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Agri-Energy Producers' Association of Ontario (APAO) Submission to the OEB Regarding Board File EB-207-0031

The Agri-Energy Producers' Association of Ontario (APAO) represents primarily farmers wishing to building anaerobic digesters on their land and sell the electricity they generate from burning methane to the grid. The majority of proposed farm-based projects are below 500kW.

APAO commends the Government of Ontario for making the decision to move away from the principle of deep entry, whereby distributed generation was required to cover all the costs of connection, no matter how far downstream and no matter how disproportionate to the scale of the project. Deep entry is recognized as a substantial barrier to entry for renewable generation. The new policy moves towards shallow entry to a significant extent, and as such is welcome. However, generators must still potentially bear highly variable costs which can be very significant in comparison with the overall cost of the project. The transparency of specific connection procedures and connection cost calculation is very low, which will act as a significant barrier to renewable generation. In addition, both timescales and the necessity for a case-by-case negotiation with the relevant utility over connection costs will remain problematic under this regime.

APAO is very pleased to note the OEB's new objective on promoting the use and generation of electricity from renewable energy sources in a manner consistent with the policies of the Government of Ontario. Biogas generation is consistent with government policy in more ways than almost any other form of renewable energy, due to the numerous environmental and rural economic development benefits, which are in addition to the benefits conferred in energy terms. In order to capture these advantages, it is necessary to ensure that small farm-based systems in relatively remote areas be both financially viable and able to connect to the grid. If these conditions are met, then it will be possible for manure to be treated in the most environmentally responsible manner, which is to use an anaerobic digester to extract the energy content while leaving behind a stable and odourless residue which will not pollute water resources when applied to land.

The criteria used by the OEB in its decision-making process (namely the anticipated beneficiary of investment, efficiency through locational price signals and harmonization), while being reasonable for larger systems with locational flexibility, do not take into account the circumstances of locationally fixed small-scale generation. While a project proponent may arguably be the prime beneficiary of an investment in financial terms, there is a substantial public interest in enabling small biogas projects to proceed. The environmental impact of

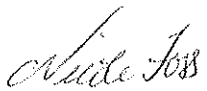
agricultural operations incorporating a biogas digester is greatly reduced, the employment potential is significantly increased, and the project is able to provide grid support in rural areas.

These farm-based projects have no choice as to where they locate, unlike commercial projects such as large wind or solar farms. Imposing locational price signals on such projects merely means that many will not be viable, as the cost of connection will be magnified to a point where it will be entirely disproportionate to the scale of the project. It will not just be the project proponents who are disadvantaged if this happens. APAO's opinion is that projects below 500kW, should have locational price signals muted. The most appropriate way to achieve this is the method employed for small projects in the Netherlands, where there are standard connection designs published and the connection cost imposed on the project represents an average for that class of connection, rather than the actual cost in each specific case. There is no case-by-case negotiation with the utility company. This greatly increases the transparency of the process, thereby alleviating a significant barrier to entry for small generation. APAO strongly believes that small projects should be subject to a much simpler set of rules than large commercial-scale operations where locational price signals are entirely appropriate.

APAO notes that although the OEB mentions timely expansion and reinforcement of transmission and distribution systems, there is no definition of timely and no proposed mechanism for the delivery of this objective. As the potential for long delays is significant, given the high projected demand for grid infrastructure modifications, a mechanism imposing some form of accountability for time would be appropriate. For instance, some German provinces use an administrative court system to maintain some oversight of the utility companies and to enforce timescales contained in regulatory instruments. Long construction delays would greatly limit the amount of renewable energy able to be brought on to the grid, the capacity of which is currently quite limited. Expansion needs to be a high priority, but this will not happen without oversight and accountability.

APAO proposes a connection regime based on shallow entry, where generators are only responsible for the cost of the connection assets. If generators must pay a proportion of the cost of expansions, including potential transmission system upgrades which are not included in the connection cap, then the cost of connection can still easily be too high in many areas to make a project financeable. Locational price signals could better be conveyed through Use of System charges than by paying partially for expansions Use of System charges can be positive or negative, in order to provide both incentives and disincentives to generation in a given location. This is a better approach than the use of a disincentive only through charging for a higher percentage of the connection infrastructure.

Please find enclosed a print-out of a powerpoint presentation on the OEB proposals.

Regards, 

Nicole Foss
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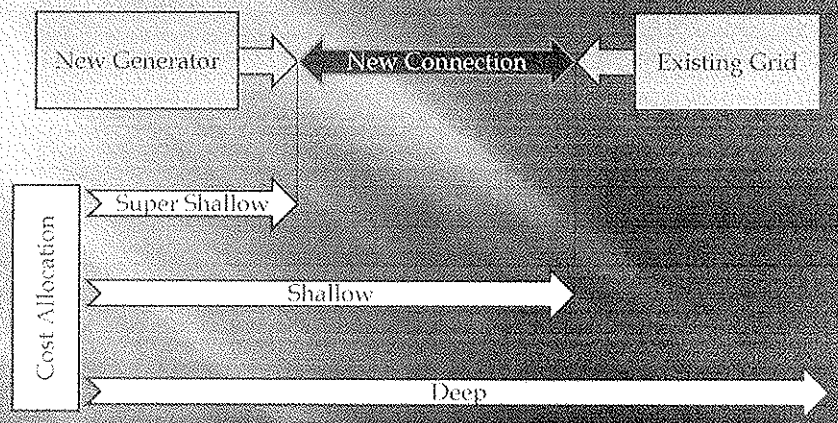
GRID CONNECTION PROPOSALS

Nicole Foss
APAO

The Current Situation

- Grid connection charging is based on deep entry.
- This means that generators are responsible for all the costs of connection, no matter how far downstream and no matter how disproportionate to the scale of the project.
- The Green Energy Act changes this principle.
- The new OEB proposals are the first step towards developing a new position.

Charging Boundary



New OEB Objective

"...to promote the use and generation of electricity from renewable energy sources in a manner consistent with the policies of the Government of Ontario, including the timely expansion or reinforcement of transmission systems and distribution systems to accommodate the connection of renewable energy generation facilities."

A First Step Towards a Broader Mandate

- "...in a manner consistent with the policies of the Government of Ontario..." is not clear.
- It could be interpreted to refer only to energy policies, but it should encompass broader environmental and social goals.
- In many European countries, social and environmental goals are explicitly part of the mandate of energy regulators and transmission/distribution companies.

A European Example

- The mandate of the Danish transmission company Energinet.dk includes the following in relation to planning, extensions and reinforcements:

"The planning must support the objectives laid down in Danish and European energy policies, including the Danish government's Energy Strategy 2025. Furthermore, the development of the electricity and gas systems must strike a balance and take account of the wish for a high level of security of supply, emergency preparedness, market mechanisms, environmental concerns and socio-economic factors."

Cost Responsibility Criteria

- Cost-causation (beneficiary of the investment)
- Efficiency (signals to promote connections that will require as little additional infrastructure as possible)
- Harmonization (aligning cost responsibility with the obligation for distributors to plan expansions of their systems)

Investment Categories

- Connection Assets
- Expansions
- Renewable Enabling Improvements
  - Investments in lines or equipment made in anticipation of demand for grid capacity for renewable energy generation, but not tied to a specific project.

Connection Assets

- Connection assets are "that portion of the distribution system used to connect a customer to the existing main distribution system, and consist of assets between the point of connection on a distributor's main distribution system and the ownership demarcation point with the customer".

Cost Responsibility for Connection Assets

- The generator will continue to be responsible for the cost of the connection assets.
- Connection assets are not expected to be shared with other generators or load customers.
- The cost will be determined on a case-by-case negotiation between the generator and the utility.
- This cost can vary substantially with location and between utility companies.

Connection Cost Recommendations for Large Scale Projects

- Utility-scale renewable energy generators are generally locationally flexible.
- Locational price signals are appropriate in order to ensure that best use is made of both existing infrastructure and scarce resources for new grid developments.
- Standard connection designs should be published in order to maximize transparency.
- Connection costs should be standardized as much as possible across the province, and case-by-case negotiation with utility companies should be minimized.

Connection Cost Recommendations for Small Projects

- Small generators (<500kW) fit the ideal of distributed generation in that they help to balance generation and load locally, but are often not flexible as to location.
- Strong locational price signals are not appropriate as they would often make these projects non-viable in rural areas.
- It is recommended that classes of connections be developed over which the connection cost would be averaged rather than applying the actual cost in each case.
- This is done in the Netherlands for connections below 10MW, but is considered here only for smaller projects due to larger distances and greater local grid variation in Ontario.

Expansions

- An expansion is "an addition to a distribution system in response to a request for additional customer connections that otherwise could not be made."
- Expansions generally include:
  - Upgrades from single-phase to three-phase
  - Rebuilding a line with a larger size conductor
  - Rebuilding an existing line to provide an additional circuit to the generator
  - Converting a lower voltage line to higher voltage
- Expansions primarily benefit the generator, but may later benefit other generators or load customers.

Cost Responsibility for Expansions

- Where an expansion is triggered by a specific generator connection, the OEB proposes that the cost should be shared between generator and distributor in order to maintain locational price signals.
- Under deep entry, the generator would have had to pay the entire cost up-front, with some potential for later reimbursement from later generators sharing the infrastructure.
- The OEB proposal does not represent pure shallow entry, where the generators would pay only for the connection assets.
- Where an expansion is approved or mandated by the OEB and not triggered by a specific generator connection, the distributor will cover the cost.

Cost Responsibility for Downstream Transmission Upgrades

- The OEB proposes that transmission upgrades triggered by a specific connection would be paid for by the generator.
- As these costs can be very significant, they would very likely act as a barrier to affected projects.

Mechanism for Cost-Sharing

- The OEB proposes to cover the cost of expansion up to a cap, to be paid by the generator to cover costs in excess of this amount.
- Distribution upgrades are not to be included in the cap calculation.
- The renewable energy expansion cost cap is based on representative expansion costs and is set at $100,000/MW (a 10MW project would pay expansion costs above $900,000).
- The cap is set at the bottom end of the average range based on a survey of 500 projects.
- The generator's contribution will generally be considerable, adding significantly to the locational pricing aspect.

Expansion Cost Recommendation

- It is recommended that the OEB adopt a pure shallow entry approach.
- The cost of expansions would be entirely borne by the distributor or the transmission company and recovered from the ratebase.
- The cost should be socialized across the province, so as to limit the burden on the ratepayers in specific areas.
- European experience clearly demonstrates that shallow entry is an important factor in the development of renewable energy generation.

Renewable Enabling Improvements

- Renewable enabling improvements are investments made to enhance the ability of a distribution system to accommodate increased levels of renewable generation.
- Renewable enabling improvements include:
  - Modification to control 2-way electrical flows
  - Modification of electrical protection equipment
  - Modification of voltage regulating equipment
  - Provision of anti-islanding protection

Cost Responsibility for Renewable Enabling Improvments

- The OEB regards renewable enabling improvements as being of benefit to the distributor and it existing and future customers.
- The OEB therefore proposes that these investments be covered by the distribution company.
- It is recommended that this proposal proceed as drafted.

Cost Responsibility for Investments Made in Anticipation of Demand

- The OEB proposes that investments made in anticipation of demand for grid capacity by a renewable energy generator be deemed to be undertaken for the benefit of the broader customer base.
- These investments would therefore be paid for by the distributor and recovered from the rate base.
- It is recommended that this proposal proceed as drafted.

Timescales and Accountability

- Grid expansion and reinforcement is a stated objective, but there is no mechanism for accountability as to timescales.
- Without a definition of 'timely', and accountability as to that definition, expansion timescales will be unreasonably long.
- There should be explicit targets for renewable generation connected and penalties for missing those targets.
- In Germany an arbitration board, or administrative court (Verwaltungsgericht), holds utility companies accountable for the timely performance of publicly mandated duties.

OEB Expectations

- The OEB expects that generators will site and time their projects to take advantage of capacity that is available, such that their connections will minimize the need for additional investments".
- It is clear that additions and modifications to grid are envisaged as a very long term project.
- Renewable generation is expected to rely on limited capacity for the foreseeable future.

Cost Recovery from the Ratebase

- The Green Energy Act will introduce a mechanism for cost recovery through transmission rates, payable by all consumers throughout the province.
- Details are not yet available.
- This will be an essential provision, as the impact on ratepayers in different areas could otherwise vary substantially.

Cost Recovery from Generation

- The OEB will consider Use of System charges at a later date, perhaps in the planned Distribution Connection Cost Responsibility Review.
- Use of System charges could involve payments in either direction, in order to act as an incentive or a disincentive to build in a particular location.
- This would sharpen price signals considerably, which would be appropriate in some cases and not in others.
- It would help to encourage the best use of limited existing infrastructure by better matching generation and load patterns.
- Small systems below 500kW should be exempt from such charges.

Connection Transparency in Europe

- [illegible] would benefit from incorporating the [illegible] approach to transparency, both in individual [illegible] states and at the EU level.
- Directive 2001/77/EC on renewable energy requires [illegible] connection standards, clear rules on cost-sharing and comprehensive cost estimation.
- Directive 2003/54/EC on electricity liberalization [illegible] connection transparency.
- [illegible] for member states (eg Belgium, Denmark, Germany, Netherlands) to require published connection standards and tariffs which must be approved by regulators and are subject to amendment by regulators.

Review of Recommendations

- [illegible] philosophy should be shallow entry.
- [illegible] should be responsible only for the cost of the [illegible].
- Smaller projects would be dealt with under an enhanced shallow entry regime, where they would pay an averaged connection asset [illegible] rather than the actual cost.
- All connections, as well as renewable enabling improvements, should be covered by the distributor or transmission company.
- Transparency should be very a high priority, therefore connection [illegible] and representative costs approved by the regulator should be published.
- Case-by-case negotiations with utility companies should be eliminated wherever possible, as these reduce transparency.
- There should be a mechanism similar to a German administrative court, in order to ensure accountability for expansion and reinforcement timescales.