

Ministry Comments

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Introduction

The Environmental Commissioner of Ontario (ECO) provided an advance preview copy of *Every Drop Counts* to the five Ontario government ministries addressed in the report (Ministry of Agriculture, Food and Rural Affairs; Ministry of Energy; Ministry of the Environment and Climate Change; Ministry of Infrastructure; Ministry of Municipal Affairs), in addition to the Independent Electricity System Operator, and invited them to provide a formal response to the report to be published online.

The ministries listed below have provided formal responses:

- Ministry of Agriculture, Food and Rural Affairs
- Ministry of Energy
- Ministry of the Environment and Climate Change
- Ministry of Infrastructure

The Ministry of Municipal Affairs and the Independent Electricity System Operator have elected not to provide formal responses.

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May 29, 2017

Dr. Dianne Saxe
Environmental Commissioner of Ontario
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Dear Dr. Saxe:

Thank you for providing the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) with the opportunity to review and respond to your Annual Energy Conservation Progress Report 2016/2017 (Volume One). We welcome the Environmental Commissioner's comments and recommendations on energy conservation in the province.

The report's focus on municipal water and wastewater treatment plants is of interest to the province's rural municipalities. Many rural municipalities will benefit from improved water and wastewater efficiency and cost-reduction measures. Affordable innovation and alternative approaches to delivery such as service sharing will be important for rural municipalities.

The report recommends that "the Ministry of the Environment and Climate Change should implement phosphorus reduction programs that reduce loadings to sensitive surface waters, in a way that minimizes the energy use, financial costs, and greenhouse gas emissions needed to achieve reductions." The Ontario government, the Government of Canada, and Great Lakes community partners are working together to take action on reducing phosphorus loads to Lake Erie. OMAFRA is an active partner in the development of a Canada-Ontario draft action plan for Lake Erie to reduce algal blooms and phosphorus loadings into Lake Erie. The draft Action Plan proposes actions to meet phosphorus reduction commitment of 40 per cent, including practices that reduce non-point source runoff from agricultural lands.

In addition to the draft Action Plan, with the support of the Ontario and federal governments, farmers have completed more than 24,700 on-farm environmental farm plans, which promote best management practices including those related to phosphorus. The \$16-million Great Lakes Agricultural Stewardship Initiative (GLASI) helps Ontario farmers around Lake Erie and the southeast shores of Lake Huron improve the management of phosphorus. OMAFRA also has a suite of programs that encourage farmers to implement best agri-environmental practices, including:

.../2

- nutrient management planning to ensure proper application of agricultural nutrients at the right time, rate, place and source to match crop growth needs, minimizing the potential for loss to water sources; and
- implementing other land management practices that improve soil health including planting cover crops to manage run off, reducing erosion potential and improving water quality.

The report identifies a potential need for “the Ministry of the Environment and Climate Change and OMAFRA to examine the potential and the policy barriers for wastewater treatment plants to serve as ‘biogas hubs’ using anaerobic digestion with energy recovery, including co-digestion of off-site organic materials, such as material diverted from landfill and agricultural biomass.” OMAFRA is committed to reducing greenhouse gas emissions and helping industry transition to a low-carbon economy. Under the Climate Change Action Plan, the province is proposing to make significant investments to help the agri-food sector in its efforts to reduce greenhouse gas emissions, including up to \$20 million toward demonstration projects for renewable natural gas transportation fuelling using agricultural and food waste. This investment will help agriculture, food and transportation businesses assess the feasibility of reducing emissions and remaining competitive by using renewable natural gas as a transportation fuel. The proposed program may reduce greenhouse gas emissions by diverting organic waste from landfills to renewable fuel production, harvesting energy from agricultural materials and food wastes, and promoting the adoption and use of low-carbon fuel. In addition, the ministry continues to support activities that build capacity in the biogas sector, including biogas system research, and the promotion of biogas systems as an environmental best management practice.

OMAFRA is also actively working with the Ministry of the Environment and Climate Change to develop an action plan to address food and organic waste in Ontario.

Thank you, again, for your thoughtful recommendations and the opportunity to review your report.

Yours truly,



Greg Meredith
Deputy Minister



Good Things Grow in Ontario
À bonne terre, bons produits

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May 26, 2017

Ms. Dianne Saxe
Environmental Commissioner of Ontario
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Dear Ms. Saxe:

RE: Annual Energy Conservation Progress Report - 2016/2017 (Volume One)

Thank you for providing the Ministry for Energy with an opportunity to respond to your 2016 Annual Energy Conservation Progress Report (Volume One).

Your report examines municipal water use and its linkage with energy efficiency and the environment. We appreciate the ECO's work in developing the report, including your efforts in working directly with 110 municipalities on a water-energy efficiency survey.

We welcome your advice and will carefully consider your comments and recommendations as we continue to develop the province's next Long-Term Energy Plan.

The Ministry appreciates the opportunity to provide the following response to your report:

Load Shifting

Chapter 2 of the report makes the following statements:

Under this program, eligible customers that reduce consumption during the five highest system-wide peak hours over the course of the year are rewarded with lower Global Adjustment costs (this is sometimes called "load shedding"). In practice, participants typically reduce load for more than five hours because the peak times are not known in advance. However, this program will likely drive load shifting only on 10-20 days throughout the year, and thus does not capture the full potential for load shifting in the water system.

It is inaccurate to describe the Industrial Conservation Initiative (ICI) as “load shedding”. This term is used to describe a measure taken by a grid operator to mitigate a wider-scale system outage by switching off specific parts of the grid in a planned manner. Load shedding should not be confused with voluntary action taken by consumers to reduce demand or shift consumption to off-peak hours as is the case in ICI. According to the Independent Electricity System Operator’s most recent 18-Month Outlook, ICI is estimated to have reduced peak demand by more than 1,200 MW in summer 2016.

Over recent years, demand peaks have gradually flattened. This change in demand peaks, along with the recent expansion of ICI, is expected to increase uncertainty in forecasting peaks throughout the year. Increased uncertainty would mean that ICI participants may need to reduce demand over more hours in order to save on their Global Adjustment (GA) costs. The Ministry of Energy notes that the estimate of load shifting occurring on 10-20 days throughout the year may be subject to change and would vary between participants.

Broader Public Sector Reporting

Chapter 3 of the report makes the following recommendations:

The Ministry of Energy should make O. Reg. 397/11 energy reporting for municipal water and wastewater systems more accurate and useful by including:

- *pumping facilities;*
- *energy produced on-site (e.g., biogas, solar), not just purchased energy; and*
- *methane, nitrous oxide, and fossil-source carbon dioxide emissions from wastewater.*

The Ministry of Energy should enable or require municipal water and wastewater systems to report under O. Reg. 397/11 through Portfolio Manager and require municipalities to report their annual energy use on a timelier basis.

The Ministry of Energy annually reviews O. Reg. 397/11 program reporting to determine if changes, such as moving to Portfolio Manager, would be of value. The Ministry is planning to leverage Portfolio Manager for private sector reporting under O. Reg. 20/17 starting in 2018 and notes that Portfolio Manager functionality does not replace the need for public posting of data on platforms such as Open Data. The Ministry is reviewing the four years of reported water/sewage treatment data along with voluntarily submitted pump information, to determine the quality of the information, the number of pumping facilities that are accurately reported and develop trend analysis. The Ministry is planning to consult on migration of BPS Reporting to Portfolio Manager and would

consider options to include water/sewage pumps when sufficient metering is in place to provide accurate energy and flow data.

O. Reg. 397/11 requires organizations to report a description of any renewable energy generation facility that they operate and the amount of energy produced on an annual basis by the facility in their Conservation and Demand Management (CDM) plan. Webinars held by the Ministry highlight the need to report on-site renewables in an organization's CDM plan. As CDM plans are required to be posted on an organization's website, Ontarians can access those reports with information regarding on-site renewables.

The Ministry of Energy notes that a move to Portfolio Manager alone will not result in more accurate water and wastewater data. While Portfolio Manager is considered to be the standard benchmarking tool, data quality related to water and sewage reporting will not be improved by switching to Portfolio Manager since the quality of data will remain unchanged.

Energy and Water Efficiency Standards

While there are no specific recommendations related to efficiency standards for products and appliances set through Ontario's Energy and Water Efficiency Regulation (O. Reg. 404/12), we are pleased that the report acknowledges the Ministry of Energy's achievements in setting water efficiency standards for products and appliances that consume both energy and water.

On June 8, 2016, Ontario's Five Year Climate Change Action Plan 2016-2020 was released. It included a commitment to reduce energy use by updating energy efficiency standards for key equipment found in drinking water and waste water treatment plants. The Ministry of Energy is working with the Ministry of Environment and Climate Change in fulfilling this commitment to further reduce electricity use and GHG emissions in the province.

Utility Energy Conservation Programs

Chapter 5 of the report makes the following recommendation:

The Independent Electricity System Operator and gas and electric utilities should assess opportunities to integrate delivery of water conservation initiatives with existing energy conservation programs, particularly for whole home retrofits.

As noted in the report, utility energy conservation programs, including those relating to electricity and natural gas conservation, have provided funding for projects that have resulted in water conservation.

The Independent Electricity System Operator (IESO) does offer programs targeted towards municipal water systems and through the Conservation First Framework provides funding for both the identification (e.g., audits, energy managers, etc.) and implementation (e.g., incentives for variable-frequency drives, aeration blowers, etc.) of energy-saving opportunities in municipal water systems. The Conservation First Framework gives electricity utilities the flexibility to design and deliver new electricity conservation programs targeted to their customers, including those that result in water conservation.

Programs delivered by natural gas utilities have also helped conserve water. Over the past decade, Enbridge Gas Distribution and Union Gas have distributed thousands of energy-efficient showerheads and faucet aerators to their customers free of charge.

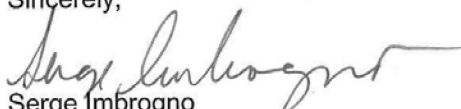
However, the Ministry recognizes that there is opportunity for further integration of water conservation with existing energy conservation programs. The mid-term reviews of the Conservation First Framework and the Demand Side Management Framework provide a process for considering opportunities, and we encourage the ECO to provide feedback to the IESO and Ontario Energy Board as part of these processes.

Other Initiatives

We are pleased to see the report recognize the opportunities for water conservation through the Ministry of Energy's Municipal Energy Plan program and through the Energy and Water Reporting and Benchmarking Regulation (O.Reg. 20/17). In addition, as the report notes, the Green Button Standard can improve the ability to access and share energy and water data, helping customers better manage their usage. The Ministry is currently considering feedback from consultations held in 2016 on mandating the Green Button Standard as it develops a proposal for expanding the Standard province-wide.

Thank you again for your recommendations and the opportunity to review your report.

Sincerely,



Serge Imbrogno
Deputy Minister

Ministry of the Environment
and Climate Change

Deputy Minister

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May 26, 2017

Dr. Dianne Saxe
Environmental Commissioner of Ontario
1075 Bay Street, Suite 605
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Re: Every Drop Counts: Reduction the Energy and Climate Footprint of Ontario's Water Use

Dianne
Dear Dianne,

Thank you for such a comprehensive and well researched report. The Ministry of the Environment and Climate Change appreciates the opportunity to review and comment on your *Every Drop Counts: Reduction the Energy and Climate Footprint of Ontario's Water Use Report*.

While progress has been made on water and energy conservation, there is more work to be done. The ministry's response to the recommendations provided in the report can be found in the attached table.

As always, the ministry values your contribution and we will consider the report and its recommendations very carefully as we continue to support clean and healthy communities across Ontario by protecting the environment and addressing climate change.

Sincerely,

Paul Evans

Paul Evans
Deputy Minister
Ministry of the Environment and Climate Change

| Chapter | ECO Recommendations | MOECC Responses |
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| Making Energy Reporting Work (Chapter 3) | The Ministry of the Environment and Climate Change should include energy efficiency in the training and licencing requirements for drinking water and wastewater system operators. | <p>The Ministry of Environment and Climate Change supports the recommendation. We will work with our partners on how to consider energy efficiency in training and licensing from drinking water and wastewater system operators. As one measure, we will work with the Walkerton Clean Water Centre to incorporate leading energy efficiency approaches in existing courses and/or as a separate course.</p> <p>We have also taken other steps to promote water and energy efficiency, including:</p> <ul style="list-style-type: none"> • Revising the Drinking Water Quality Management Standard to ensure risks related to short and long term impacts of climate change are considered. • Using the Showcasing Water Innovation projects to demonstrate energy savings opportunities, through improving water distribution systems, new technology for treating water, or improving the environmental performance of new developments. • Ontario Clean Water Agency implementing, through the SaveONenergy Conservation Fund from the Independent Electricity System Operator, a program to conduct energy assessments in water and wastewater facilities in 125 small and medium sized municipalities. To date, 65 energy efficiency projects have helped realize 20.3 million kWh of cumulative energy savings and over \$1 million in incentives. |
| Can Asset Management Improve Energy Efficiency? (Chapter 4) | <p>As part of municipal asset management planning for water and wastewater infrastructure, the Ministry of Infrastructure should require consideration of:</p> <ul style="list-style-type: none"> • Energy and carbon costs in life-cycle cost analysis; • Green infrastructure and non-infrastructure alternatives such as water conservation. | <p>The Ministry of Infrastructure is the lead ministry for the provincial government on asset management planning.</p> <p>The Ministry of Environment and Climate Change supports this recommendation. The ministry is working with the Ministry of Infrastructure and the Treasury Board Secretariat to incorporate life cycle assessment approaches in infrastructure decision making/capital planning process.</p> <p>Through the Climate Change Action Plan, the government is pursuing a range of initiatives including promoting green infrastructure, as well as planning new programs focused on municipalities: a municipal action plan program to help develop climate change/energy plans; and a municipal challenge fund that supports emissions reduction projects.</p> |

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| <p>Can Asset Management Improve Energy Efficiency?</p> <p>(Chapter 4)</p> | <p>In water and wastewater infrastructure projects supported by provincial funding, the Ontario government should require consideration of opportunities to reduce energy use and greenhouse gas emissions.</p> | <p>The Ministry of Infrastructure is the lead ministry for the provincial government on infrastructure funding.</p> <p>The Ministry of the Environment and Climate Change supports the consideration of opportunities to reduce energy use and greenhouse gas emissions.</p> <p>Through the Climate Change Action Plan, the government is pursuing a range of initiatives that will drive greater consideration of infrastructure and energy and is planning new programs targeted towards municipalities: a municipal action plan program to help develop climate change/energy plans; and a municipal challenge fund that supports emissions reduction projects.</p> |
| <p>Water Conservation</p> <p>(Chapter 5)</p> | <p>The Ministry of the Environment and Climate Change should: set water efficiency standards for toilets that apply at point-of-sale; and require water use reporting and water conservation plans for all broader public sector organizations and integrate this seamlessly with existing energy reporting requirements.</p> | <p>The Ministry of the Environment and Climate Change will undertake research and analysis to determine the feasibility of a regulation establishing water efficiency standards for toilets that apply at point of sale.</p> <p>The ministry will continue to actively review ways to incorporate the report's recommendations water use reporting and water conservation planning. The ministry will work closely with the Ministry of Municipal Affairs, as well as with the Ministry of Energy on its implementation of existing energy reporting requirements by the broader public sector and the development of Green Button in Ontario, to determine the merits of pursuing new regulatory water reporting requirements.</p> <p>Enhanced water conservation requirements for plumbing fixtures are now included in the Ontario Building Code. For example, very high-efficiency toilets (4.8 litre or 4/6 litre dual flush), urinals (1.9 litre) and showerheads (7.6 litres/minute) are required as a minimum in new construction and renovations for specific types of buildings. Ontario was the first province to be a promotional partner of USEPA WaterSense.</p> |
| | <p>The Independent Electricity System Operator and gas and electric utilities should assess opportunities to integrate delivery of water conservation initiatives with existing energy conservation programs, particularly for whole home retrofits.</p> | <p>The Ministry of Energy is the lead ministry for the provincial government on electricity matters including electricity conservation.</p> <p>The Ministry of the Environment and Climate Change supports this recommendation and will work with the Ministry of Energy on opportunities to integrate delivery of water conservation initiatives with existing energy conservation programs.</p> |

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| Water Reuse (Chapter 6) | The Ministry of the Environment and Climate Change should establish appropriate standards for water reuse. | The Ministry of the Environment and Climate Change recognizes that there is more work that can be done related to water reuse and will work with partners to determine how to best implement this recommendation. The ministry has a mechanism through the Environmental Compliance Approvals Program that allows the reuse of treated sewage or stormwater on a case specific basis. |
| Phosphorus (Chapter 7) | The Ministry of the Environment and Climate Change should implement phosphorus reduction programs that reduce loadings to sensitive surface waters, in a way that minimizes the energy use, financial costs, and greenhouse gas emissions needed to achieve reductions. | <p>The Ministry of the Environment and Climate Change recognizes the importance of reducing phosphorus loadings to surface water and has committed to a 40% reduction in phosphorus loadings to the western and central basins of Lake Erie.</p> <p>The ministry is currently working with municipal treatment plants to lower effluent phosphorus levels by optimizing existing infrastructure. Maximizing performance without building infrastructure has the additional benefit of reducing energy and greenhouse gas emissions associated with construction. The ministry provided: \$900,000 to the Grand River Conservation Authority's water management plan, which sets effluent targets for total phosphorous for watershed municipalities to achieve through optimization; and \$10,000 each to The City of Brantford and The City of Guelph to use best practices to optimize phosphorous removal with their existing infrastructure.</p> |
| Energy from Sewage (Chapter 8) | The Ministry of the Environment and Climate Change should, without reducing environmental protection, simplify the regulatory approvals process for energy recovery systems associated with anaerobic digestion at wastewater treatment plants, including systems that co-digest off-site organics. | <p>Through its modernizations of approvals efforts, the Ministry of the Environment and Climate Change is exploring ways to streamline and simplify the regulatory approvals process, without reducing environmental protection, for energy recovery systems associated with anaerobic digestion at wastewater treatment plants.</p> <p>The ministry will consider lessons learned from the Stratford energy recovery facility, along with other biogas facilities in Ontario, with a view to enhancing understanding of operational challenges.</p> |

Ministry of Infrastructure

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June 20, 2017

Ms. Dianne Saxe
 Environmental Commissioner of Ontario
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Dear Ms. Saxe:

Re: Annual Energy Conservation Progress Report – 2016/17

Thank you for providing the Ministry of Infrastructure an opportunity to respond to your Annual Energy Conservation Progress Report – 2016/17.

The Ministry recognizes the important role that infrastructure plays in water and energy conservation. We know that good conservation practices and the promotion of efficiency are important for the sustainability of Ontario's infrastructure. We also recognize that such efforts can often lead to a reduction in the overall lifecycle costs of assets.

As you have identified in your report, the province has been promoting the importance of municipal asset management planning since the launch of its Municipal Infrastructure Strategy in 2012. We have introduced a range of progressive requirements for asset management planning under our municipal infrastructure funding programs since that time. We have also made a number of infrastructure planning and optimization activities eligible expenditures under the formula-based component of our most recent program, the Ontario Community Infrastructure Fund. This includes asset management planning activities, as well as optimization activities that improve the performance or increase the capacity of water and wastewater infrastructure.

As you have also referenced in your report, we recently introduced a proposal for a municipal asset management planning regulation under the *Infrastructure for Jobs and Prosperity Act, 2015*. Through this proposed regulation, we are working to improve both the comprehensiveness and consistency of municipal asset management plans while recognizing the various circumstances and capacities of Ontario's 444 municipalities.

Based on the comments that you provided on the draft of our proposed regulation, as well as our productive discussions with you over the past month, we have made a number of revisions to our proposal. In this context, I am pleased to offer the following responses to the recommendations you have provided in your report:

Section 4

Recommendation 1: As part of municipal asset management planning for water and wastewater infrastructure, the Ministry of Infrastructure should require consideration of:

a. Energy and carbon costs in life-cycle cost analysis.

The proposed municipal asset management planning regulation would require all municipalities to do lifecycle costing, including accounting for significant operating costs, such as energy costs.

The proposed regulation would also require municipalities to create strategic asset management policies that include a commitment to consider the greenhouse gas emissions impacts of their infrastructure activities. This requirement would provide flexibility for municipalities to choose how to implement this commitment and we anticipate that some may choose to do so by incorporating carbon costs into their lifecycle costing.

As part of implementation planning for the proposed regulation, the Ministry will continue to work with our partners at the Ministry of the Environment and Climate Change to establish guidance and supports on how the impacts of climate change can be considered as part of asset management planning.

The Ministry will also continue to monitor progress and share best practices, and could introduce further requirements in the future as provincial and municipal capacity increases.

b. Green infrastructure and non-infrastructure alternatives such as water conservation.

The proposed regulation now includes a requirement to consider both green infrastructure and non-infrastructure solutions, such as demand management and conservation measures, as part of a lifecycle options analysis.

We have also updated the proposed definition of infrastructure to include an explicit reference to green infrastructure, to emphasize the importance of considering green infrastructure in asset management planning.

Recommendation 2: In water and wastewater infrastructure projects supported by provincial funding, the Ontario government should require consideration of opportunities to reduce energy use and greenhouse gas emissions.

The Ministry designs its funding programs to reinforce municipal asset management planning, and the proposed regulation would require that energy use and greenhouse gas emissions are considered.

As ongoing programs are reviewed and new programs are designed, the Ministry will explore whether there are opportunities to support energy conservation and greenhouse gas emission reductions, in addition to addressing critical needs.

Section 8

Recommendation 1: The Ministry of Infrastructure should make anaerobic digestion and energy recovery technology eligible for water/wastewater infrastructure funding.

Anaerobic digestion and energy recovery technology are eligible as wastewater projects under the formula-based component of the Ontario Community Infrastructure Fund and the Clean Water and Wastewater Fund. However, to date few communities have prioritized these projects for funding.

As ongoing programs are reviewed and new programs are designed, the Ministry will explore whether there are opportunities to better support anaerobic digestion and energy recovery technology in addition to addressing critical needs.

In closing, I would like to thank you and your Office for the recommendations provided to the Ministry of Infrastructure and for the opportunity to respond.

Sincerely,

Original signed by

George Zegarac
Deputy Minister
Ministry of Infrastructure