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1. MEMORANDUM TO CABINET INFORMATION REQUIREMENTS

Overview

Introduction

- This document provides information on changes that are being introduced to Memoranda to Cabinet (MC) information requirements.
- These changes are designed to provide greater rigour on new spending proposals and provide Ministers with better information and analysis to further strengthen Cabinet deliberations and decision-making.

Background

- The revised information requirements are designed to:
 - better identify the linkages between proposed and existing programs by describing the programming gaps to be addressed and by explaining the merits of the proposed approach;
 - provide additional context for the proposal by including the findings of relevant studies such as Auditor General reports, strategic reviews and internal audits;
 - indicate, where relevant, how the proposal supports the government's commitment to limit the federal spending power;
 - elaborate how the proposal would be implemented, when benefits would flow to Canadians, and what measures of success would be used;
 - provide a more comprehensive presentation of strategic communication considerations, including how the proposal's communications strategy links to core government messages; and
 - include information on the government's past policy and political positions, from electoral platforms or while in Opposition, in the Parliamentary Plan Annex, and to clarify who prepares this information.
- To meet these objectives, some existing requirements have been regrouped and enhanced to make the information more accessible and relevant. For example:
 - the new "Due Diligence" sections incorporate the existing Financial, Asset and HR implications and Reviews, Results and Accountability requirements and includes expanded requirements for detailing any audits, reviews, studies and/or evaluations that are relevant to the proposal;
 - a number of considerations in the Background/Analysis have been consolidated into a new "Perspectives/Engagement" section; and
 - the existing "Risks and Strategies" section has been included in the new "Implementation Plan" requirements.

- Some new requirements have been added. Some of these changes are organizational in nature:
 - for instance, a table of contents will be included in the MC in order to improve the accessibility of information contained in the document; and
 - the communications component of the Ministerial Recommendations (MR) has been modified to draw attention to the communications strategy's use of core government messages.
- Other new requirements include the addition of an Implementation Plan Annex.
- Some existing requirements have been removed. For example, it will no longer be necessary to obtain the sign-off of the Comptroller General.
- Page limits for the MR and Background/Analysis have been respectively extended to six and seven pages in English and to seven and eight pages in French.
- The key changes are set out below.

Linkages with Existing Programs

- With regard to linkages with existing programs, the objective is to provide information on:
 - the programming gap the proposal is attempting to fill;
 - how the proposal links with existing related programs both within the department and across government, including an explanation for any duplication or overlap;
 - how the proposed program would work;
 - the instrument choices available, and why the chosen approach would be the most effective; and
 - o funding implications.
- This requirement reflects the existing Rationale section in the MR and will now be highlighted in the Background/Analysis' Considerations and Options sections.
- A range of information sources could be used to address this requirement.
 - For instance, departments are to provide descriptions of related programs and overall program structure. As departments develop their Program Activity Architecture, drafters could use this information to explain how the proposal complements existing activities and fulfills a programming need. Similarly, as government-wide, thematic activity architecture is developed, departments will be able to use this information to explain linkages with other departments' activities.

Past Reviews and Lessons Learned

- The objective for this requirement is to provide greater information on the context for the proposal why it is needed and what challenges it would address by providing information and findings from relevant studies and reports.
- This requirement is reflected in the MR's and Background/Analysis' new Due Diligence sections.

 Depending on the proposal and program area, departments would have several reviews upon which they can draw – past Auditor General reports, strategic reviews, internal audit reports, program evaluations, etc – that relate to the proposal and relevant existing programs. Summaries on key findings should be provided.

Federal Spending Power

- The objective is to demonstrate, where relevant, how the proposal fulfills the government's commitment to constrain federal spending power. The government reaffirmed in Budget 2008 that it would introduce legislation to place formal limits on the use of the federal spending power for new cost-shared programs in areas of exclusive provincial jurisdiction.
- This requirement has been added to the existing components on federal/provincial considerations in the Considerations sections.
- Departments will need to factor this analysis into their federal/provincial strategy. The MC would need to identify, where relevant, how the proposal addresses the commitment on the federal spending power. If this is the case, the MC would need to indicate how this is relevant, what are the expected views of the provinces, the national implications, and the strategies being proposed.

Implementation, Roll Out and Tracking

- These requirements would provide clear information on how and when the proposal would be implemented, with a greater focus on how and when the proposal would benefit Canadians. This would include:
 - the timeline for key milestones. For example, at what time would service delivery begin and benefits accrue to Canadians. This timeline should link to the proposed spending profile in order to demonstrate the program's stage of development and resource use at the end of each year;
 - a broad outline of the performance measurement and monitoring strategy. This should include how and when results and impacts would be assessed, and which factors will indicate success; and
 - as currently required, the risks associated with the proposal and strategies to address them (both horizontal and downstream).
- The Risks and Strategies section has been recast as the Implementation Plan Section in the MR. A new Implementation Plan annex will provide the details on when and how the options would be rolled out and how their results will be measured.

Strategic Communications Plan

- These changes are designed to provide enhanced information on strategic communications considerations so that there is a clear indication of what is being proposed.
- The Strategic Communications Plan annex has been revised to highlight key information such as:
 - how the communications plan's objectives and storyline link to and reflect government priorities and core government messages;
 - how the announcement strategy highlights benefits and anticipated results;
 - which communications tools would be used to reach different target audiences; and
 - how the communications strategy will be evaluated.
- A new Communications Plans box has been added to the MR to provide an overview, and, as noted, a new Perspectives/Engagement section would combine existing requirements for stakeholder and provincial considerations.

Parliamentary Plan

- These changes will provide information on any past policy and political positions the government may have had on a proposal as part of an election platform or while in Opposition.
- The existing requirements on this issue have been clarified and enhanced in the Parliamentary Plan Annex.
- Departments' and Minister's offices' roles and responsibilities for completing the Parliamentary Plan have also been clarified. In particular, Ministers' offices would be responsible for completing the section on past policy or political positions, particularly as they related to previous electoral platforms or positions taken while in Opposition.

Implementation

 These changes, which have been incorporated into the MC template available on the Privy Council Office website (<u>http://www.pco-bcp.gc.ca/index.asp?lang=eng&page=information</u> <u>&sub=publications&doc=mc/mc_e.htm</u>), will be in affect as of September 15, 2008.

2. TREASURY BOARD SUBMISSION BUSINESS CASE

PURPOSE OF BUSINESS CASE:

• A sentence indicating the Ministry's request:

"The Ministry is requesting that Treasury Board/Management Board of Cabinet approve...:"

ISSUE:

Provide a sentence or two on the issue/situation that gives rise to the request.

BACKGROUND:

- Provide an explanation of all relevant program and historical information that describes the issue/situation.
- Outline the events/issues that have led to the request (in chronological order).

FUNDING REQUEST/JUSTIFICATION:

Business Case:

- Describe the reason for the request and what is the proposed course of action for the Ministry?
- Explain why the Ministry requires this request and how it will benefit the Ministry, OPS and the Public, etc.
- How will the proposed course of action address the issue that has been identified?
- What are the expected outcomes if the request is approved?
- Are there other parties involved in the request (e.g. other ministries, external to the OPS, etc).
- What is the timeframe on the proposed course of action?

IMPACT ON FISCAL PLAN:

- Identify financial impacts on the fiscal plan or
- Identify any potential sources to offset the costs.
- Provide a cost summary.

OPTIONS CONSIDERED:

- Briefly describe all options considered (usually 2-3).
- Summarize the strengths and weaknesses of each option and how it compares to each other.

Option 1:

Outline and Describe

Option 2:

Outline and Describe

Option 3:

Outline and Describe

FINANCIAL ANALYSIS:

- What are the estimated funding requirements for the request?
 - o Identify each cost element (e.g. the costs that will be carried out) and
 - Provide a breakdown of costs by timeframe (if applicable)
 - Note any costing assumptions should be identified in determining estimates for costs.
- Identify any revenue/savings that may be generated, and is available to offset the costs.
- Outline any trends in multi-year costs and explain any reasons attributed to the patterns.

RECOMMENDATION/APPROVAL SOUGHT:

• The Ministry's recommendation on the request (this can be similar to what was stated in the Purpose section):

"The Ministry recommends that Treasury Board/ Management Board of Cabinet approve..."

3. PPEPARATION OF BUSINESS CASE

PURPOSE OF THE SUBMISSION:

ISSUE:

BACKGROUND:

FUNDING REQUEST/JUSTIFICATION:

Business Case:

IMPACT ON FISCAL PLAN:

OPTIONS CONSIDERED:

PERFORMANCE MEASURES:

Program Administration and Delivery Performance Measures

Program Measure(s)	Deliverables
	•

POLICY APPROVAL:

RISK ASSESSMENT:

IMPLICATIONS FOR OTHER PROGRAMS/MINISTRIES:

IMPACT/ANALYSIS:

Accountability/Program Implementation Review:

Business planning/re-engineering:

Customer Service:

Information Technology:

Privacy Impact Assessment:

Realty

Rural and Northern Ontario:

Workforce Impact:

FINANCIAL ANALYSIS:

RECOMMENDATION/APPROVAL SOUGHT:

COMMUNICATION REQUIREMENT:

TIMEFRAME:

4. HOW TO WRITE A BRIEFING NOTE ¹

What is a briefing?

Briefings, whether in the form of briefing notes, longer briefing papers, or oral briefings, are used to keep decision makers informed about the issues they are responsible for. In government, briefings are the principal means of communication between government managers and their ministers (or other senior officials).

The demands of government these days are such that senior officials must constantly learn and retain information about an enormous range of topics and issues, which change rapidly. The only way they can do this is to rely on concise, clear, reliable briefings.

What is a briefing note and when is it used?

Written briefings are usually done in the form of briefing notes. A briefing note is a short paper that quickly and effectively informs a decision-maker about an issue. A useful briefing note distills often complex information into a short, well-structured document.

Briefing notes usually deal with "issues"—subjects of debate. But briefing notes are also prepared for any topic someone needs to be informed about. It might be a policy matter, a situation, a report, action by another government—in fact, anything that government deals with.

Briefing notes are typically written for those senior-level decision-makers who:

- have to keep track of many, often unrelated, issues
- may not be familiar with the issues and may not have any related background
- for whatever reason, cannot spend time doing their own research
- need a capsule version of the key points and considerations about an issue

What are the characteristics of a good briefing note?

A well-prepared briefing note quickly and efficiently fills a person in on an issue. The most valuable briefing note is clear, concise and easy to read. To succeed, a briefing note should be:

- short: one to two pages, and always as short as possible
- concise: a short document isn't necessarily concise; concise means every word is used as efficiently as possible
- clear: keep it simple and to the point; always keep your reader firmly in mind and include only what matters to that reader
- reliable: the information in a briefing note must be accurate, sound and dependable; any
 missing information or questions about the information should be pointed out
- readable: use plain language and design your briefing note for maximum readability (use white space, subheadings, lists, font, and other means of making reading easier)

How is a briefing note structured?

Briefing notes often follow a standard format, but THERE ARE MANY VARIATIONS on that format. We will look at a variety of sample briefing notes and briefing note templates in class. The most important point to remember about the structure of briefing notes is that they have three main parts:

- 1. the purpose (usually stated as the issue, topic or purpose)
- 2. a summary of the facts (what this section contains and the headings used will be determined by the purpose of the briefing note)
- 3. the conclusion (this may be a conclusion, a recommendation or other advice, or both)

These three main parts are presented under some or all of the following section headings. Remember, any briefing note you write will only have the sections that are relevant to your purpose and audience.

Issue (also Topic, Purpose): A concise statement of the issue, proposal or problem. This section should explain in one or two lines why the briefing note matters to the reader. It sets out in the form of a question or a statement what the rest of the note is about.

Background: The details the reader needs in order to understand what follows (how a situation arose, previous decisions/problems, actions leading up to the current situation). Typically this section gives a brief summary of the history of the topic and other background information. What led up to this problem or issue? How has it evolved? Do not repeat information that you're including in the Current Status section.

Current Status: Describes only the current situation, who is involved, what is happening now, the current state of the matter, issue, situation, etc.

Key Considerations: A summary of important facts, considerations, developments—everything that needs to be considered now. While you will have to decide what to include and what to leave out, this section should be as unbiased as possible. Your aim is to present all the details required for the reader to be informed or to make an informed decision. Keep the reader's needs uppermost in your mind when selecting and presenting the facts. Remember to substantiate any statements with evidence and to double check your facts. Additional details may be attached as appendices.

Options (also Next Steps, Comments): Basically, observations about the key considerations and what they mean; a concise description either of the options and sometimes their pros and cons or of what will happen next.

Conclusion and/or Recommendations: Conclusions summarize what you want your reader to infer from the briefing note. Many readers jump immediately to this section, so be sure it covers the points you most want your reader to be clear about. Do not introduce anything new in the Conclusion. If you are including a recommendations section, it should offer the best and most sound advice you can offer. Make sure the recommendation is clear, direct and substantiated by the facts you have put forward.

Before you start writing, be sure you are clear about:

- why you're writing the briefing note (your purpose)
- who you're writing the briefing note for (your reader)
- what that person most needs to know
- the points you will cover
- how you will structure your information

After you have drafted your briefing note, use the following questions as an editing guide:

- Is the purpose of the briefing note clear?
- Is the language simple, economical and clear?
- Is everything there that needs to be there?
- Is anything there that isn't essential to the purpose?
- Is the briefing note easy to read, understand and remember?
- Do the sections lead logically from one to another?
- Is the briefing note designed so that it is inviting to the reader?
- Is there a good balance between white spaces and text?
- Has the briefing note been carefully edited and proofread?
- 1. Doyle, Susan. "How to write a Briefing Note". University of Victoria, Victoria, 2013.

5. SAMPLE REGULATORY SUBMISSION

September 1, 2017

BY COURIER (2 COPIES) AND RESS

Ms. Kirsten Walli Board Secretary Ontario Energy Board 2300 Yonge Street, Suite 2700, P.O. Box 2319 Toronto, Ontario M4P 1E4

Dear Ms. Walli:

Re: EB-2017-0127 & EB-2017-0128 – DSM Mid-Term Review

I am writing on behalf of Environmental Defence to provide submissions regarding the issues in part 1 of the mid-term review and to request clarification regarding the scope of the mid-term review.

Issue 1: Customers with Compliance Obligations

The Board requested comments on "the relationship between the current suite of DSM programs and actual C&T activities of customers with their own compliance obligations." Environmental Defence submits that DSM programs relating to these customers (i.e. Large Final Emitters and Voluntary Participants) should continue and be expanded to ensure that all cost-effective DSM is achieved as required by the Conservation First Framework and the Minister's March 26, 2014 directive to the Ontario Energy Board (the "Conservation Directive").

The fact that these Large Final Emitters or Voluntary Participants may pursue additional conservation measures to achieve their compliance obligations would not justify reduction in the budgets or programs under the DSM Framework for these customers. Programs for these customers are extremely important, including for the reasons expressed by the Board in deciding that Union's large volume program should continue.¹ If other participants propose a reduction or fundamental change in the DSM programs for customers with their own compliance obligations, Environmental Defence requests the opportunity to provide a response at that time.

Cap and trade should lead to expanded conservation programs for all customer classes because it makes the economic case for conservation that much stronger by putting a price on carbon (thus increasing the savings from conservation). At the moment, this additional conservation can be funded in the utilities' Cap and Trade Plans (where the utilities bear the compliance obligations) or outside board-approved rates (i.e. private

¹ Decision and Order in EB-2015-0029/0049 (2015-2020 DSM Plans), pp. 50-52.

investment or government programs).² In both cases there is an avenue for additional investment in conservation to capture the increased economic benefits arising from a carbon price.

There are strong reasons for expanding conservation programs under the DSM Framework for all customer classes. The advent of cap and trade is just one of those reasons. The DSM Framework has been developed and honed over decades to address many complex issues and is therefore a good vehicle for increased conservation that is justified by carbon pricing. However, this is a broader issue that would need to be addressed at a later stage of this proceeding based on our understanding of Board's letter of June 20, 2017.

Issue 2: Attribution of Costs and Savings

The Board requested comments on "the attribution of costs and savings to ratepayerfunded DSM programs where natural gas utilities offer carbon abatement programs in the market." Environmental Defence does not propose any modifications to the DSM Framework to ensure the proper attribution of costs and savings between conservation under the DSM framework and conservation under the utilities' cap and trade plans.

The utilities are already addressing this issue because they are delivering conservation programs with funding from the Green Investment Fund at the same time as delivering conservation programs under the DSM Framework.³ In other words, the utilities are already in the process of attributing costs and savings between ratepayer-funded DSM programs and other carbon abatement programs. Although careful attention to this issue is needed in audit/verification processes, we assume that the utilities are aware that they must avoid double-counting and must ensure that costs and savings are properly allocated as between different programs.

Issue 3: Clarification Regarding Scope

Environmental Defence requests clarification from the Board regarding the scope of the mid-term review. In particular, Environmental Defence believes that budget levels and shareholder incentives should be expressly addressed in the mid-term review, and requests further clarification in this regard.

A review of budget levels and shareholder incentives at the mid-term review is clearly mandated by the Board's DSM Framework, which states as follows:

² Conservation under the Cap and Trade Framework is clearly incremental to conservation under the DSM Framework. The Board explicitly and unambiguously stated this four times in the Cap and Trade Framework and Filing Guidelines. See OEB, *Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities*, September 26, 2016, p. 23 ["The customer-related GHG abatement activities must be incremental to the Utilities' 2015-2020 multi-year DSM plans"], Appendix A: v ["DSM forecasts and customer-related abatement activities forecasts must be shown separately"], see also the footnotes Appendix A, p. v and vii.

³ For further details see the Cap and Trade Compliance Plans in EB-2016-0296 and EB-2016-0300.

The mid-term review will allow the Board to assess the gas utilities' performance, and the appropriateness of the long-term DSM targets. The review will examine annual metrics, **budget levels**, impact on customer rates and **shareholder incentives**. The mid-term review will ensure that the DSM framework is reasonable and contributing to effective natural gas conservation programs to Ontario customers, while achieving annual and long-term targets for reduced consumption. (emphasis added)⁴

A review of budget levels and shareholder incentives is also required by the March 26, 2016 Conservation Directive. The Conservation Directive states that the DSM Framework must include "a mid-term review **to align with the mid-term review of the Conservation First Framework**" (emphasis added).⁵ The mid-term review of the Conservation First Framework is required to examine, among other things, the "overall budget" and the "performance incentive mechanisms."⁶ For the mid-term DSM review to "align" with this (as required by the Conservation Directive), it presumably should presumably include similar elements in its scope.

A review of budgets and shareholder incentives is also warranted by the importance of these issues. Budgets and incentives are key elements in ensuring that the DSM Framework will "enable the achievement of all cost-effective DSM."⁷ They are the "big picture" elements that need to be designed carefully for the DSM Framework to meet the requirements in the Conservation Directive.

With respect to shareholder incentives, Environmental Defence wishes to comment on what it sees as a fundamental gap in the current structure. At the moment, utilities do not have an incentive to develop aggressive DSM plans that maximize the net benefits to consumers. This is because the total incentives are capped and do not increase if the utilities propose more aggressive or more efficient plans with higher expected gas savings.

In addition, incentives are awarded based on meeting or beating pre-set targets, focusing solely on the *execution* of DSM plans, not on the *development* of high-quality plans. Therefore, utilities have a perverse incentive to propose only modest targets in their DSM plans that are easier to achieve and beat. Environmental Defence believes utilities should be rewarded if they achieve more net benefits for consumers via more aggressive and efficient plans, which is not the case now.

⁴ Ontario Energy Board, *Demand Side Management Framework for Natural Gas Distributors (2015-2020)*, December 22, 2014 (EB-2014-0134), p. 3; At p. 25, the DSM Framework also states that "The Board will review all shareholder incentive components at the mid-term review to ensure they are producing the anticipated and expected results and have helped to appropriately align the efforts of the gas utilities with the guiding principles and key priorities outlined in the framework."

⁵ Directive from the Minister of Energy to the Ontario Energy Board, March 26, 2014, para. 4(i).

⁶ Directive from the Minister of Energy re: 2015-2020 Conservation First Framework, March 31, 2014, para. 6.1.

⁷ Directive from the Minister of Energy to the Ontario Energy Board, March 26, 2014, para. 4(ii).

With respect to budget levels, Environmental Defence wishes to comment on the budget levels that are needed to enable the achievement all cost-effective DSM. The recent Natural Gas Conservation Potential Study commissioned by the Board shows that the current DSM plans and budgets are very far from achieving all cost-effective DSM.⁸ According to this ICF report, implementing all achievable cost-effective DSM would result in **\$37 billion in additional savings** in avoided gas costs when compared to the current plans and budget levels.⁹ Even the modest budget increases in ICF's "semiconstrained" scenario would the increase savings in avoided gas costs by **\$20 billion**.¹⁰ In light of the very large gap between the current plans and achievable cost-effective DSM potential, further review of the budget levels is warranted.

Finally, a review of budget levels and shareholder incentives is warranted based on new information that is or will be available, including the 2015 and 2016 results of the utilities' DSM plans and the DSM potential study discussed above.

The Board may already intend to address budget levels and the shareholder incentives in the mid-term review. Environmental Defence is seeking clarification because of the statement that "the scope of the review will be limited" as noted in the Board's letter of June 20, 2017. If budget levels and incentives are currently included in the scope, Environmental Defence respectfully requests clarification on when submissions on these topics should be made by the utilities and by other participants.

If budget levels and shareholder incentives are not currently included in the scope, Environmental Defence asks that the scope be expanded for the reasons set out above.

Yours truly,

Kent Elson

Cc: Participants in this proceeding

⁸ ICF International, *Natural Gas Conservation Potential*, July 7, 2016, p. iv.

⁹ *Ibid.*, p. v (\$37 billion is the difference between the value of savings by 2030 based on current budgets (58,628 million \$) and the value of savings for the achieveable potential (96,600 million \$)); The savings are the avoided costs from decreased gas usage and do not include the avoided carbon cost. ¹⁰ *Ibid*

6. SAMPLE SUBMISSION TO CONSULTATION ON AN ENERGY PLAN

September 16, 2013

Julie Green Senior Policy Advisor Regulatory affairs and Strategic Policy Ministry of Energy 8880 Bay St., 2nd Floor Toronto, ON M7A 2C1 And Yvonne DiTullio Senior Policy Advisor Renewables and Energy Efficiency Ministry of Energy 880 Bay St, 2nd Floor Toronto, ON M7A 2C1

Re: EBR Registry # 011-9490 (Making Choices: Reviewing Ontario's Long term Energy Plan) and EBR Registry # 011-9614 (Conservation First: A Renewed Vision for Conservation in Ontario)

Dar Ms. Green and DiTullio:

The Energy Services Association of Canada was pleased to have participated in the July 31st, 2013 roundtable to discuss - Ontario's Long Term Energy Plan (LTEP). We have reviewed the LTEP, the OPA's *Status, Outlook and Options for Electricity Service* in support of the 2013 LTEP Consultation as well as *Conservation First: A Renewed Vision for Energy Conservation in Ontario* (CF).

The following are our comments on both that we hereby submit to the Environmental Registry.

We strongly support the review of the LTEP and the focus on putting conservation first by stating that the vision is "to invest in conservation, before new generation, where cost-effective". This is a huge improvement over the previous version of the LTEP where the discussion on conservation is near the end of the plan. We would also like to complement the government on including discussion of natural gas and oil, making this a much more comprehensive plan than the earlier version which dealt exclusively with electricity. Below are our comments on how we believe the LTEP may be improved even further.

- **Benefits of Conservation** Although the LTEP and the Ministry's "The Value of Conservation" diagram focus on the fact that conservation is less expensive than new generation, we would suggest that the LTEP and the CF also note that conservation is labour-intensive with the majority of this labour being local. A report for OPA estimated that the conservation initiatives to achieve the 6,300 MW target in their Integrated Power System Plan would result in a net increase of more than 50,000 person-years of employment (Indeco/Econometric Research "The Employment Impacts of Energy Conservation", OPA, 2008).
- Demand Targets We note that the LTEP only refers to the earlier conservation potential in terms of energy use or TWh and does not include the demand target of 7,100 MW by 2030 that was included in the previous LTEP. We believe that both consumption reduction and demand reduction are important and that targets need to be set for both.

- Interim Targets Unlike the previous LTEP, there is no mention of interim targets. We believe
 that these are essential to be able to properly evaluate progress made to date and to make
 corrections/revisions as necessary. We believe the need for 5 year targets, as were contained
 in the previous LTEP, are appropriate.
- Conservation Targets The initial conservation generation reduction target of 13TWh (8% of projected generation in 2015 without conservation) is much less ambitious. We Believe that the initial conservation capacity reduction target of 4,450 MW (15% of peak demand projected in 2015 without conservation) for the period 2005-2015 is ambitious but achievable. We also note that the previous interim targets drop considerably over the next five year periods: 1,290 MW/8 TWh for 2015-2020, 860 MW/4 TWh for 2021-2025 and 400 MW/3 TWh for 2026-2030. These are much less ambitious and it has estimated that this would place Ontario behind at least 17 other states according to the methodology used by ACEEE, according to a recent report (Mallinson, "Electricity Conservation in Ontario: Assessing a System in Progress", York University, 2013).
- Sector Targets –Unlike the previous LTEP this Plan does not include sector targets. We are in general agreement with the previous LTEP that the commercial sector (which we assume also includes institutions) can make the largest contribution and the 50% estimate from that Plan appears likely.
- Natural Gas and Oil Conservation The section on natural gas should include a discussion of the progress that has been made by the gas distribution utilities in Ontario in conservation as well as their future targets. We believe that the section on electricity, like the section of the report on natural gas and oil should also include long term conservation targets.
- Initiatives to Achieve Conservation Targets We believe it would be useful to include in both the LTEP and CF a discussion of initiatives that will be necessary to achieve the conservation targets with a target for each initiative. Examples would include the role of codes/standards, other potential policies such as carbon pricing, rate-payer funded incentive programs, information/labelling programs, etc.
- Leadership by Government and Broader Public Sector The private sector as well as individuals look for and expect to see that its government and the agencies that it is responsible for are clear leaders. We would strongly recommend that the government include specific targets (both short and long term) for its own facilities as well as those of the Broader Public Sector which includes Municipalities, Universities/College, Schools and Health Care facilities (MUSH).

In response to the 33 consultation questions in CF, we offer the following on 6 of these questions:

6. **Opportunities to help consumers finance energy-efficiency improvements** – Energy Performance Contracts (EPC) have been successfully used for over 20 years to finance energy-efficiency retrofits. This has proven a very effective way to transfer the technical and financial risks associated with such projects from facility owners/managers to private Energy Service Companies (ESCOs) with the savings guaranteed to payback the capital expenditure over the term of the contract. While most of such projects in the past have been for public-sector buildings in the MUSH sector, there have also been successful projects in both commercial and Multi Unit Residential Buildings (MURBs). Examples of projects that have used this type of contact can be found at <u>www.energyservicesassociation.ca</u>

8. What innovative programs could help capture conservation potential – We recommend programs that would encourage institutional, commercial and MURB building owners to use EPCs to finance and guarantee their energy efficiency improvements. In particular, we would recommend consideration be given to developing the following two programs; a Conservation Revolving Fund and a Corporate Leaders Program that puts major corporations in competition for achieving conservation targets. We would further suggest coordinating efforts to reduce challenges of dealing with multiple LDCs across different jurisdictions.

13. *Value in sector targets* – As noted in the fifth point above, there is great value in establishing sector targets with interim targets to measure progress against these targets.

14. **Targets for MUSH Sector** – As noted in the last point above, the private sector as well as individuals expect the government and its agencies in the Broader Public Sector to be leaders. One of the best ways to demonstrate this leadership is to set aggressive targets for government/agency buildings and ensure that they are met or exceeded.

17. *Roles and responsibilities of private sector* – ESCO's have a critical role in helping achieve Ontario's energy conservation targets through the broader use of Energy Performance Contacts.

19. *How should conservation be funded* – As conservation can benefit the entire electricity system, it should continue to be funded through the Global Adjustment Mechanism (GAM) with consideration given to having this charge vary by time-of-use, as is currently being investigated by IESO.

In conclusion, we understand that various organizations and agencies will play important roles in achieving the province's conservation objectives. We strongly support the major role of Energy Service Companies who provide Energy Performance Contracts that transfer the technical and financial risks associated with energy retrofits to the private sector through Performance Guarantees. We would welcome the opportunity to discuss these suggestions in greater detail.

By way of background, the Energy Services Association of Canada was formed in August 2010 to promote Performance Based Solutions. Its eight founding members are Ainsworth, Ameresco, Direct Energy, Honeywell, Johnson Controls, MCW Custom Energy Solutions, Siemens and Trane. Together, these companies represent more than 90% of the \$450 million/year Energy Performance Contracting business in Canada. Further information can be found at <u>www.energyservicesassociation.ca</u>.

Yours truly, Peter Love President

Cc. The Hon. Bob Chiarelli, Minister of Energy Gord Miller, Environmental Commissioner of Ontario

7. EXAMPLE OF STUDENT RETSCREEN ASSESSMENT

ENVS 4401: Fundamentals of Energy Efficiency RETSCREEN Assignment: Tait McKenzie Center

December 4, 2015

Course Director: Peter Love

Pamela Bartolome Philippe Blanchard Lambert Law Charlaine Pereira Donna Punzal

The Tait McKenzie is a fitness facility on York University's campus that provides services to York students and the York community. These services include but are not limited to a 7 lane, 25 meter pool, a fitness centre with 58 pieces of cardio equipment, and a large auditorium used for the play of basketball, volleyball, and soccer. In addition, the building is purposed during exam season to host large exams as well as fitness classes in designated rooms. For heating, which is used throughout the year but nearly two-fold during the winter months, the building uses a total of 10,580 million pounds (Mlbs) of steam with an monthly average of 882 Mlbs. As for cooling, which is predominantly used from June to October and never at all during December-February, the total for the year is 2,307 cooling tons-hours with an monthly average of 192 cooling tons-hours.

Conservation Behaviour

Athletic facilities consume large amounts of energy to ventilate and to ensure a comfortable temperature level for users, whether they are in the fitness room or the pool. Based on the numbers, an opportunity for conservation behaviour presents itself in regard to the utilization and reliance upon these systems that could otherwise be fulfilled through more natural means that use less energy. From April through September are the lowest months where heating is used throughout the building. Understanding that comfortable temperature for buildings, also known as room temperature, is 21C, one suggestion could be to reduce the amount of heating in the months on days where the external temperature is around 21C to offset the building's heating system through natural ventilation heating. Incoming air may have to be altered for appropriate humidity levels if deemed necessary. For the months of April-September, the savings could be up to a 15% reduction, meaning the total Mlbs for heating could drop from 3,963Mlbs to 3,368.55Mlbs. This method can save 594.45Mlbs from the warmer months of April through September.

Energy Efficiency

The Tait McKenzie facility is unique from other parts of the campus as the energy efficiency options differ from the more conventional electronic consumption systems such as computers. Since one of the main incentives and attractions of the building is the dedicated fitness centre, the energy usage within that centre will be focused upon as the traffic is highest and concentrated there. Knowing that the building touts having 58 cardio machines in the centre, further examination has led to isolation of treadmills as a case example. Conventional 3HP (horsepower) treadmills like the *Procor 956i* can demand up to 2,400W while a stair climber such as the *Stair-Master* might only use 55W (Wake Forest University, 2012). Therefore, the opportunity for energy savings in addition to cost-effectiveness will need to be accounted for. For Wake Forest University, one of fitness centres have 48 pieces of cardio equipment with 10 being treadmills. Using that similar ratio, York University can be estimated to have 12 treadmills (20.8% of cardio equipment).

The first proposed case is a state-of-the-art treadmill from the product line ARTIS that is supplied by Technogym. The product provides voice recognition, plays music and video, and has a friendly user interface that can be individualized and customized to each users preference by storing profiles. The company asserts that their product is 30% more efficient than the previously high efficient treadmill in the market and therefore, in comparison to conventional treadmills, the addition of a 25% adder is used to project energy savings (Total: 55%). The pricing of the fuel rate is 13.44 c/kWh for the purpose of the base and proposed case. This figure was calculated through a formula expressed as the following:

"12.8 x 6 (mid-peak price x hours operating in mid-peak) + 17.5 x 6 (on-peak price x hours operating in on-peak) + 8.3 x 4 (off-peak price x hours operating in off-peak) / 16 (Total operating hours in a day) = 13.4375 = 13.44c/kWh *under the premise that activities are constant and evenly distributed which in real-life applications, are understandably not.

Screenshot #1 demonstrates the exact numbers that was input into the software while Screenshot #2 shows the base case and the proposed case. The proposed case would see a 49% energy savings, which is lower than the 55% savings in energy efficiency considering this new technology may increase the usage of the treadmills which will offset some of the efficiency savings. The simple payback could take up to 8.1 years (equity payback: 7.4 years) as shown in Screenshot #3. In terms of the overall electricity usage of the building, the savings in 33MWh (33,000kWh) which is \$4,464 would account for 3% savings toward the building's usage of 1,118,495kWh.

Demand Response

Some schools such as Cornell University (n.d.), as part of their proposed demand response plan, calls for athletic and fitness facilities to be closed occasionally during peak periods to alleviate the load to the system. While that is a possibility, one other, less aggressive means of demand response takes advantage of the early and late hours that the Tait McKenzie building is open for. Given that Table 1 and 2 shows the time of use pricing, the Tait McKenzie building is open for use for a total of 4 hours off peak. The exact times are from 7pm to 10pm and 6am to 7am. Particular attention can be made to how the building uses energy before opening to start the day. Cooling load can be reduced during the months of November through April by using minimum maintenance that the building would need over the night. While pool temperatures may be regulated over the night to prevent a long temperature startup to prepare for opening, any cooling should be performed in the waking hours just before the building opens for use. If a savings of 10% as shown in Screenshot #4 can be achieved through off-peak hours through keeping the pool at a comfortable temperature and lessening the load on York University's co-generation plant during the day, it would be of benefit.

Appendix:

TIme-of-use-prices (cents/kWh)*	Summer (May 1st - October 31)	Winter (November 1 - April 30)
On-peak (17.5 cents/kWh)	Weekdays	Weekdays
	6am - 10pm	6am - 10pm
Mid-peak (12.8 cents/kWh)	Weekdays	Weekdays
	6am - 10pm	6am - 10pm
	Weekends & Holidays	Weekends & Holidays
	Saturday 10am - 7pm	Saturday 10am - 7pm
	Sunday 9am - 5pm	Sunday 9am - 5pm

From	То	Summer Rate (May - Oc	ct) Winter Rate (Nov - Apr)
7:00 AM	8:00 AM		
8:00 AM	9:00 AM	mid-peak rate	on-peak rate
9:00 AM	10:00 AM	12.8 cents/kWh	17.5 cents/kWh
10:00 AM	11:00 AM		
11:00 AM	12:00 PM		
12:00 PM	1:00 PM		
1:00 PM	2:00 PM	on-peak rate	mid-peak rate
2:00 PM	3:00 PM	17.5 cents/kWh	12.8 cents/kWh
3:00 PM	4:00 PM		
4:00 PM	5:00 PM		
5:00 PM	6:00 PM	mid-peak rate	on-peak rate
6:00 PM	7:00 PM	12.8 cents/kWh	17.5 cents/kWh
7:00 PM	8:00 PM		
8:00 PM	9:00 PM		
9:00 PM	10:00 PM		
10:00 PM	11:00 PM		
11:00 PM	Midnight		
Midnight	1:00 AM	off-peak rate	off-peak rate
1:00 AM	2:00 AM	8.3 cents/kWh	8.3 cents/kWh
2:00 AM	3:00 AM		
3:00 AM	4:00 AM		
4:00 AM	5:00 AM		
5:00 AM	6:00 AM		
6:00 AM	7:00 AM		

Off-peak (8.3 cents/kWh)	Weekdays	Weekdays
	6am - 10pm	6am - 10pm

Tables 1 + 2: *These are the current regulated electricity rates charged to Ontario hydro customers for the period Nov 1, 2015 to Apr 30, 2016. (Source: Ontario Hydro)

Screenshot #1

	Base	e case	Proposed case						
	Operating hours	Electricity load	Duty cycle		Operating hours	Electricity load	Duty cycle	Incremental initial costs	
Quantity	h/d	kW	%	Quantity	h/d	kW	%	5	
12	16	2.4	40	12	16	1.08	45	3,000	

Screenshot #2

nmary	Ø	Show data									
	Fuel	lei	Base	case	Propo	sed ca	ISC	Fuel co	stsav	ings	
Fuel type	consumption - unit	Fuel rate	Fuel consumption	Fuel cost	Fuel consumption	F	Fuel cost	Fuel saved	F	uel cost savings	
Electricity	MWh	5 134,400	67.3	\$ 9,042	34.1	5	4,578	33,2	5	4,464	
Project verification Fuel type	Fuel consumption - unit	Fuel consumption - historical	Fuel consumption Base case	Fuel consumption - variance							
Electricity	MWh		67.3								
	Heating	Cooling	Electricity	Total							
Energy	MWb	MWb	MWh	MWh							
Energy - base case			67	67							
Energy - proposed case			34	34							
Energy saved			33	33							
Energy saved - %			49.4%	49.4%	0	Show	v data			See benchn	nark dat

Screenshot #3:



Screenshot #4:

Cooling project

		Base case	Proposed case
Cooled floor area for building	m²	6,305	
Energy efficiency measures			10%
Cooling load for building	W/m ²	1,248	1,123
Non-weather dependant cooling	%	5%	5%
Total cooling	MWh	12,345	11,111

References

Cornell University. (n.d.). Cornell demand response plan. Retrieved from https://sites.google.com/a/cornell.edu/cornell-demand-response/demandresponse-plan

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8 SAMPLE MID TERM QUIZ

IN-CLASS QUIZ "FUNDAMENTALS OF ENERY EFFICIENCY" ES/ENVS 4401 and 5051 (25 Marks)

1. Provide a brief definition of 5 of the following, including comments on what the terms mean and an example of the units they are expressed in where appropriate (1 mark each for 5 marks)

Energy

Power

Conversion Efficiency

TRC

Stand-by Loss

Demand response

Life Cycle Cost

According to the recent International Energy Agency "Energy Efficiency Market Report 2016", how much of the world's economic energy efficiency potential remains untapped?

According to Peter Love, the 3 benefits of energy conservation in Canada and 4th benefit to countries that import energy?

According to the University of Calgary Sandkey chart, percentage of primary energy wasted in Canada?

2. Provide a short answer to 3 of the following, including a brief elaboration on the main concepts involved (3 marks each, total 15 marks)

Five types of electricity conservation (as defined in Ontario) with focus on three discussed most in class

According to IEA, major policies used to address barriers to energy efficiency

According to Winfield, major limitations of the TRC as a tool for evaluating conservation programs and suggested remedies

According to Sarah Griffiths, 7 of the 10 key considerations in DR program design

Elements of BC's and Ontario's modified TRC guidelines

Essential features of past energy conservation activities at York University

3. Calculation (5 marks)

How much power is saved if a 100 W incandescent light bulb is replaced by a 25 W LED bulb? What are the energy savings if the light is on 1,800 hours per year? What is the annual cost savings if the light is on for 400 hours during peak times, 400 hours during mid peak times and 1000 hour in off peak times with electricity cost of \$0.18/kWh for on peak, \$0.132/kWh for mid peak and \$0.087/kWh for off peak?

9. LIST OF TERMS DEFINED IN SECTION 1 OF TEXTBOOK

Adaptation	P. 4
Agency problem (Split Incentives)	P. 26
Attribution	P. 57
Barriers to energy efficiency	P. 20
Benefits of energy efficiency	P. 7
Briefing note	P. 17
Building energy simulation models	P. 16
Cabinet submission	P. 17
Capacity market funded programs	P. 36
Carbon abatement cost curve	P. 30
Carbon pricing funded programs	P. 36
Challenges of energy efficiency	P. 8
Community Based Social Marketing (CBSM)	P. 27
Community Energy Plans (CEP)	P. 44
Conservation Behaviour	P. 1 & 18
Consumers perspective on energy	P. 13
Conversion efficiency	P. 12
Cost-effectiveness evaluation	P. 32 & 56
Cost effectiveness tests	P 32
Critical peak pricing	P. 22
Culture of conservation	P. 18
Delivered energy	P. 12
Demand Response (DR)	P. 1 & 22
Demand Side Management (DSM)	P. 1
Distribution systems	P.12
Discounted payback period	P. 31
Drivers of energy efficiency	P. 24
Energy	P. 10
Energy Conservation Measure (ECM)	P. 57
Energy demand	P. 5
Energy flows	P. 6
Energy efficiency	P. 1
Energy productivity	P. 8
Energy Service Company (ESCo)	P. 35
Energy Service Performance Contract (ESPC)	P. 35
Energy supply	P. 5
Equation for cost savings	P. 14
Evaluation, Measurement & Verification (EMV)	P. 56
Free riders	P. 58
Fuel substitution	P. 2
General government revenue funded programs	P. 35
Green lease	P. 26
Gross savings	P. 58

Impact evaluation	P. 56
Internal Rate of Return (IRR)	P. 31
Intervention	P. 57
Jevons effect	P. 58
Levelized Unit Energy Cost (LUEC)	P. 34
Load duration curve	P. 22
Long Term Energy Plans (LTEP)	P. 43
Lost Revenue Adjustment Mechanism (LRAM)	P. 33
Mandatory codes and standards	P. 48
Marginal cost	P. 33
Market effects evaluation	P. 56
Market transformation	P. 46
Minimum Energy Performance Standard (MEPS)	P. 46
Mitigation	P. 4
Net Present Value NPV)	P. 31
Net savings	P. 58
Net to Gross ration	P. 58
New technology	P. 1 & 20
On site generation	P. 2
Outcome evaluation	P. 56
Payback period	P. 31
Persistence	P. 57
Policy evaluation	P. 54
Policy options	P. 26
Policy window	P. 49
Potential for energy efficiency	P. 5
Power	P. 8
Power quality	P. 13
Primary energy	P. 10
Process evaluation	P. 56
Program Administrator Cost Test (PAC)	P. 32
Program development	P. 51
Program evaluation	P. 56
Property Assessed Clean Energy (PACE)	P. 35
Quality of energy source	P. 13
Rate-payer funded programs	P. 36
Realization rate	P. 57
Reported savings	P. 57
Rebound effect (Jevons effect)	P. 57
RETScreen	P. 17
Return on Investment (ROI)	P. 31
Rosenfeld	P. 10
Service plot	P. 12
Shared Savings Mechanism (SSM)	P. 33
Societal Cost Test (SCT)	P. 32

Spillover	P. 58
Standby losses (Phantom load)	P. 12
System operations	P.1&20
Time-of-use periods and rates	P. 22
Transmission systems	P. 12
Total Resource Cost Test (TRC)	P. 32
Voluntary programs	P. 50