



September 16, 2013

Julie Green
Senior Policy Analyst
Ministry of Energy
Regulatory Affairs and Strategic Policy
Strategic Policy Branch
880 Bay St., 2nd Floor
Toronto, Ontario
M7A 2C1

Re: EBR 001-9490 - Policy Proposal Notice: Reviewing Ontario's Long-Term Energy Plan

Dear Ms. Green,

The Ontario Society of Professional Engineers (OSPE), the advocacy and member services body for Ontario's engineers, is pleased to make this submission regarding the three-year review of Ontario's Long-Term Energy Plan (LTEP).

OSPE supports the government's commitment to a balanced approach for an affordable, reliable and sustainable electricity system. To that end, and based on our own engineering studies, OSPE is recommending the following key strategic adjustments to the LTEP.

Reduce escalating rates

Ontario's overall electricity grid utilization/capacity factor has been falling and is now about 63 per cent based on IESO hourly demand data. This drop is driven by reduced night time demand and increased day time air conditioning demand.

Ontario currently charges customers under the Regulated Price Plan more for base load energy and less for incremental peak load energy than the cost to produce them. This pricing approach discourages higher grid utilization factors. A voluntary "opt-in" electricity price plan that prices base load and incremental peak energy closer to the cost of production would create the business case for private investments in demand side solutions to flattening the daily demand profile.¹ This would result in both customer cost savings and supply cost savings from improved utilization of existing assets, thereby increasing affordability and reducing pressure on escalating rates.

¹ OSPE, *Time of Use Rates – Let's Use Smart Meters in a Smart Way!*, March 9, 2011, http://c.yimcdn.com/sites/www.ospe.on.ca/resource/resmgr/doc_advocacy/2011_sub_9mar_tou.pdf.

Enable robust electrical system solutions

The outlook in Ontario for the foreseeable future is one of overall low load growth for electricity. However, there are locations where load growth will continue from urban intensification in *Places to Grow Act* communities in southern Ontario, as well as from mining ore extraction and refining developments in northwestern Ontario. There is an opportunity to address load growth at the source to relieve stress on the large electricity infrastructure via Community Energy Planning. This will deliver smaller scale solutions that will minimize social friction, that are more integrated instead of electricity only, and that have the ability to attract private investment to reduce pressure on the rate base.

Current Regional Energy Planning tends to have a bias towards large, electricity only, rate base funded solutions.² Municipalities/communities tend to prefer small scale, integrated energy solutions (i.e. thermal, electricity, water), and funded by private sector investment, such as:

- conservation and demand reduction that leads to energy productivity and economic benefit;
- new district energy systems (i.e. Markham, Toronto, Hamilton, Guelph);
- behind the meter/load displacement combined heat and power (CHP) (i.e. campuses for academic, health care, government, industrial uses).

Smaller scale integrated solutions to address load growth at the source tend to also reduce vulnerability to low probability high impact events.³ An example is the July 8, 2013 flood that brought down the Manby Transformer Station in west end Toronto, resulting in rotating power outages. The need for smaller scale local solutions will become more important as more of the population chooses to live in high rise buildings which are uninhabitable without a continuous electrical supply.

Strategically, conservation is of highest value in constrained areas for peak demand reduction. Dramatically increased participation can be had from simplified programs that stimulate performance-based solutions based on more effective price signals (base load and peak rates closer to the cost of production), instead of incentive programs with stop-and-go uncertainty that focus on prescriptive equipment replacement efforts. With simplified programs based on effective price signals, a wider array of innovative solutions will emerge, including: load displacement, load management cooperatives, district energy systems with CHP and energy storage.

Support the most cost effective environmentally sustainable solutions

Ontario has achieved a significant reduction in the electricity system greenhouse gas (GHG) emission factor down to 80g CO₂/kWh versus 220g CO₂/kWh pre-coal phase out. Other jurisdictions such as the USA, Europe and China have GHG emissions close to or greater than

² OSPE, Ontario Dialogue on Regional Planning and Siting Large Energy Infrastructure Submission, July 15, 2013, http://c.yimcdn.com/sites/www.ospe.on.ca/resource/resmgr/doc_advocacy/2013_sub_15jul_opa.pdf.

³ City of Toronto, Resiliency in Energy Infrastructure, May 7, 2013, http://prezi.com/gb5ow-3xeqv/resiliency-in-energy-infrastructure/?utm_campaign=share&utm_medium=copy.

400g CO₂/kWh.⁴ Our engineering analysis shows a reduction in the nuclear portion of the energy mix will cause GHG emissions to rise. The reason is that gas fired backup that will be required to make renewables work reliably until cheap storage becomes commercially available.

OSPE recommends improving the flexibility of nuclear units to enable effective use of additional variable renewables that have already been contractually committed. This approach will:

- lower GHG emissions compared to using gas plants to backup variable renewables⁵;
- eliminate surplus base load energy and prevent the waste of green energy (wind, solar and hydroelectric);
- reduce the rate of escalation of electricity rates because steam bypass improvements at the nuclear plants are much cheaper than adding storage.⁶

The electrification of the transportation sector will cause an increase in base load requirements, where nuclear power can more cost-effectively contribute to reduced GHG emissions in transportation.

A modest but important untapped opportunity for environmental improvement is the reassignment of some wind and solar generation commitments (with storage) to off-grid locations that currently use diesel fuel for electricity production. The high cost of diesel generation makes these locations more economically suited to the use of wind and solar generation even with modest amounts of storage.

Continue to support innovation and commercialization

OSPE is pleased the government has supported innovative research and development of new technology development in Ontario. Continued government support of research and development and early stage commercialization is important to ensure new technologies are successful. We have no choice but to innovate our way into the future. OSPE encourages the government to implement a voluntary “opt-in” price plan that will facilitate later stage commercialization of many of the products that are being developed here in Ontario. If properly designed, a voluntary “opt-in” electricity price plan can enable later stage commercialization of the best products without government subsidies or the need to pick technology winners.

⁴ European Environment Agency, CO₂ Emissions per kWh of Electricity and Heat Output, July 26, 2011, <http://www.eea.europa.eu/data-and-maps/figures/co2-emissions-per-kwh-of>.

⁵ OSPE, *Wind and the Electrical Grid: Mitigating the Rise in Electricity Rates and Greenhouse Gas Emissions*, March 15, 2012, http://c.ymcdn.com/sites/www.ospe.on.ca/resource/resmgr/doc_advocacy/2012_doc_14mar_windelectrica.pdf.

⁶ OSPE, *Ontario Electrical Grid and Project Requirements for Nuclear Plants*, March 8, 2011, http://c.ymcdn.com/sites/www.ospe.on.ca/resource/resmgr/doc_advocacy/2011_sub_8mar_nuclear.pdf

Engineers and engineering analysis are key ingredients in the development of affordable, reliable and sustainable energy solutions. OSPE appreciates the opportunity to provide our engineering input and looks forward to continue to engage in meaningful dialogue.

Yours sincerely,

A handwritten signature in black ink that reads "Paul Acchione". The signature is written in a cursive style with a large initial "P".

Paul Acchione, P.Eng.
President and Chair, OSPE

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References

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5. City of Toronto, Resiliency in Energy Infrastructure presented by City of Toronto at Energy Matters Summit, May 7, 2013
http://prezi.com/gb5ow-3xeqv/?utm_campaign=share&utm_medium=copy&rc=ex0share
6. European Environment Agency, CO2 Emissions per kWh of Electricity and Heat Output, July 26, 2011
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