BRIEFING NOTE – ONTARIO SOCIETY OF PROFESSIONAL ENGINEERS' RECOMMENDATIONS TO LOWER ELECTRICITY BILLS

ISSUE:

- Ontario Society of Professional Engineers (OSPE) has provided the Ministry of Energy with a package of proposals for lowering electricity rates.

KEY INFORMATION:

- On November 30, 2016, the OSPE provided that Ministry with a package of proposed options for lowering electricity rates.

- The Ministry of Energy is currently updating its Long-Term Energy Plan (LTEP). The LTEP is a road map that sets out the direction for Ontario's energy future for the next 20 years. It's based on five principles that the province's consumers and businesses say are important to them:

    - Cost-effectiveness;
    - Reliability;
    - Clean energy;
    - Community and Indigenous engagement; and
    - Conservation and demand management.

- Ministry staff are currently considering policy options to reduce electricity rates for consumers. Some of the Ministry's options are similar to those put forward by OSPE to reduce electricity rates for consumers (i.e., fund conservation expenditures through the tax-base).

- The Ministry is in the process of updating the Long-Term Energy Plan (LTEP) and is consulting with stakeholders and the public. Submissions on the Environmental Registry are due December 16, 2016.

BACKGROUND:

OSPE Proposed Options

- The OSPE has provided 15 proposals/options to reduce the price of electricity for consumers. The options are organized into four broad categories (see Appendix for details):

    1. Reducing operating costs or increasing revenue from the sale of surplus electricity;

    2. Shifting costs from ratepayers to taxpayers;

    3. Transferring market risks from electricity consumers to investors; and

    4. Removing sales tax and water use taxes on electricity.

Considerations:

- Among the 15 options proposed by the OSPE, some have already been implemented in whole or in part by government. For example, government has suspended LRP II (i.e., representing a portion of OSPE's option A1).

    - Some of OSPE's proposed options represent "new" ideas, such as the option to "write off poor investment decisions in a tax account rather than the electricity account."

- The OSPE's estimates the savings associated with all of the proposed options in aggregate would reach about $8 billion per year. **Note**: Total annual electricity system cost is presently in the range of $20 billion per year.

    - It should be noted that the savings associated with each proposed option, as estimated by OSPE, are wide ranging. Some of the options could result in zero savings, while others could produce savings that exceed $1 billion.

    - In addition, implementing OSPE's proposed options in their entirety would bring about a considerable cost shift from electricity ratepayers to taxpayers, impacting the Province's fiscal plan.

    - However, some of OSPE's proposed options involve risks or shortcomings that OSPE does fully acknowledge. For example, Legal Services Branch (LSB) has identified legal risks related to cancelling LRP I contracts (i.e., part of OSPE's option A2).

- Finally, some of OSPE proposed options, such as entering into firm contracts to sell surplus power and building curtailment into contracts, require further negotiation with counterparties. As a result, the outcome and corresponding savings for electricity ratepayers are not guaranteed.

Ontario Society of Professional Engineers

The Ontario Society of Professional Engineers (OSPE) represents engineers, engineering professionals, graduates, and students.

OSPE advocates with governments, offering valued member services and providing opportunities for ongoing learning, networking and community building.

OSPE was formed in 2000 after members of Professional Engineers Ontario (PEO) voted to separate regulatory and advocacy functions into two distinct organizations.

Energy Supply Policy Division
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APPENDIX – DETAILED ANALYSIS OF OSPE OPTIONS

A: Options That Reduce Electricity Bills by Reducing Costs or Increasing Revenue

OSPE's Proposed Options to Reduce Rates	OSPE Estimated Savings	OSPE Comments	Ministry Comments
A1. Stop adding planned (directed) capacity to an over-supplied system.	$100 M/yr in 2017 up to $500 M/yr in 2025	• Excess capacity drives rates up. The savings accumulate yearly until 2025 when planned capacity increases stop. Estimate is based on 2,500 MW of excess directed capacity by 2025. • The 2008-09 recession, rising electricity rates and conservation programs have permanently changed the demand growth rate. This has not been adequately reflected in planned capacity additions. The recent LRP-II deferral by the government only impacts about 1/3 of the excess planned (directed) capacity.	• OSPE are recommending that Ontario stop contracting for additional capacity while the system has surplus capacity. • ENERGY has partially implemented this option by suspending LRP II. • Moreover, policy staff are in the midst of proposing to cancel FIT 6 and revise the FIT 5 target. • Beyond these items, there is limited forecast for additional capacity over the planning horizon.
A2. Cancel committed capacity contracts that have not been built that have cancellation benefits or that are not in compliance with contractual in-service requirements.	200 M$/yr	• Excess capacity drives rates up. Estimate assumes about 1,000 MW of higher cost committed capacity can be cancelled. • Currently we have 8% excess overall capacity. However, what nameplate capacity is cancelled will affect carbon dioxide emissions differently because each technology has a different	• OSPE are recommending that Ontario cancel contracts for capacity that is contracted but not yet under construction given that the system has surplus capacity. • LRP I represents a large portion of committed capacity that has not been built. 16 LRP I contracts (approx. 455 MW) have been executed. None have met Key Development Milestones.

OSPE's Proposed Options to Reduce Rates	OSPE Estimated Savings	OSPE Comments	Ministry Comments
		capacity factor. Nuclear operates at about 85% capacity factor and displaces the most carbon dioxide per kW installed, hydroelectric operates at about 50%, wind operates at about 30% and solar operates at about 15% and displaces the least carbon dioxide per installed kW.	• Legal Services Branch (LSB) has identified legal risks associated with cancelling LRP I.
A3. Enter into firm delivery contracts for surplus clean energy supply to adjoining power grids instead of using the wholesale (spot) market for interruptible electricity.	0 up to 350 M$/yr	• Upper estimate is based on 50% of the 17.3 TWh of surplus clean supply can be sold on a firm basis at $40/MWh more than the wholesale price for interruptible power. • Interruptible power is priced at the marginal cost of production (essentially the fuel cost), uninterruptible power is charged at the full cost of production (includes capacity and labour costs) by agreement in North American. Providing firm clean electricity to adjoining jurisdictions means some of Ontario's domestic demand will have to be supplied by natural gas generation instead of clean electricity.	• OSPE recommend that Ontario negotiate firm contracts to export excess energy, as opposed to selling it through the market. • Ontario has already entered into a firm electricity trade agreement with Quebec for electricity, capacity, and energy storage. • Entering into firm delivery contracts requires discussion and negotiation with neighbouring jurisdictions. There is no guarantee that Ontario would be able to negotiate contracts containing terms that are acceptable to the Province. • Counterparties would likely seek lengthy terms for such agreements, while Ontario's surplus will decline as nuclear units are refurbished or retired.
A4. Allow Ontario consumers to buy interruptible surplus clean electricity at 1	0 up to 200 M$/y	• Reduces consumers' fossil fuel costs (not their electrical costs). Also reduces CO2 emissions by up to 3 million tonnes/yr. Estimate based on a 1.2	• OESP is recommending that electricity be sold to domestic consumers at a discount during periods of surplus energy.

OSPE's Proposed Options to Reduce Rates	OSPE Estimated Savings	OSPE Comments	Ministry Comments
cent/kWh like adjoining power grids do on the wholesale (spot) market.		cent/kWh price differential between surplus electricity and natural gas at the home. • Choosing option A4 exclusively over option A3 indicates that reducing Ontario's CO2 emissions is a higher priority than reducing electricity rates. Note that item A3 and A4 are mutually exclusive because they use the same energy.	• In the recent past Ontario has pursued a similar option, namely the Industrial Electricity Incentive (IEI). Although IEI electricity is not interruptible, participants are effectively purchasing surplus electricity at very low prices, similar to OSPE's proposal. • Counterparties would likely seek lengthy terms for such agreements, while Ontario's surplus will decline as nuclear units are refurbished or retired.
A5. Allow Ontario consumers to buy interruptible surplus natural gas-fired electricity at its marginal fuel cost (approx. 3 cents/kWh).	0 M$/yr up to 300 M$/yr	• Would reduce self-generation by consumers with less efficient fossil fueled equipment. Savings depend on amount of self-generation present in Ontario. • Option A5 should only be available to consumers who can demonstrate that they will use the grid supplied gas-fired electricity to achieve lower CO2 emissions compared to their current production practices.	• OSPE recommend that Ontario consumers be able to buy excess natural gas-fired electricity at the marginal cost to generate it. • Similar to A4, Ontario has implemented IEI, which allows large consumers to buy surplus electricity. • Class A consumers with limited exposure to Global Adjustment effectively pay the marginal cost of generation.
A6. Do not mandate technology choices on the power system. Allow the cap-and-trade program to determine technology	$200/tonne CO2 savings (annual savings are included in other items in this table)	• Will lower future costs of reducing carbon emissions from the present $250/tonne to $50/tonne by 2025. The $250/tonne cost is from the Ontario Auditor General 2015 report on the cost of reducing emissions in the	• OSPE suggest that Ontario contract for capacity based on cost and not mandate specific technologies. • Ontario is moving towards a capacity auction that would be "technology-agnostic".

OSPE's Proposed Options to Reduce Rates	OSPE Estimated Savings	OSPE Comments	Ministry Comments
choices.		electricity sector using renewable energy generating capacity. • Trading allowances in a cap-and-trade program effectively allows lower cost carbon reduction technologies to satisfy the emission reduction targets regardless of the sector in which they are installed.	

B: Options That Reduce Electricity Bills by Moving Cost to More Appropriate Accounts

OSPE's Proposed Options to Reduce Rates	OSPE Estimated Savings	OSPE Comments	Ministry Comment
B1. Adopt the USA approach to subsidizing higher cost clean energy technologies (e.g.: use tax rebates not global adjustment to pay for extra costs for renewables).	1,700 M$/yr	• Estimate is based on 14% additional total costs for renewables in 2017 compared to conventional generation. • Using different rules than our NAFTA trade partner USA to subsidize renewable energy development increases electricity costs in Ontario and makes Ontario businesses less competitive. Move those excess costs from the electricity account to a tax supported account.	• OSPE recommend moving the higher cost of clean energy to the tax base. • Removing Global Adjustment would represent a significant change in Ontario's electricity market. • This option would shift significant costs from electricity ratepayers to taxpayers. • OSPE's approach would presumably only apply to new generation, and not the 16,000 MW of new and refurbished generation that

OSPE's Proposed Options to Reduce Rates	OSPE Estimated Savings	OSPE Comments	Ministry Comment
			has already been built since 2003 and represent the majority of electricity system costs. • Further analysis would be needed to determine to what extent clean energy tax credits would be compatible with Ontario's electricity market design.
B2. Write off poor investment decisions in a tax account rather than the electricity account.	100 M$/yr	• Estimate is based on non-productive costs like gas plant relocation, etc. that are not covered in the other items in this list. • Consumers should not be expected to pay for planning errors. In private power systems investors pay for those errors. In a public power system, the taxpayer should pay for those errors so that electricity rates remain competitive for businesses that compete in the NAFTA trading zone.	• OSPE suggest that "poor investment decisions" should be transferred to the tax base. • This option would require a determination on what constitutes a poor investment decision. • The savings associated with this option are small relative to the total cost of providing electricity service.
B3. Write off surplus capacity costs in a tax supported account rather than the electricity account.	1,000 M$/yr (850 M$/yr if option B1 is adopted)	• Current system has 8% excess installed generating capacity at peak demand. Estimate is based on generation costs only. • Consumers should not be expected to pay for planning errors. In private power systems investors pay for those errors. In a public power	• Similarly to B2, OSPE recommend transferring the cost of surplus capacity to the tax base. • Ontario electricity system is currently adequately supplied and it is not clear that there have been "planning errors". • Some of the surplus exists because of

OSPE's Proposed Options to Reduce Rates	OSPE Estimated Savings	OSPE Comments	Ministry Comment
		system, the taxpayer should pay for those errors so that electricity rates remain competitive for businesses that compete in the NAFTA trading zone.	planned capacity investments that were required in advance of nuclear refurbishment.
B4. Remove stranded debt charge from larger electricity consumers.	500 M$/yr	• Estimate is based on 70 TWh/yr that is subject to the stranded debt charge of 0.7 cents/kWh. • Consumers should not be expected to pay for planning errors. In private power systems investors pay for those errors. In a public power system, the taxpayer should pay for those errors so that electricity rates remain competitive for businesses that compete in the NAFTA trading zone.	• OESP propose removing the Debt Retirement Charge (DRC) from larger consumer's bills. • DRC was removed for residential consumers as of January 1, 2016. • The Province has already committed to removing the DRC from bills of non-residential electricity consumers in April 2018. • Ministry staff are proposing to remove the DRC from the bills of non-RPP Class B consumers, a benefit of $7/MWh.
B5. Transfer the conservation costs to a tax supported account rather than the electricity account.	400 M$/yr	• Estimate based on IESO annual budget for conservation. • Conservation costs are not part of electricity production costs and with surplus capacity this charge is not helping to reduce electricity costs. In fact, conservation costs in the presence of excess capacity actually raises electricity rates.	• OESP recommend transferring conservation spending to the tax base. • Ministry staff are proposing to fund conservation programs through the taxbase. • Savings for a typical residential bills would be about $3/month in 2017.

C: Options That Reduce Electricity Bills by Transferring Risks From Consumers to Investors

OSPE's Proposed Options to Reduce Rates	OSPE Estimated Savings	OSPE Comments	Ministry Comment
C1. Pay full production costs only for delivered energy to Ontario consumers.	0 to 850 M$/yr	• The maximum savings are estimated assuming the excess costs due to take-or-pay provisions in the contracts is 50% of the total production costs on 17.3 TWh of surplus energy. • Stop signing take-or-pay contracts at full production costs. Build anticipated curtailment into the contract price so that investors assume the risk of future market demand changes or technology changes. Options C1 and B3 are mutually exclusive. Only the savings for one of the options applies even if both options are adopted.	• OESP recommend that Ontario no longer pay for curtailed energy. • Incorporating curtailment into the contract price would need to be negotiated with proponents and would likely result in a higher contract price for the energy. • The savings that OSPE has estimated for this option is subjective and may not materialize. • In any case, the savings would not materialize for many years as Ontario is currently long on supply and apart from FIT 5, there will be very few contracts signed.

D: Options That Reduce Electricity Bills by Eliminating Government Sales Taxes and Water Use Taxes on Electrical Energy

OSPE's Proposed Options to Reduce Rates	OSPE Estimated Savings	OSPE Comments	Ministry Comments
D1. Eliminate hydroelectric production tax for water use.	400 M$/yr	• Estimate based on hydroelectric production of 36.3 TWh and average tax of 1.1 cents/kWh. • Lower tax revenue will impact negatively on Ontario deficits and debt and funding for municipalities near hydroelectric facilities.	• OSPE propose to remove water rental charges for Ontario hydroelectric generating stations. • Pursuing this option would impact the Province's fiscal plan.
D2. Eliminate PST on electricity consumption.	1,600 M$/yr	• Affects provincial tax revenues. • Ontario has already announced the elimination of the PST on Jan 1, 2017. This will impact negatively on Ontario's deficit and debt.	• OSPE propose to eliminate the PST on electricity. • Ontario is already providing a rebate equal to 8% of before-tax electricity bills for RPP-eligible consumers at a cost of about $1 billion annually.
D3. Eliminate GST on electricity consumption.	1,000 M$/yr	• Affects federal tax revenues. • This will impact negatively on federal deficit and debt.	• OSPE propose to eliminate the GST on electricity. • Pursuing this option would require negotiation with the federal government.

E: Options That Reduce Electricity Bill by Eliminating Government Sales Taxes and Water Use Taxes of Electrical Energy

OSPE's Proposed Options to Reduce Rates	OSPE Estimated Savings	OSPE Comments	Ministry Comments
E1. Introduce a price on carbon dioxide emissions but rebate the cap-and-trade program revenue on a per capita basis to those families with less than $100,000/yr family income	100 M$/yr in 2017 to -350 M$/yr in 2025	• Higher gas costs will raise the price of electricity for the 10% of electricity produced by natural gas plants. The estimate assumes a carbon price of $15/tonne in 2017 to $50/tonne by 2025. • The estimated $2 billion/yr in cap and trade revenues in the early years will be cost neutral to the economy if the funds are rebated to consumers. • Consumers can choose to spend the money on emission reduction technologies to reduce their future carbon emission costs or on general consumer expenditures. Both will result in additional economic activity that will offset reduced economic activity and income tax revenue losses due to the carbon price. Mid and low income consumers are likely to spend most of the refund amounts on consumption rather than saving it. Consequently, refunding the cap-and-trade revenue to consumers is likely to produce similar economic benefits as compared to the government purchasing carbon reduction technologies. Refunding the cap-and-trade revenue will likely give	• OSPE recommend rebating cap and trade revenue back to consumers with family income of less than $100,000. • This option would add an additional layer of complexity to the cap & trade program. • Regulated Price Plan-eligible consumers will receive an 8% rebate that will more than offset the impact of cap and trade on electricity consumers.

OSPE's Proposed Options to Reduce Rates	OSPE Estimated Savings	OSPE Comments	Ministry Comments
		consumers more satisfaction because they can allocate the funds to the highest family needs. Emission reductions could be greater if the government spends the cap-and-trade revenues on the most cost effective carbon reduction technologies.	