission by municipal councils was not sought due to the short time frame for this consultation.

- Community Resiliency – including protection from extreme weather, energy supply and price volatility.

The implementation of Community/Municipal Energy Plans however, is not near the level required to ensure that Ontario can be a key participant in the emerging distributed and low carbon energy transformation. Creating a more level playing field between our present energy system and the emerging energy system is necessary for Ontario to participate in this energy transformation and avoiding the risk of simply being a consumer of other jurisdictions' energy transformation economies.

Recommendations for Advancing Distributed Energy Resources (DER) Planning

It is recommended that Ontario develop an **Energy Transition Road Map and Decision Making Matrix.** The province, municipalities and utilities need to work together to develop and navigate a road map for the transition to a more decentralized energy system. Suggestions that CAC members would like to examine with provincial and utility partners include:

1. Identify potential futures: Accessing ever deeper energy efficiency opportunities (conservation first principle); business as usual generation (centralized system); decentralized generation (community with or without micro grid); individual infrastructure/generation (not connected up to any other grid simply at the building level) and how these scenarios impact or support each other.
2. Identification of the various pros and cons; costs and benefits associated with each of the scenarios, and development of a decision matrix to compare among them.
3. Review of the various scenarios from a variety of different lenses: provincial system, local/community system; resilience; climate; economics and economic development; social, short term, longer term, market transformation, etc.

Advance Planning Alignment

In order to advance the goal of supporting Energy Plan implementation (of which distributed energy resources are a significant component) increased alignment is needed among the Province, the IESO, the Utilities and Municipalities. QUEST and Clean Air Partnership (CAP) have been working with stakeholders to identify opportunities to advance planning alignment; identifying overlap and interdependencies, as well as opportunities to more efficiently achieve respective objectives. The six recommendations below summarize the findings from a combination of semi-structured interviews and facilitated workshops with participants from across Ontario:

1. Enhance Engagement and Plan Review
2. Identify and Converge Around Common Objectives
3. Increase Focus on Peak Demand
4. Improve Data Sharing and Assumption Consistency
5. Collaborate on Energy Mapping
6. Leverage Incentives and Financial Mechanisms

For example **there are significant opportunities to increase alignment between land use planning and energy planning. Centralized energy planners, municipal planners and utility**

planners should be more proactive in identifying energy demand from new developments. It is important to recognize energy limitations and where distributed energy may be best able to address local energy demand. Increased communication earlier in the process between stakeholders may also address the challenges distributed energy projects face when connecting to the existing grid and how targeted conservation, distributed energy and renewables can best reduce the need for new transmission and distribution infrastructure. This consideration should also be applied to the IESO's Regional Energy Planning exercise through incorporation of a distributed energy resource lens as an alternative to, or complement to, future investments in electrical transmission and distribution infrastructure.

More detail on opportunities to advance each of these goals are available in the Towards Planning Alignment Report.

Alignment of Policy Goals

In order to provide the best outcomes from our energy system for Ontarians; we must break down silos, ensuring that energy system decision making seeks to advance synergies between the following policy goals:

- Maximizing value of our investments in our present energy investment;
- Reducing peak energy demand (which is often the most expensive and highest GHG (in the case of electricity) energy commodity;
- Reducing the need for energy through reduced energy waste and increased efficiency;
- Advancing distributed energy resources in order to better match local energy demand with local energy supply and reduce costs to the system and customer from transmission losses and infrastructure investments to the greatest extent possible;
- Reducing GHGs and air pollution from our energy system via fuel-switching from fossil fuels towards lower carbon electricity;
- Developing an energy market and price signals that are clear and transparent and serve to advance the synergies of the above goals as much as possible; and
- That our electrical grid continues to further its decarbanization.

Distributed Energy Resources that Feed into the Electrical Grid

Prioritizing Renewables for Grid Capacity

In order to ensure that provincial policy objectives are aligned there is the need to prioritize energy efficiency over energy generation; and renewable electricity generation opportunities over fossil fuel based opportunities. While costs of course need to be factored into all different scenarios for how energy demand can be met; those costs should also factor in GHG reductions (and those reductions should not be discounted since GHG reductions now are more valuable than GHG reductions in the future); as well as factoring other co-benefits such as delay or elimination of infrastructure investments; addressing peak demand; increased resilience to supply disruptions from extreme weather; and public health care benefits.

Need to Advance Virtual Net Metering

Enabling customers to advance their net metering opportunities is extremely important and some recommendations to streamline net metering for Ontarians follows, but in order to truly capture the opportunities DER provides for enabling low carbon and lower cost DER energy options, the market for virtual net metering needs to be advanced and supported. Virtual net metering would enable Ontarians to benefit from 3rd party involvement/ownership of DER on their property without having to bear the upfront capital costs and operational requirements. It will also help to reduce costs to customers and utilities through efficiencies of scale, increase implementation of DER, and advance the economic development opportunities for Ontario's DER market.

The virtual net metering framework should allow for renewable energy co-operatives and other community energy entities to participate. These entities are crucial to advancing our DER and provide customers an opportunity to participate in the DER market when they would be unlikely to participate otherwise. Virtual net metering is also critical for enabling Ontarians to take a more active role in the energy transformation and fulfills the important goal of improving energy literacy within our communities.

While there may be billing challenges with virtual net metering, identification of issues and possible solutions should be further explored with utilities and other stakeholders. In addition, ensuring a level playing field between net metering and virtual net metering and across utility catchments is key to advancing Ontario's DER opportunities as well as ensuring fairness, equity and transparency.

Use Time of Use Billing for Net Metering

In order to ensure fairness and consistency it is important that credits for net metering are calculated on the same basis for how customers are charged for electricity (i.e. based on time of use). This would not only advance fairness and consistency, but would also better represent the true value of electricity that is supplied during peak hours. While there may be some challenges related to billing, in order to reduce duplication and inefficiencies it is recommended that the province and utilities work together to develop a consistent billing protocol that is used across all utilities. In addition, the price signals or credits provided as part of a net metering framework should be consistent across utilities.

Grid Connection Rules and Fees

Grid connection rules should be applied based on clear and transparent criteria. The OEB, Utilities, the Province, Municipalities and other Stakeholders should work together to develop clear and consistent connection rules. The framework should build on best practices from other jurisdictions, while also considering grid limitations of concern. In addition, grid connection rules need to be updated on a more regular basis in order to ensure that the rules respond to the changing nature of DER resources and opportunities. For example many utility grid connection rules are still based on the FIT model for DER (where 100% of renewable electricity from DER are fed into the electrical grid) as opposed to net/virtual metering where the large majority of electricity is used on site and where 100% is very unlikely to be fed into the grid.

Grid connection rules and grid connection fees for DER should be standardized across the different utility catchments and should be limited to a cost recovery fee with clear communication from the utility on their connection costs to DER participants.

In order to further allow DER, generation needs to receive the same treatment as demand/loads when it comes to thermal constraints, short circuit capacity and other grid calculations. Currently, there are transmission stations and distribution stations that are listed as having no further capacity from the standpoint of adding generation (e.g. Short Circuit fault current constraints), but continually are able to find capacity for allowing more demand/loads (which can produce even greater Short Circuit fault current). This is the case even when the generation is being added behind the meter and is unlikely to ever reach the grid.

Price and Market Signals

Traditional thinking related to DER often considers how electrons are fed into the grid. In order to ensure that the significant opportunities related to DER are captured and benefit Ontarians, there is the need to advance energy system thinking and decision making to be broader than just consideration of electrons being added into the grid. This would include, but not be limited to:

How customers can not only meet their own energy needs but also meet those needs in a manner that supports the other policy goals mentioned in the **Alignment of Policy Goals** section on page 3. For example, having the price for credits for net/virtual metering calculated on the same basis for how customers are charged for electricity is a key clear price signal. However, price signals should also serve the advancement of other behind the meter and storage solutions that enable demand load switching (ex. advancing the fuel switching goal for thermal energy needs while also reducing summer peak energy use via energy efficiency and geothermal and air source heat pump use) which can not only reduce peak electricity use in summer but also better level electrical demand and supply between the summer and winter season to make better use of our electrical supply and grid.

Another example of misalignment between market signals and policy goals is with the implementation of standby charges for DER. These charges are to be paid to LDCs with the thought that the LDC needs to have power “at the ready” for which the LDC should be compensated in the event the DER fails to provide the anticipated power. This has the potential to seriously impact the economics of DER and penalize renewables, which are not typically demand shedding technologies, and reduce the level of implementation of these valuable resources. This also runs counter to the idea and benefit of the ‘distributed’ element of DER rather than relying on large, centralized power resources.

These energy system and policy advancement solutions will not receive the uptake required to meet Ontario’s needs unless the energy market and price signals are set up in a manner that fosters implementation of those opportunities. The OEB should consult with key stakeholders in order to develop the price and market structure that will best meet the needs of Ontarians, our energy system, and our emerging DER energy sector.

Grid and Storage Considerations

Grid Investments

It is imperative that as investments are undertaken to improve Ontario's electricity grid that the improvements made serve Ontario well into the future. A modern and "smarter" grid would position Ontario communities to increase their ability to participate in the DER market. To leverage such flexibility and control will however, require a smart grid, smart buildings and smart appliances, as well as increased energy literacy in all stakeholders. No matter what our future energy system evolves into, Ontario's grid needs to be modernized so that it does not become a limiting factor in enabling increased flexibility and ability of new and emerging energy opportunities.

The costs of those grid investments should not be borne simply by the DER but should be factored into overall grid infrastructure investments, thereby ensuring Ontario's grid is moving towards where the energy market is going.

Storage and DER

Storage is integral to managing renewable and distributed energy opportunities. Many more storage projects (both electrical and thermal) need to be undertaken to ensure that all energy stakeholders in Ontario understand how storage can support distributed and renewable energy and associated policy goals. More information is needed on potential safety issues. There is an increased need to ensure that accurate information is shared and communicated. Resilience is another lens that needs to be applied to storage.

Storage and Electric Vehicles

Electric vehicles present a future potential energy storage option and could be a source of diurnal storage, with the added bonus that the car owners have already put in the upfront capital cost when they bought their electric chargers and vehicles. The ability of Ontarian's EV fleet to serve as an energy storage option for Ontario's grid will however depend on the connection infrastructure supporting two way flow, and it will require that there be administrative and contractual templates for commoditizing the arrangements with the car owners so that they maintain the overrides and controls they need to ensure they always have enough "in the tank" for the driving they plan to do on any given day. It is recommended that stakeholders (OEB, Provincial Ministries, IESO, Utilities, Municipalities and others) work together to better understand the value that this emerging area can bring to Ontario's energy system and the obstacles it faces in its implementation.

Micro Grids

Micro grids are important in the technological advancement of our communities' energy systems. A greater understanding of micro grid projects being undertaken is needed to identify the opportunities and challenges of moving away from our traditional grids. The Clean Air Council looks forward to learning more from the IESO and utilities on micro grid projects being tested in Ontario.

Energy Price Transparency & Application of an Equity Lens

It is important for energy costs to be allocated to energy users as accurately as possible rather than being subsidized through the general tax base. However, it is also important that energy costs are transparent and clearly articulated to Ontarians. To do this, energy literacy needs to be significantly increased, especially as it relates to electricity pricing. It is often misconceived that green energy projects have been the main reason for electricity price increases. Ontarians need to understand that within the 2015 Global Adjustment (GA) calculations while green energy investments did account for approximately 27% of the GA (12% Wind; 13% Solar; and 2% Bioenergy), nuclear refurbishments accounted for 39%; Gas/Oil for 17%; Hydro for 13% and Conservation for 4%.[ii] In addition, few Ontarians realize that while electricity prices were capped in the early to mid-2000s at 4.3 cents/kWh, the difference between the electricity costs paid by the user and the amount that had to be paid to the generator resulted in about an additional $730 million payment per year from the Ontario tax base[iii].

Having acknowledged the value and principle of the "user pay" approach, there is a need to ensure that those most vulnerable to energy price increases are provided with programs and support to address energy poverty. As such, lower income energy efficiency programs need to be scaled up. Toronto's Tower Renewal program provides an example of a program that addresses those most vulnerable to energy costs.

Additionally, programs and policies need to be developed to address equity issues, energy poverty and the challenge of addressing the split incentive problem (where tenants can't participate in energy efficiency and DER opportunities and therefore their ability to reduce energy use is limited, but landlords have no incentive to invest in energy efficiency or DER as they do not face the financial costs of energy use). For example, increased requirements on the part of landlords to publicly report on energy costs of their rental units may be able to increase the market for energy efficient rental units.

The Clean Air Council would like to thank the OEB for considering this input and extends an invitation to discuss these recommendations in more detail. Please contact Gabriella Kalapos at gkalapos@cleanairpartnership.org to identify a future Clean Air Council meeting where OEB and provincial staff and Clean Air Council representatives can further explore and collaborate on advancing Ontario's efforts to create the efficient, low carbon, livable, resilient and competitive communities Ontarians desire.

[ii] IESO 2015 Global Adjustment by Fuel Source (Nuclear 39%; Hydro 13%; Gas/Oil 17%; Wind 12%; Solar 13%; Bioenergy 2%; and Conservation 4%)

[iii] Trebilcock, M & Hrab, R. What Will Keep Lights on in Ontario? C.D Howe Institute. November 2003, No. 191 available at:
https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/commentary_191.pdf