

June 17, 2013

BY EMAIL AND DELIVERY OF 3 COPIES AT HEARING

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
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Dear Ms. Walli:

**Re: Motion Record (For Full and Adequate Interrogatory Responses)
EB-2013-0053 – Hydro One Networks Inc. (“Hydro One”)
Guelph Area Transmission Line Project (“Project”)**

Enclosed please find Environmental Defence’s Motion Record for its motion seeking full and adequate interrogatory responses from Hydro One.

Please note that the enclosed Motion Record only contains materials that are on the record in this proceeding as well as excerpts of the Ontario Energy Board’s *Filing Requirements for Electricity Transmission and Distribution Applications* and *Rules of Practice and Procedure*. It does not contain any new or additional materials and is being filed for ease of reference during the motion hearing tomorrow.

Yours truly,



Kent Elson

cc: Applicant and Intervenors

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998,
c.15, Schedule B;

AND IN THE MATTER of an application by Hydro One Networks Inc.
for an order or orders pursuant to section 92 of the *Ontario Energy Board
Act, 1998* for Leave to Construct upgraded electricity Transmission Line
Facilities in the Kitchener-Waterloo-Cambridge-Guelph area.

**MOTION RECORD OF ENVIRONMENTAL DEFENCE
(Motion for Full and Adequate Interrogatory Responses)
Returnable June 18, 2013**

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Note: Key portions of the above materials have been marked up by counsel for ease of reference.

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May 31, 2013

BY COURIER (2 COPIES) AND EMAIL**Ms. Kirsten Walli**

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Dear Ms. Walli:

**Re: Motion for Full and Adequate Interrogatory Responses
EB-2013-0053 – Hydro One Networks Inc. (“Hydro One”)
Guelph Area Transmission Line Project (“Project”)**

We are writing on behalf of Environmental Defence to request an order that Hydro One provide revised responses to the below interrogatories that are full and adequate. As detailed below, we submit that Hydro One has failed to provide key requested details relating to its proposed project, whether it is needed, and whether other more cost-effective alternatives might be available.

Environmental Defence is providing its Notice of Motion by way of this letter and asks that this motion be heard in writing or orally. If this motion is heard in writing we request the opportunity to provide a reply to Hydro One's submissions.

Rules Regarding Interrogatory Responses

This motion is made under Rule 29.03 of the Board's *Rules of Practice and Procedure*, which states that a party may bring a motion seeking direction from the Board if it is not satisfied with the response provided to an interrogatory.

Rule 29.02 requires that interrogatory responses be “full and adequate,” which we submit is not the case for the below-referenced interrogatories.

Heightened Importance of Full and Adequate Interrogatory Responses Here

Full and adequate interrogatory responses are of heightened importance in this proceeding as there will be no oral cross-examinations. Therefore, after the interrogatory responses are provided there will be no further opportunity to seek information from the applicant.

The core of Environmental Defence's case rests on whether Hydro One or the Ontario Power Authority ("OPA") have adequately explored all cost-effective alternatives and whether their own analysis supports the need for this project. Environmental Defence is not submitting its own evidence on alternatives and need, and instead intends to test whether the applicant has satisfied its burden in this regard. In this context, it is vitally important that Hydro One provide complete answers regarding the analysis that it and the OPA have done with regard to need and alternatives.

Again, full and adequate interrogatory responses are all the more important because there will be no opportunity to test the applicant's case through cross-examinations.

Additional Information Requested

Environmental Defence requests that the Board order Hydro One to provide full and adequate responses to the below-listed interrogatories, including the specific information outlined below. Hydro One's responses to those interrogatories are attached for the Board's reference.

Interrogatory No. 1

Interrogatory No. 1 requested peak demands (MW) for the relevant six subsystems in the KWCG area from 2000 to 2012. It is unclear from the interrogatory response whether the numbers provided by Hydro One are coincident peaks (i.e. at the time of an entire system peak) or non-coincident peaks. Environmental Defence requests that Hydro One indicate whether the historical total peak demands provided in this response for the six sub-categories are coincidental peaks or are the peak demands for that sub-category.

Environmental Defence also requests the date and hour of the peak for each year. We acknowledge that this was not explicitly requested in the original interrogatory, but submit that this would be part of a full and adequate response. Furthermore, such information could be provided with little effort and could ultimately assist the Board.

Interrogatory No. 5 (a)

Interrogatory No. 5 (a) reads as follows:

Approximately when were (i) the OPA and (ii) Hydro One first aware of the need to take steps to ensure compliance with the ORTAC criteria described in section 5 of the OPA KWCG Report?

In the response, Hydro One and the OPA have not specifically indicated **when** they were first aware of the need to take steps to ensure compliance with ORTAC criteria as requested in this interrogatory. To provide a full and adequate response, we request that Hydro One indicate, at a minimum, (i) when it (and the OPA) first forecast that ORTAC criteria would not be met and (ii) when Hydro One first actually failed to meet ORTAC criteria in the KWCG area.

This is relevant to whether distributed generation (“DG”) and conservation and demand management (“CDM”) are potential alternatives to the project. Hydro One states that DG and CDM are not alternatives in part due to the “**immediate nature**” of the need (see Ex. I, Tab 2, Schedules 26 and 44). Therefore, the *timing* of when this need first arose, and the *urgency* or *immediacy* of this need are highly relevant.

If Hydro One and the OPA have known of this potential need related to the ORTAC criteria for an extended period of time without addressing it, that would indicate that the need is *not* as immediate as they suggest it is.

Additionally, the response to this interrogatory may indicate that Hydro One and/or the OPA should have been analyzing CDM and DG as alternatives *far earlier in time*. If that is the case, Environmental Defence will seek directions or an order from the Board to address that failure to assess those alternatives in a timely manner. For example, the Board may wish to indicate to Hydro One and/or the OPA that they should be assessing CDM and DG as alternatives early enough in the planning process so as to provide time to implement those alternatives where it is in the public interest to do so.

Interrogatory No. 10 (c) and (d)

Parts (c) and (d) of Interrogatory No. 10 requested the following information for the KWCG area and each of the subsystems from 2013 to 2026:

- c) The cumulative total number of potential *peaksaver* and *peaksaver plus* participants; and
- d) The cumulative total potential demand reductions from the total number of potential *peaksaver* and *peaksaver plus* participants.

The response indicated that the OPA does not have an estimate of the total potential demand reduction that could be achieved for *peaksaver* or *peaksaver plus*. The response provided no reason why an estimate could not be developed. We therefore ask that an estimate be provided as requested.

In the alternative, we ask that the OPA provide the information needed for Environmental Defence to produce its own estimate of the *peaksaver* and *peaksaver plus* programs, including:

- (1) The OPA’s estimate of the average demand reduction **per customer** for (a) residential and (b) small commercial customers from (i) *peaksaver* and (ii) *peaksaver plus* participants;
- (2) The number of (a) residential and (b) small commercial customers in (i) the KWCG area and (ii) the six subsystems in the KWCG area; and
- (3) The OPA’s estimate of the percentage of (a) residential and (b) small commercial customers that are eligible for those programs.

This information is relevant as the *peaksaver* and *peaksaver plus* programs are highly cost-effective methods of reducing peak demand. They therefore could play a role in avoiding or deferring costly supply-side projects such as this. Environmental Defence is seeking the above information to assess the degree to which these programs could be expanded to avoid or defer the need for this project.

Interrogatory No. 22 (b)

Interrogatory No. 22 (b) relates to actual local generation projects that have been submitted to the OPA in the City of Guelph under the FIT and CHPSOP programs. These projects would have a total generation capacity of 60 MW. Table 3 in Hydro One's evidence at Ex. B, Tab 1, Schedule 5, Page 20 provides a demand forecast for each subsystem net of conservation and DG. The information in Table 3 is the basis for Hydro One's contention that the project is needed to address demand growth. This interrogatory requested that a revised version of Table 3 be provided under the assumption that the 60 MW of local generation projects that have applied to the OPA are constructed as soon as possible.

The requested information was not provided in the response on the grounds that:

...connection points for the projects referred to in the City of Guelph Council Report are required in order to provide a revised version of Table 3 ... because the proposed projects could be located within the City of Guelph, but not electrically connected in the South-Central Guelph or Kitchener-Guelph subsystems.¹

We believe that the requested information can and should be provided by Hydro One and the OPA. The 60 MW of projects have submitted applications to the OPA and are actual proposed projects with specific sites. The connection points therefore are known and can be used to provide an updated version of Table 3 as requested.

This information is highly relevant. The main driver for the proposed transmission line is growth in peak demand in the area served by the South-Central Guelph. On its face, these 60 MW of projects could avoid or defer this project by providing local generation that does not need to be transmitted into Guelph from outside the area. We simply ask that the demand forecast be revised to indicate the potential impact of these projects on the need in this area.

Interrogatory No. 26 (a) and (b)

Parts (a) and (b) of Interrogatory No. 26 read as follows:

- a) Please describe and list all steps taken by the OPA to assess whether increased CDM and/or DG could avoid or defer the need for a new transmission line in the KWCG area as well as the dates that each of these steps were taken. Please include a listing of the dates and subjects of all memos and reports prepared in this regard.

¹ Response to Interrogatory No. 22 (b)

- b) Please provide a copy of all documentation (e.g. memos, reports, etc.) prepared by the OPA in relation to an assessment of whether increased CDM and/or DG could avoid or defer the need for a new transmission line in the KWCG area.

The interrogatory response provided only a partial synopsis of the OPA's analysis of CDM and DG as alternatives. The response *did not* provide (i) list the steps taken by the OPA to investigate these alternatives, (ii) the relevant dates, or (iii) the underlying documentation. We ask that this information be provided.

List of steps and dates:

A list of the steps taken by the OPA, and the key dates, is relevant to whether a sufficient assessment of the alternatives has been undertaken. As discussed above, the core of Environmental Defence's case is whether the applicant (or the OPA) has adequately assessed the alternatives to establish that the project is needed and the most cost-effective option. The focus is therefore on what analysis has been done by the applicant and/or the OPA. We are simply seeking a list of these steps, including the key dates.

The dates of the various steps taken by the OPA are also relevant in relation to the timing issues discussed above. Again, Hydro One states that DG and CDM are not alternatives in part due to the "**immediate nature**" of the need (see Ex. I, Tab 2, Schedules 26 and 44). Hydro One is in effect saying that it is "too late" to implement CDM and DG as alternatives. Therefore, it is relevant to determine when the OPA and Hydro One first started examining CDM and DG as alternatives and whether they should have been examining these options earlier.

Again, if the response to this interrogatory indicates that Hydro One and/or the OPA should have been analyzing CDM and DG as alternatives far earlier in time, Environmental Defence will seek directions or an order from the Board to address that failure to assess those alternatives in a timely manner. For example, the Board may wish to indicate to Hydro One and/or the OPA that they should be assessing CDM and DG as alternatives early enough in the planning process so as to provide time to implement those alternatives where it is in the public interest to do so.

Documentation underlying DG and CDM analysis:

The key OPA documentation (e.g. reports, memos, etc.) underlying its CDM and DG analysis are relevant as it would presumably contain additional important details regarding the OPA's analysis and assumptions. This information would help Environmental Defence assess and challenge the OPA's conclusion that CDM and DG are not adequate alternatives. All that has been provided thus far is a relatively high-level summary of the OPA's analysis. The underlying internal documentation on this topic would provide additional important details and assumptions.

The underlying OPA reports and memos regarding CDM and DG would also assist in clarifying exactly what analysis was done and when.

We therefore request a considerably revised response to this interrogatory that provides a full and complete answer to Environmental Defence's requests.

Interrogatory No. 29 (b)

Interrogatory No. 29 (b) requests copies of the KWCG Working Group's meeting agendas and minutes. That request was refused without providing any justification even though Rule 29.02 requires that an explanation be given where a response is refused. We therefore ask that those materials be provided.

These materials are relevant because Hydro One has pointed to the working group's support of this project as part of its justification for its application. In a March 8, 2012 letter to Hydro One, Amir Shalaby of the OPA states that the KWCG Working Group supports the OPA's recommendations with respect to this project [Exhibit B-1-4, Attachment 1]. However, it is unclear how the working group could have decided to support this project by March 8, 2012 even though one year later the working group has still not finished its report on this matter. It is also unclear whether and to what extent the working group considered DG and CDM as alternatives prior to indicating its support.

The requested materials would likely indicate whether, when, and to what extent the KWCG Working Group examined alternatives to the proposed project. There is nothing to indicate that the agendas and meeting minutes would be overly voluminous or burdensome to produce. However, if that is the case, Environmental Defence would in the alternative request only the documentation that was presented to the Working Group before March 8, 2012 (when Mr. Shalaby noted the working group's support) and the minutes of their meetings before that time.

Interrogatory No. 31

Interrogatory No. 31 requests Hydro One's load forecast for the 6 subsystems in the KWCG area as well as the studies and analyses underlying that forecast. Hydro One has not provided the requested information. Its response seems to imply, but does not directly state that it did not produce a load forecast. However, it appears to us that Hydro One must have created its own load forecast as a basis for its long term economic analysis. That is why the reference provided for this interrogatory was to Ex. B, Tab 4, Schedule 3, which contains Hydro One's economic analysis of the project. We request that Hydro One provide the load forecast underlying its economic analysis as requested in this interrogatory.

This is relevant because it appears that Hydro One's economic analysis may assume a much lower load growth than the OPA and the LDCs are assuming. Hydro One's economic analysis of this project shows that it has a Profitability Index of only 0.2 [Ex. B, Tab 4, Sch. 3, page 1]. That is, it is uneconomic. Therefore, the economic analysis is presumably based on a forecast load growth that is insufficient to bear the costs of the project. Seeing as the need for this project is based on load growth, any load growth forecasts produced by Hydro One, as a basis for the economic analysis or otherwise, should be provided.

Interrogatory No. 40 (b)

Interrogatory No. 40 (b) asked for further information relating to “operating measures” used by Hydro One to address summer peak demands. In its response, Hydro One stated that load transfers were used, but that there is “limited availability” of load transfer capability. To provide a more full answer, we ask that Hydro One indicate the amount of load transfer capability that exists between each sub-category of the KWCG area.

In sum, Environmental Defence requests full and adequate responses to the above-noted interrogatories, including the specific information outlined above.

Issues Raised by Environmental Defence are Within the Board’s Jurisdiction

The issues that Environmental Defence wishes to raise (with respect to DG and CDM as alternatives) are within the Board’s jurisdiction under section 96(2) of the *Ontario Energy Board Act*. Environmental Defence acknowledges that the Board is limited to considering:

1. The interests of consumers with respect to prices and the reliability and quality of electricity service.
2. Where applicable and in a manner consistent with the policies of the Government of Ontario, the promotion of the use of renewable energy sources.

Although DG and CDM have obvious environmental benefits, they can also be a more cost-effective option vis-à-vis supply-side transmission and distribution options. It is the applicant’s burden to establish that the project is needed and cost effective in comparison to the alternatives (including DG and CDM), and most of the above interrogatories relate to whether it has done so. These interrogatories and the issues Environmental Defence wishes to raise fall within the Board’s jurisdiction under section 96(2) of the *Ontario Energy Board Act*.

Procedure and Timelines

Before making this motion, we requested the above information and materials from Hydro One (by letter dated March 22, 2013). This request was flatly refused with the statement that “that the level of disclosure in the original interrogatory responses was more than adequate for the purposes of this proceeding.”² We do not have an indication as to why Hydro One feels that the specific requested information need not be provided.

From a procedural standpoint, it is worthy to note the issue of alternatives to the Guelph transmission line was raised in Hydro One’s rates case. In response to various information requests, Hydro One indicated in the rates case that the section 92 leave to construct hearing would be the proper venue to address the merits and need for the project.³ As this issue is now being addressed in the forum suggested by Hydro One, and seeing as there is no provision for

² Letter from Hydro One to the Board dated May 24, 2013.

³ EB-2012-0031, Technical Conference Transcript, October 12, 2012, p. 54, ln 19 to p. 55, ln. 2, and p. 50, ln. 28 to p. 51, ln. 5.

cross-examinations in this leave to construct application, we submit that it is incumbent on Hydro One to provide full and adequate interrogatory responses and that this would be the most expeditious method of proceeding.

Argument in Chief is currently scheduled for June 10, 2013. If the Board provides a revised schedule for this proceeding in its next procedural order, we can advise that Environmental Defence does not intend to provide evidence.

Conclusion

The information requested by Environmental Defence is not burdensome or too voluminous to produce. In some cases Environmental Defence simply requests copies of documents that already exist and are in the possession of Hydro One or the OPA. We see no reason why this relevant information cannot be provided so that this hearing can proceed expeditiously.

More importantly, the requested information goes to the core issue that Environmental Defence wishes to raise in this proceeding – whether Hydro One and the OPA have adequately assessed DG and CDM as possible cost-effective alternatives. We therefore ask that an order be made that Hydro One provide the full and complete responses to the above-noted interrogatories, including the specific information outlined above.

Yours truly,



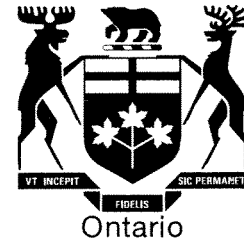
Kent Elson

Encl.

cc: Applicant and Intervenors

Ontario Energy
Board

Commission de l'énergie
de l'Ontario



EB-2006-0170

Ontario Energy Board

Filing Requirements For Electricity Transmission and Distribution Applications

**Last Revised on June 28, 2012
(Originally issued on November 14, 2006)**

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Ontario Energy
Board

Commission de l'énergie
de l'Ontario



Ontario Energy Board

Chapter 4 of the Filing Requirements For Electricity Transmission and Distribution Applications

May 17, 2012

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4.4 Filing Requirements for Projects under Section 92

The analysis of public interest implications may vary depending on the Applicant (rate-regulated or non rate-regulated) and type of transmission project being reviewed. The following minimum filing requirements apply to projects in a leave to construct proceeding. The exhibit designation is a suggestion and is not mandatory.

Exhibit A: Index

An index table listing exhibit numbers, tabs and schedules, and each of their contents shall be provided.

Exhibit B: The Application**1. Administrative**

This section should include the formal signed application, which must include the following:

- the name of the applicant and partnerships involved in the application;
- the authorized representative of the applicant, phone, e-mail, fax and delivery address;
- an outline of the business of the applicant and parties in the application;
- an explanation of the purpose of the project for which leave to construct is being sought ;
- the financial structuring for the project, as necessary;
- a concise description of the routing and location of the project, including the affected municipalities and regions;
- a description of project components and their locations, activities, and related undertakings;
- the rationale for selecting the proposed project as opposed to any for alternatives considered
- an explanation of how the project is in the public interest, as defined by section 96(2) of the Act; and,
- the project schedule.

2. Project Overview Documents

The evidence in this section provides the background and a summary of the application, and assists the Board in drafting a Notice of Hearing for potential interested parties. This must include:

- a detailed description of location of the project and its components;
- maps (1:50,000 or larger) showing: the route, facility sites and any proposed ancillary facilities;

- the location of project components and related undertakings;
- line drawings of the proposed facility, showing supply connection(s) to the proposed facility and delivery facilities from the proposed facility to any adjacent transmission and/or distribution system(s); and
- the nominal rating of the main components of the project, including the transformers.

3. Need for the Project

In leave to construct applications, the Board's consideration is limited to the interests of consumers with respect to prices and the reliability and quality of electricity service and, where applicable and in a manner consistent with the policies of the Government of Ontario, the promotion of the use of renewable energy sources. This is mandated by section 96(2) of the Act, and the Board does not have the power to consider broader issues. The Board's consideration of the "need" for a project, therefore, can relate only to matters described in section 96(2).

Project justification delineates the responsibilities and necessary evidentiary components required for the project review. The responsibility for the provision of all evidence for the entire case rests with the applicant.

The applicant's evidence in support of the need for the project is required to be submitted and can be supported as necessary by evidence of the Independent Electricity System Operation ("IESO"), the transmitter, and/or the Ontario Power Authority: ("OPA"):

Where the Board has already considered aspects of the "price" consideration through a rates proceeding the applicant must still provide with their application:

- a description of the need for the project;
- a detailed reference to those approvals for any projects forming part of an approved plan or rate order; and,
- the reasons given for the inclusion of the project in those proceedings.

Classification of Project Need for Rate-regulated Transmitters:

This section relates to additional information required to be provided by rate-regulated Transmitters. Project Categorization, Classification and Justification assist in determining the need for the project. The categorization and classification are considered in a matrix as shown:

PROJECT NEED			
		PROJECT Categorization	
		Non-discretionary	Discretionary
PROJECT Classification	Development		
	Connection		
	Sustainment		

The classification and categorization is discussed in further detail here.

a) Project Classification

Project Classification is the classification of a project into one of three project classes:

- **Development projects** are those for providing:
 - an adequate supply capacity and/or maintaining an acceptable or prescribed level of customer or system reliability for load growth meeting increased stresses on the system; or
 - enhancing system efficiency such as minimizing congestion on the transmission system and reducing system losses.
- **Connection projects** are those for providing connection of a load or generation customer or group of customers to the transmission system.
- **Sustainment projects** are those for maintaining the performance of the transmission network at its current standard or replacing end-of-life facilities on a “like for like” basis.

It is acknowledged that projects can have elements of development, connection, or sustainment. In these cases, the applicant should identify the proportional make-up of the project, and then classify the project based on the predominant driver.

An investment in the Network may be required in any of these three project classifications. Network facilities are comprised of network stations and the transmission lines connecting them.

b) Project Categorization

The categorization stage identifies the project need as:

- **Non-discretionary** – a “must do” project, the need for which is determined beyond the control of the applicant (“Non-discretionary”), or
- **Discretionary** – the need is determined at the discretion of the applicant (“Discretionary”).

The purpose of project categorization is to distinguish whether the project need is **beyond** the control of the ("Non-discretionary") or **at the discretion** of the Applicant ("Discretionary").

Non-discretionary projects may be triggered or determined by such things as:

- mandatory requirement to satisfy obligations specified by regulatory organizations including NPCC/NERC (the designated ERO in the future) or by the IESO;
- a need to connect new load (of a distributor or large user) or new generation (connection);
- a need to address equipment loading or voltage/short circuit stresses when their rated capacities are exceeded;
- projects identified in a Board or provincial government approved plan;
- projects that are required to achieve provincial government objectives that are prescribed in governmental directives or regulations; and
- a need to comply with direction from the Ontario Energy Board in the event it is determined that the transmission system's reliability is at risk.

Discretionary projects are proposed by the applicant to enhance the transmission system performance, benefiting its users. Projects in this category may include:

- projects to reduce transmission system losses;
- projects to reduce congestion;
- projects to build a new or enhance an existing interconnection to increase generation reserve margin within the IESO-controlled grid, beyond the minimum level required;
- projects to enhance reliability beyond a minimum standard; and
- projects which add flexibility to the operation and maintenance of the transmission system.

4. Evidence in Support of Need

The reasons that a project is necessary must be identified. The basic form for such evidence should be cost-benefit analyses, if applicable, of various options. The Board expects that Applicants will present:

- the preferred option (i.e. the proposed project); and
- alternative options.

It should be recognized, however, that the Board will either approve or not approve the

proposed project (i.e. the preferred option). It will not choose a solution from among the alternative options. The applicant should present the smallest number of alternatives consistent with conveying to the Board the major solution concepts available to meet the same objectives that the preferred option meets.

When providing evidence on the need for the applied-for project, support may arise from a comparison with alternative possible projects. Where a proposed project is best compared to other viable transmission alternatives, the comparison should include "doing nothing".

Where the applicant lists the benefits of a leave to construct project as avoiding non-transmission alternatives such as a peaking generation facility or a "must run" generation requirement, it is helpful for the applicant to include corroborative evidence from the IESO or the OPA regarding the Applicant's quantitative evaluation of such a benefit. In any event, this evidence is required to support the need for the project.

The applicant is expected to also compare the alternatives versus the preferred option along various risk factors including, but not limited to:

- financial risk to the applicant;
- inherent technical risks;
- estimation accuracy risks; and
- any other critical risk that may impact the business case supporting the proposed project.

If the proposed project alternatives are expected to have significant qualitative benefits that cannot reasonably be quantified, evidence about these qualitative benefits should be provided. These benefits may be taken into account in ranking the alternatives. Incorporating qualitative criteria may result in a different ranking of projects compared to the ranking based on quantitative benefits and costs alone. For example, a project may be compared on the basis of its degree of disruption to property owners (least, more and most disruptive).

In addition to the evidence regarding the need for the project, the Applicant must address how it proposes to accomplish the project including the identification of relevant options.

For connection projects, in addition to the cost benefit analysis, the applicant must supply specific information on the nature and magnitude of the network impacts. Certain connection projects may require network reinforcement in order to proceed. A description of the additional information requirements in such cases is provided in Appendix 4 -A to this Chapter. Some of these requirements could affect an evaluation of projects and this should be taken into account.

Where an applicant attributes to a proposed project market efficiency benefits such as lower energy market prices, congestion reduction, or transmission loss reduction, the evidence submitted must include quantification of each of the market efficiency benefits listed for that proposed project.

Evidence of Need in Non-discretionary Projects

In the case of a non-discretionary project, the preferred option should establish that it is a better project than the alternatives. The applicant need not include “doing nothing” as an alternative since this alternative would not meet the need. One way for a rate-regulated applicant to demonstrate that a preferred option is the best option is to show that it has the highest net present value as compared to the other viable alternatives. However, this net present value need not be shown to be greater than zero. In contrast, in the case of a discretionary project, “doing nothing” would count as a viable option.

External Need Factors

In some cases, a discretionary or non-discretionary project's need is driven by factors external to the applicant, such as the need to satisfy an IESO requirement or to serve an incremental customer load. Where the applicant identifies a customer or agency (such as the IESO or the OPA) as the driver behind a project:

- It is the Applicant's responsibility to include evidence from that customer or agency as part of the evidence in the application.
- The customer or agency must be prepared to provide witnesses as needed to support the filed evidence if an oral hearing is held.
- It is not sufficient for the applicant to state that the customer or agency has established the need for the project; the Board must be able to test that assertion.
- The Board expects the applicant to work with that external party in the development of the required evidence. The external party will often be the IESO and/or the OPA, although the additional evidentiary requirement could apply to any external party on whom the applicant has relied for the justification of the need for the project.

The evidence may include:

- written material prepared by the customer or agency specifically addressing the proposed project, and,
- a list identifying the key driving factors of the evidence justifying the project need, and the party (e.g. the applicant, the IESO, or the OPA) which has prepared the evidence to justify a given key driving factor.

5. Project Shared Costs

Where there are costs which are shared between rate regulated and non rate-regulated parties, proponents must provide details of project costs to the rate-regulated party. Applicants should provide details covering:

- labour - including a breakdown by facility installations;
- materials - including a breakdown of all facility costs;
- cost of similar projects constructed by the applicant or by other entities for baseline cost comparisons covering:
 - in-service year of the comparator project, and
 - similarities and differences in terms of voltage level, type of towers, type of terrain, etc.
- acquisition of land use rights, and land acquisition including permanent and working easements, survey and appraisals, legal fees, crop and damage compensation;
- direct and indirect overheads broken down by facility installation; and,
- allowance for funds used during construction ("AFUDC").

6. Transmission Rate Impact Assessment

The Board requires information relating to the rate impacts anticipated from transmission investments. Information should cover the short-term impacts as well as long-term impacts of the proposed project.

7. Establishment of Deferral Accounts

The Board would consider applications by licensed transmitters requesting that the Board include with its grant for leave to construct, the establishment of a deferral account (under the Uniform System of Accounts) to track the project construction costs and that such accounts would be reviewed for prudence and inclusion in rate base in a future rate proceeding.

Exhibit C: Project Planning

The applicant must provide the Board with time estimates for construction and service dates, including:

- the critical path and time frame for the completion of construction and operational start-up of the proposed facilities;
- any aspects of the start-up of operation relative to the introduction of the new or

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27.02 The technical conferences may be transcribed, and the transcription, if any, shall be filed and form part of the record of the proceedings.

28. Interrogatories

28.01 In any proceeding, the Board may establish an interrogatory procedure to:

- (a) clarify evidence filed by a party;
- (b) simplify the issues;
- (c) permit a full and satisfactory understanding of the matters to be considered; or
- (d) expedite the proceeding.

28.02 Interrogatories shall:

- (a) be directed to the party from whom the response is sought;
- (b) be numbered consecutively, or as otherwise directed by the Board, in respect of each item of information requested, and should contain a specific reference to the evidence;
- (c) be grouped together according to the issues to which they relate;
- (d) contain specific requests for clarification of a party's evidence, documents or other information in the possession of the party and relevant to the proceeding;
- (e) be filed and served as directed by the Board; and
- (f) set out the date on which they are filed and served.

29. Responses to Interrogatories

29.01 Subject to **Rule 29.02**, where interrogatories have been directed and served on a party, that party shall:

- (a) provide a full and adequate response to each interrogatory;

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January 17, 2013)

- (b) group the responses together according to the issue to which they relate;
- (c) repeat the question at the beginning of its response;
- (d) respond to each interrogatory on a separate page or pages;
- (e) number each response to correspond with each item of information requested or with the relevant exhibit or evidence;
- (f) specify the intended witness, witnesses or witness panel who prepared the response, if applicable;
- (g) file and serve the response as directed by the Board; and
- (h) set out the date on which the response is filed and served.

29.02 A party who is unable or unwilling to provide a full and adequate response to an interrogatory shall file and serve a response:

- (a) where the party contends that the interrogatory is not relevant, setting out specific reasons in support of that contention;
- (b) where the party contends that the information necessary to provide an answer is not available or cannot be provided with reasonable effort, setting out the reasons for the unavailability of such information, as well as any alternative available information in support of the response; or
- (c) otherwise explaining why such a response cannot be given.

A party may request that all or any part of a response to an interrogatory be held in confidence by the Board in accordance with **Rule 10**.

29.03 Where a party is not satisfied with the response provided, the party may bring a motion seeking direction from the Board.

29.04 Where a party fails to respond to an interrogatory made by Board staff, the matter may be referred to the Board.

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Environmental Defence INTERROGATORY #1 List 1

Reference: Ontario Power Authority, *Kitchener-Waterloo-Cambridge-Guelph Area*, March, 2013 (the "OPA KWCG Report"), Ex. B, Tab 1, Schedule 5, Page 10, Table 1

Interrogatory

Please provide the actual total peak demand (MW) for electricity in the KWCG area for each year from 2000 to 2012 inclusive. Please also break out these demands according to the six sub-categories shown in Table 1.

Please also provide the actual annual MWh demand for electricity in the KWCG area for each year from 2000 to 2012 inclusive. Please also break out these demands according to the six sub-categories shown in Table 1.

Response

Historical annual total peak demand (MW) and energy (MWh) is available from 2004 to 2011. Please refer to Attachment 1 to this exhibit.

*LDC metered coincident peak data was used in GATR evidence as IESO hourly data was not available.

Year	Annual Demand (GWh)						Total
	South-Central Guelph	Kitchener-Guelph	Waterloo-Guelph	Cambridge	Kitchener and Cambridge	Other Stations in the KWCG Area	
2004	613	1,413	2,263	1,846	2,209	1,019	7,517
2005	631	1,363	2,389	2,013	2,482	1,025	7,889
2006	629	1,310	2,351	1,973	2,435	982	7,707
2007	655	1,339	2,337	1,983	2,455	986	7,772
2008	648	1,306	2,328	1,932	2,409	949	7,639
2009	614	1,252	2,220	1,809	2,292	879	7,258
2010	648	1,266	2,406	1,860	2,353	950	7,623
2011	654	1,323	2,415	1,872	2,280	994	7,666
2012	679	1,309	2,430	1,866	2,234	1,035	7,688

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Environmental Defence INTERROGATORY #5 List 1

Reference: Reference: Ex. B, Tab 1, Schedule 5, Section 5

Interrogatory

- a) Approximately when were (i) the OPA and (ii) Hydro One first aware of the need to take steps to ensure compliance with the ORTAC criteria described in section 5 of the OPA KWCG Report?
- b) When did (i) the OPA and (ii) Hydro One first begin to assess options to meet the needs described in section 5 of the OPA KWCG Report?

Response

- a) The OPA and Hydro One began to assess the needs and options of the KWCG area, based on the ORTAC criteria, as part of the 2007 Integrated Power System Plan ("IPSP"). While the review of the 2007 IPSP was suspended in late 2008, the OPA and Hydro One continued to proceed with the implementation of some of the key recommendations identified in the IPSP, including the implementation of the Guelph Area Transmission Refurbishment ("GATR") project.

In 2009, the GATR project was put on hold while the impacts of the economic downturn were monitored. In the summer of 2010, a broader regional planning study of the Kitchener-Waterloo-Cambridge-Guelph area was undertaken which included assessment of options to meet the needs described in Section 5 of the OPA evidence. This study updated demand forecasts for the region, and confirmed the need to proceed with the GATR project.

- b) Please refer to the response to Environmental Defence Interrogatory 5 a) at Exhibit I, Tab 2, Schedule 5 a).

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Environmental Defence INTERROGATORY #6 List 1

Reference: Ex. B, Tab 1, Schedule 5, Page 10, Table 1

Interrogatory

Please provide the OPA's estimate of the peak demand (MW) for electricity for the KWCG area and each of the six subsystems shown in Table 1 for each year from 2013 to 2026 inclusive: a) before conservation and demand management (CDM) and distributed generation (DG); b) net of CDM; and c) net of CDM and DG.

Response

Please refer to Attachment 1 to this exhibit.

Subsystem	Gross (MW)													
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
South-Central Guelph 115 kV	131	139	144	150	155	161	167	172	175	179	182	185	188	195
Kitchener-Guelph 115 kV	272	275	281	294	297	301	304	317	321	326	330	334	339	341
Waterloo-Guelph 230 kV	480	489	498	507	518	535	550	560	571	602	615	621	634	653
Cambridge 230 kV	392	410	427	443	459	475	491	504	518	534	549	565	581	597
Kitchener and Cambridge 230 kV	506	528	547	557	577	596	616	622	639	659	678	697	716	736
Other Stations in the KWCG Area	216	221	227	233	237	242	247	251	256	262	267	273	278	283
Total KWCG Area	1605	1651	1696	1740	1784	1834	1883	1922	1963	2007	2051	2095	2141	2192

Subsystem	Net of CDM (MW)													
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
South-Central Guelph 115 kV	124	130	133	137	141	145	149	154	156	158	161	163	166	172
Kitchener-Guelph 115 kV	258	256	256	265	264	264	264	275	276	278	281	283	286	288
Waterloo-Guelph 230 kV	457	458	460	463	467	478	489	493	501	528	538	542	553	569
Cambridge 230 kV	374	385	395	406	417	428	440	449	460	473	486	500	514	528
Kitchener and Cambridge 230 kV	482	494	506	509	521	535	548	550	564	579	595	611	628	646
Other Stations in the KWCG Area	205	205	207	210	211	213	215	217	220	205	208	218	221	225
Total KWCG Area	1526	1542	1563	1584	1605	1635	1666	1690	1717	1749	1782	1818	1855	1900

Subsystem	Net of CDM and DG (MW)													
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
South-Central Guelph 115 kV	123	129	132	136	140	144	148	153	155	157	159	162	165	170
Kitchener-Guelph 115 kV	257	254	255	264	263	263	263	274	275	277	280	282	285	287
Waterloo-Guelph 230 kV	448	448	450	451	455	466	477	482	489	516	526	530	541	557
Cambridge 230 kV	372	383	393	404	415	426	438	447	458	471	484	498	512	526
Kitchener and Cambridge 230 kV	480	491	504	506	519	532	546	548	561	576	592	609	626	643
Other Stations in the KWCG Area	199	199	199	201	203	205	206	209	212	196	199	210	213	217
Total KWCG Area	1508	1522	1540	1559	1580	1610	1640	1665	1692	1723	1757	1792	1829	1875

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Environmental Defence INTERROGATORY #10 List 1

Reference: Ex. B, Tab 1, Schedule 5, Page 10, Table 1

Interrogatory

Please provide for the KWCG area and each of the subsystems shown in Table 1 for each year from 2013 to 2026 inclusive:

- a) The cumulative number of *peaksaver* and *peaksaver plus* participants;
- b) The cumulative peak demand reductions from the *peaksaver* and *peaksaver plus* participants;
- c) The cumulative total number of potential *peaksaver* and *peaksaver plus* participants;
and
- d) The cumulative total potential demand reductions from the total number of potential *peaksaver* and *peaksaver plus* participants.

Response

- a) As of the end 2011, there were a total of 6,542 *peaksaver* participants in the KWCG area, excluding any Hydro One Networks participants in the area (due to the unavailability of location specific information of Hydro One Networks participants). 503 of these participants were incremental in 2011. Verified 2012 data is not currently available. Conservation program results are not recorded on an electrical connection point basis, and therefore the 2011 *peaksaver* participant results are not available at the electrical subsystem level.

Cambridge and North Dumfries Hydro Inc., Guelph Hydro Electric Systems Inc., Kitchener-Wilmot Hydro Inc. and Waterloo North Hydro Inc. are not currently delivering the *peaksaver Plus* initiative. They are expected to deliver this initiative by summer 2013.

The OPA has not forecast the number of future *peaksaver* and *peaksaver Plus* participants for the KWCG area and its subsystems.

- b) As of the end of 2011, the total peak demand reduction from the enrolled *peaksaver* participants in the KWCG area, excluding any Hydro One Networks participants, was 3.7 MW. The incremental peak demand reduction in 2011 was 0.4 MW. Verified 2012 data is not currently available. Conservation program results are not recorded on an electrical connection point basis, and therefore the 2011 total peak demand reduction from the enrolled *peaksaver* participants is not available at the electrical subsystem level.

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1
2 The forecast cumulative peak demand reductions from *peaksaver* and *peaksaver Plus*
3 resources for the KWCG area and each of the sub-systems are shown in Attachment
4 1. These totals are derived from an allocation of the provincial forecast to the KWCG
5 area and subsystems and are incremental to 2010.
6

7 c) The OPA does not have an estimate of the cumulative total number of potential
8 *peaksaver* and *peaksaver Plus* participants for the KWCG area. The OPA will
9 investigate opportunities in the KWCG area for additional cost effective conservation,
10 including additional residential and small commercial demand response, to address
11 supply capacity needs of the area over the longer term.
12

13 d) The OPA does not have an estimate of the cumulative total potential demand
14 reductions from the total number of potential *peaksaver* and *peaksaver Plus*
15 participants for the KWCG area. The OPA will investigate opportunities in the
16 KWCG area for additional cost effective conservation, including additional
17 residential and small commercial demand response, to address supply capacity needs
18 of the area over the longer term.

Peak reduction (MW, cumulative, peaksaver)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
South-Central Guelph	0.6	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Kitchener-Guelph	1.7	2.5	2.5	2.6	2.7	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Waterloo-Guelph	2.5	3.7	3.7	3.9	4.0	4.1	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Cambridge	2.1	3.0	3.1	3.2	3.3	3.4	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6
Kitchener-Cambridge	2.7	4.0	4.1	4.2	4.3	4.4	4.6	4.6	4.6	4.7	4.7	4.7	4.7	4.7
Other	1.3	1.9	1.9	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Total KWCG area	8.9	12.9	13.2	13.6	14.0	14.4	14.8	15.0	15.1	15.1	15.1	15.2	15.2	15.3

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Environmental Defence INTERROGATORY #17 List 1

Reference: Ex B, Tab 1, Schedule 5, Page 19

Interrogatory

The OPA KWCG Report states as follows:

Additionally, it is the OPA's view that further distributed generation resources are not a cost effective means for addressing the needs of the KWCG area, due to robust load growth anticipated in the region combined with the relatively low cost of the recommended transmission reinforcement discussed in section 6.3 below. Distributed generation may be an effective option to meet an area's needs when low load growth is anticipated and/or the cost of the alternative solutions is high in comparison.

- a) Does the OPA agree that incremental distributed generation in the KWCG area could contribute to avoiding or deferring the need for additional generation resources in the rest of Ontario (e.g., Darlington re-build, Bruce re-build, Darlington new build). If "no", please fully explain why not.
- b) Please provide the OPA's best estimates of the cost per MWh of: i) the Darlington re-build project; ii) the Bruce B re-build project; and iii) the Darlington new build project. Please fully justify and document your estimates.
- c) Does the OPA agree that incremental CDM in the KWCG area could contribute to avoiding or deferring the need for additional generation resources in the rest of Ontario? If "no", please explain why not.

Response

- a) In general, additional distributed generation in the KWCG area can help contribute to meeting system needs at the Provincial level. However, the extent of the contribution depends on a number of factors including the nature and magnitude of the system needs and the output characteristics of the distributed generation. The role of distributed generation in deferring the need for nuclear refurbishments and/or new build is also a policy decision to be made by the Government of Ontario.
- b)
 - i. The cost of Darlington refurbishment was provided by Ontario Power Generation ("OPG") in EB-2010-0008 (Exhibit D2, Tab 2, Schedule 1), where OPG indicates it "has high confidence that the project will have a Levelized Unit Energy Cost ("LUEC") of between 6 and 8 cents per kilowatt-hour (2009 \$)".

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- 1 ii. At the moment there are no commercial agreements with respect to the
2 refurbishment of Bruce B. Future commercial agreements may go beyond the
3 scope of the existing commercial contracts with Bruce Power. Costs related to any
4 such future commercial agreements will be subject to negotiation.
5
- 6 iii. The cost of the Darlington new build project is currently being estimated. In June
7 2012, OPG signed agreements with Westinghouse and SNC-Lavalin/Candu
8 Energy Inc. to prepare detailed plans and cost estimates for two potential reactors
9 at Darlington. The resulting reports are expected to be complete in mid-2013 and
10 the completed reports will be analyzed and forwarded to the Province for its
11 consideration.
- 12 c) In general, additional CDM in the KWCG area can contribute to meeting system
13 needs at the Provincial level. However, the extent of the contribution depends on a
14 number of factors including the nature and magnitude of the system needs and the
15 characteristics of the demand savings.

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Environmental Defence INTERROGATORY #18 List 1

Reference: Ex B, Tab 1, Schedule 5, Pages 17-20

Interrogatory

Has the OPA estimated the potential for incremental cost-effective CDM in the KWCG area in excess of the nearly 270 MW of CDM referenced on page 17?
If yes, please provide:

- a) The OPA's incremental cost-effective CDM potential estimates for the KWCG area and each of the subsystems referenced in Table 1 on page 10 for each year from 2013 to 2026 inclusive; and
- b) The OPA's studies and analyses that support these estimates.

Response

- a) The OPA does not estimate the potential for incremental cost effective CDM in the KWCG area in excess of the nearly 270 MW of CDM referenced on page 17 of Exhibit B, Tab 1, Schedule 5.
- b) Not applicable.

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Environmental Defence INTERROGATORY #21 List 1

Reference: Guelph City Council Report No. FIN-CE-12-03 re: Guelph Area Transmission Refurbishment Project and the Community Energy Initiative (December 3, 2012).¹

Interrogatory

According to the above captioned report (enclosed for your reference), generation projects totalling approximately 60 MW in the City of Guelph have been submitted to the OPA pursuant to its Feed-in-Tariff (FIT) Program and the Combined Heat and Power Standard Offer Program (CHPSOP). The report states as follows:

Across the community it is estimated that there are projects before the Ontario Power Authority with a total generation capacity of 60 Mega-Watts (MW). 60 MW represents approximately 25% of the average community-wide load electrical load of 240 MW and 20% of the approximate maximum peak summer load of 300 MW.

The 60 M W being proposed across the community roughly break down as follows:

- 30 MW Solar PV, including:
 - 1 MW City-owned Facilities
 - 8 MW Eastview closed landfill (Cooperative model)
 - 7.5 privately held land (Cooperative Model)
 - 28 MW Combined Heat and Power (CHP), including:
 - Downtown
 - Hanlon Creek Business Park
 - 2 MW Biogas
- a) Please provide the OPA's best estimate of the amount of solar PV, CHP and biogas generation that it will contract for in the City of Guelph during each year from 2013 to 2026 inclusive.
- b) Has the OPA estimated the cost-effectiveness of each of these projects in terms of deferring the need for an upgrade of the Guelph transmission line and new or re-built electricity generation capacity in the rest of Ontario? If yes, please provide the OPA's analysis and estimates.

¹ http://guelph.ca/wp-content/uploads/council_agenda_120312.pdf#page=132 (see pg. 132)

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1 Response

2 a) Over the past year, the OPA and the Ministry of Energy have been reviewing a
3 number of initiatives, including the Feed-in-Tariff ("FIT") Program and the
4 Combined Heat and Power Standard Offer Program ("CHPSOP"), in the context of
5 rising electricity prices and the current needs of the Ontario electricity system.

6
7 Review of the FIT Program was completed in 2012, and based on the April 2012
8 directive from the Minister of Energy, the OPA is currently in the process of
9 reviewing smallFIT (≤ 500 kW) applications to support the award of up to 200 MW
10 of smallFIT contracts. The renewable generation projects referenced in the Guelph
11 City Council report are for facilities >500 kW in size, and therefore are not eligible
12 for the smallFIT procurement.

13
14 The review of CHPSOP is nearing completion. Subject to the outcome of the program
15 review, only those applications that are eligible and complete will receive a contract
16 offer under CHPSOP. There are numerous requirements that applications must meet,
17 and the OPA does not expect that all applications received will be offered a contract.

18
19 Accordingly, at this time, the OPA cannot reasonably estimate the amount of
20 additional solar PV, CHP or biogas generation, if any, that may be contracted in the
21 City of Guelph during each year from 2013 to 2026 inclusive.

22
23 b) The OPA has not estimated the cost-effectiveness of the proposed projects in the City
24 of Guelph to the Feed-in-Tariff Program and Combined Heat and Power Standard
25 Offer Program. These proposed projects even if contracted, in total, are not sufficient
26 to defer the need for the recommended transmission reinforcements.

27
28 As noted in the response to Environmental Defence Interrogatory 8 at Exhibit I, Tab
29 2, Schedule 8, the OPA considered additional potential distributed generation in the
30 KWCG area as an alternative to the recommended transmission reinforcements. As
31 described in the response to Environmental Defence Interrogatory 26 a) at Exhibit I,
32 Tab 2, Schedule 26 a), it is the OPA's view that additional distributed generation is
33 not a feasible or cost-effective option for meeting the area's near- and medium-term
34 needs.

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Environmental Defence INTERROGATORY #22 List 1

Reference: Ex. B, Tab 1, Schedule 5, Page 20, Table 3; Guelph City Council Report No. FIN-CE-12-03 re: Guelph Area Transmission Refurbishment Project and the Community Energy Initiative (December 3, 2012)

Interrogatory

- a) Please explain whether, and to what extent, the 60 MW of projects referred to in the enclosed and above-referenced Council Report are accounted for and netted out of the demand forecast numbers listed in Table 3 of the OPA KWCG Report (re demand forecast by subsystem net of conservation and DG).
- b) Please provide a revised version of Table 3 based on the assumption that those 60 MW of projects are all issued contracts by the OPA and constructed as soon as possible.
- c) For each of the above referenced projects (totalling 60 MW), please explain why the OPA has not issued a contract for the specific project, whether the OPA intends to issue a contract in the near-term for each specific project, and if not, why not? Please also indicate in your answer the MW generation capacity for each project as well the resulting MW reduction in peak supply capacity need that can reliably be assumed will result from the project.
- d) Please describe and list all steps taken by the OPA and Hydro One to determine whether the CDM and/or DG measures outlined in the City of Guelph Community Energy Plan could feasibly avoid or defer the need for a new transmission line in the KWCG area. Please provide all documentation (e.g. memos, reports, etc.) prepared by the OPA and Hydro One in this regard.

Response

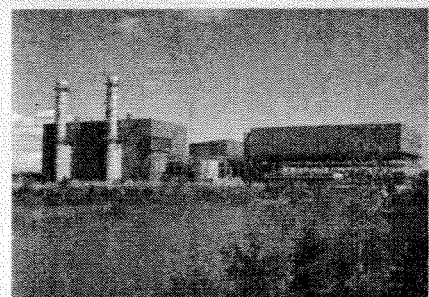
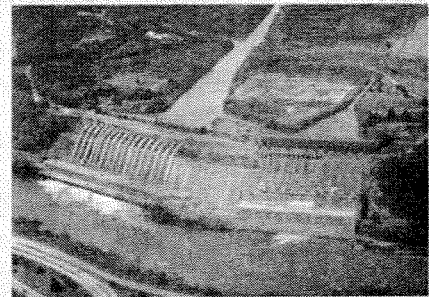
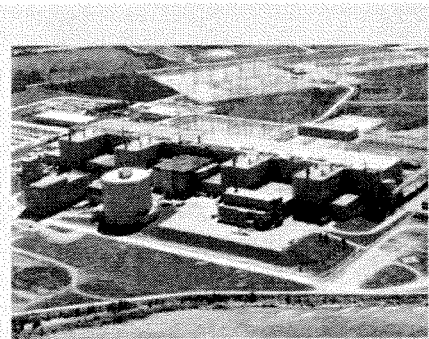
- a) The net summer peak demand in the KWCG area, as shown in Table 3, Exhibit B, Tab 1, Schedule 5, includes the existing and committed (i.e., contracted) distributed generation; it does not include un-contracted facilities such as the projects referred to in the City of Guelph Council Report. Please refer to the response to Environmental Defence Interrogatory 21 a) at Exhibit I, Tab 2, Schedule 21 a) for the status of these procurement programs.
- b) Connection points for the projects referred to in the City of Guelph Council Report are required in order to provide a revised version of Table 3, Exhibit B, Tab 1, Schedule 5. That is because the proposed projects could be located within the City of Guelph, but not electrically connected in the South-Central Guelph or Kitchener-Guelph subsystems. For example, a project that proposes to connect at Campbell TS in Guelph would have no impact on the capacity needs of the South-

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- 1 Central Guelph or Kitchener-Guelph subsystems without additional transmission
2 reinforcements.
- 3
- 4 c) Please refer to the response to Environmental Defence Interrogatory 21 a) for the
5 status of the Feed-in-Tariff ("FIT") Program and the Combined Heat and Power
6 Standard Offer Program ("CHPSOP").
- 7
- 8 Refer to the response to Environmental Defence Interrogatory 45, at
9 Exhibit I, Tab 2, Schedule 45 for a description of the methodology used for
10 determining the effective capacity of distributed generation resources.
- 11
- 12 d) The City of Guelph Community Energy Plan ("CEP") outlines the long-term vision
13 and recommended conservation and distributed generation targets for the City of
14 Guelph by 2031. The CEP does not outline specific CDM and distributed generation
15 resources in the near- and medium-term. The GATR project is needed to address the
16 near- and medium-term needs of the KWCG area, and as discussed in Exhibit B, Tab
17 6, Schedule 2, Attachment 3 is fully supported by the City of Guelph.

Kitchener-Waterloo- Cambridge-Guelph Area

March, 2013



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- 1 distributed generation in the KWCG area, and look for opportunities for further cost effective
- 2 distributed generation to maintain a reliable supply of electricity to the area over the longer-term.

3 6.1.3 KWCG Area Electricity Demand Net of Conservation and Distributed Generation 4 Resources, and Remaining Reliability Needs

5 Conservation and distributed generation resources are important contributors to the integrated
6 solution for addressing the needs of the KWCG area. The net summer peak demand in the
7 KWCG area, after taking into account the contributions of conservation and distributed
8 generation resources, is shown in Table 3 below. Additionally, the portion of growth in summer
9 peak electricity demand forecast for the KWCG area met by conservation and distributed
10 generation is shown in Figure 6.

11 **Table 3: Demand Forecast for the South-Central Guelph, Kitchener-Guelph, Cambridge,**
12 **and Kitchener and Cambridge Subsystems Net of Conservation and Distributed**
13 **Generation**

(MW)	2010 Actual	2011 Actual	2012 Actual	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
South-Central Guelph 115 kV	99	117	112	123	129	132	136	140	144	148	153	155	157	159
Kitchener-Guelph 115 kV	244	262	254	257	254	255	264	263	263	263	274	275	277	280
Waterloo-Guelph 230 kV	436	433	425	448	448	450	451	455	466	477	482	489	516	526
Cambridge 230 kV	335	351	325	372	383	393	404	415	426	438	447	458	471	484
Kitchener and Cambridge 230 kV	442	442	401	480	491	504	506	519	532	546	548	561	576	592
Other Stations in the KWCG Area	184	190	211	199	199	199	201	203	205	206	209	212	196	199

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Environmental Defence INTERROGATORY #23 List 1

Reference: Ex B, Tab 1, Schedule 4, Page 2

Interrogatory

- a) Please provide a break-out of the electricity generation facilities in the KWCG area by size and fuel.
- b) Could a rise in the magnitude of local generation in the KWCG area increase its security of supply in the event of provincial blackout or a failure of the Hydro One grid?
- c) Please confirm that New York City is required to have sufficient local generation capacity to meet 80% of its peak day needs?
- d) Does the OPA believe that it would be in the public interest for the KWCG area to have sufficient local generation to meet at least: a) 25%; b) 50%; or c) 80% of its peak day needs? Please fully justify your response.

Response

- a) Please refer to the response to Environmental Defence Interrogatory 8, at Exhibit I, Tab 2, Schedule 8.
- b) It is possible for distributed generation in the KWCG area to increase the region's security of supply in the event of a provincial blackout or failure of the Hydro One grid. However, the extent of the contribution is dependent on a number of factors, including:
 - Safety protocols and other operating procedures of the distribution/transmission system;
 - The ability of the generator to restart without an external power supply;
 - The facility's start-up time, time to sync to minimum loading and ramp rate;
 - The existence of fast-acting isolating switching in the distribution/transmission system;
 - The location of the generation facilities in relation to the restoration needs.
- c) The OPA is not able to confirm whether New York City has a planning criteria that requires it to have sufficient local generation capacity to meet 80% of its peak day needs.
- d) The OPA believes that it is important to consider a number of alternatives to address the needs of an area, such as conservation, transmission, and local generation. However, when evaluating the potential options to address area needs, the OPA

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- 1 considers the potential attributes of various resource options along with other factors,
- 2 such as broader system needs, technical feasibility and economic feasibility.

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Environmental Defence INTERROGATORY #25 List 1

Reference: Ex. B, Tab 1, Schedule 5, Pages 17-21

Interrogatory

Why is the OPA not implementing programs to pursue all the cost-effective CDM and DG opportunities in the KWCG area that could defer the need for the proposed transmission line upgrade and generation projects in the rest of Ontario?

Response

As described in the response to Board Staff Interrogatory 8 c) at Exhibit I, Tab 1, Schedule 8 c), it is the OPA's view that additional conservation is not a feasible means of fully addressing the KWCG area's near- and medium-term needs. As described in the response to Environmental Defence Interrogatory 26 a) at Exhibit I, Tab 2, Schedule 26 a), it is the OPA's view that additional distributed generation is neither feasible, nor a cost-effective means, of addressing the area's near- and medium-term needs, compared to the recommended transmission reinforcements.

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Environmental Defence INTERROGATORY #26 List 1

Reference: Ex. B, Tab 1, Schedule 5, Pages 17-21

Interrogatory

- a) Please describe and list all steps taken by the OPA to assess whether increased CDM and/or DG could avoid or defer the need for a new transmission line in the KWCG area as well as the dates that each of these steps were taken. Please include a listing of the dates and subjects of all memos and reports prepared in this regard.
- b) Please provide a copy of all documentation (e.g. memos, reports, etc.) prepared by the OPA in relation to an assessment of whether increased CDM and/or DG could avoid or defer the need for a new transmission line in the KWCG area.
- c) Please describe and list all steps taken by Hydro One to assess whether increased CDM and/or DG could avoid or defer the need for a new transmission line in the KWCG area as well as the dates that each of these steps were taken. Please include a listing of the dates and subjects of all memos and reports prepared in this regard.
- d) Please provide a copy of all documentation (e.g. memos, reports, etc.) prepared by Hydro One in relation to an assessment of whether increased CDM and/or DG could avoid or defer the need for a new transmission line in the KWCG area.

Response

- a) Please refer to the response to Exhibit I, Tab 2, Schedule 44 for a description of the assessment of the feasibility of CDM in the KWCG area.

Over the course of the KWCG study, the OPA on behalf of the working group evaluated additional distributed generation as a potential alternative to the recommended transmission reinforcements to address the near- and medium-term supply capacity needs in the area. While additional distributed generation is technically capable of meeting the supply capacity needs in the KWCG area, it is the OPA's view that additional distributed generation is not a feasible means of fully addressing these needs due to the immediate nature and magnitude of the needs, the uncertainty associated with the development of further facilities, as well as siting and connection of facilities at the specific locations at which they are needed.

In addition, analysis was conducted to compare the cost of additional distributed generation to that of the recommended transmission reinforcements; it was concluded as the result of this analysis that additional distributed generation is not cost-effective compared to the recommended transmission reinforcements.

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1 This analysis included the value that the distributed generation resources could
2 provide by concurrently contributing to both the local area peak capacity needs,
3 which exist today, and those of the broader system, which are anticipated to emerge
4 in 2018, thereby reducing the need for generation elsewhere in the Province. It is
5 anticipated that the system will have sufficient generation output from the existing
6 fleet of supply resources to meet energy needs at non-peak times. Accordingly, the
7 analysis took into account the energy displacement and excess energy that could
8 occur through the operation of additional distributed generation alternatives.
9

10 A summary of the cost assessment, using typical examples of distributed generation,
11 is shown in Attachment 1 to this Exhibit. The inputs to the cost assessment are
12 estimates and based on generic facilities and planning assumptions. It is recognized
13 that each generation project is unique and costs for actual projects can differ from
14 those described in Attachment 1. This approach is appropriate for planning purposes
15 and for relative comparison of the different alternatives.
16

17 It is the OPA's view that this analysis is sufficient to explain why the OPA and the
18 working group determined that additional CDM and/or DG was not feasible or cost-
19 effective for addressing the KWCG area's needs; and production of underlying
20 documents is not necessary.
21

22 b) Please see part a) above.
23

24 c) Hydro One depends on the OPA to conduct integrated planning including CDM, DG
25 and transmission to meet the needs of the area. Hydro One therefore did not
26 undertake any such steps and does not have such documents.
27

28 d) Please see part c) above.

Step 1: Estimate the All-In Annualized Cost of Typical DG Alternatives and the Recommended Transmission Alternative

All-in annualized costs represent the annual portion of the total cost of building and operating a particular asset; they are determined by allocating the total costs over the asset's useful life. The all-in annualized costs of typical DG alternatives and the recommended transmission reinforcements are shown below in Table 1 in 2012 \$/MW-month; the assumptions underpinning these costs are described below.

- a) All-in annualized costs include capital, fixed, variable and fuel costs of the distributed generation alternatives, and capital and fixed costs of the recommended transmission reinforcements. Input costs for the distributed generation alternatives is informed by a combination of: OPA program parameters (e.g. from CHPSOP and FIT 2.0), publicly available capital and operating cost information and planning assumptions that include annual capacity factors, heat rates and fuel commodity costs. The cost of the recommended transmission reinforcements were provided by Hydro One.
- b) All-in annualized costs are derived using a useful life of 20 years for generation assets, and 45 years for transmission assets.
- c) The all-In costs do not include costs of land or additional transmission reinforcements that may be required to connect distributed generation facilities, or to address any remaining supply capacity needs that could arise from generation facilities being sited in non-optimal locations (from a transmission perspective).
- d) All-in annualized costs are converted from 2012 \$/MW-yr to 2012 \$/MW-month by dividing by 12.

Table 1

Estimated All-in Annualized Costs of Typical DG Alternatives and the Recommended Transmission Reinforcements	2012 \$/MW-month
Combined Heat and Power (CHP) on Natural Gas	40,000
Peaking Natural Gas	13,000
Solar - Ground Mount	29,000
Solar - Rooftop (10-250 kW)	45,000
Recommended Transmission Reinforcements	2,200

Step 2: Estimate the Present Value Total Cost of Each of the Alternatives

The purpose of this step is to estimate the present value of the annual cash flows associated with building and operating the distributed generation alternatives and recommended transmission reinforcements (refer to Step 1 above), and to reflect the value of the distributed generation in meeting broader system peak capacity needs (that are expected to emerge in 2018) as well as the energy that would be displaced in the system through the operation of the distributed generation alternatives in the local area. The estimated present value of the alternatives is presented below in Table 3 in 2012\$; the assumptions underpinning these costs are described below.

- a) The installed amount of distributed generation required to meet the peak capacity need in South-Central Guelph, Kitchener-Guelph and Cambridge was calculated using the magnitude of the area's need by 2023 and the capacity contribution of each of the distributed generation alternatives. Refer to Table 2 below.

Table 2

Peak Capacity Needs (MW) by 2023 in: South-Central Guelph Kitchener-Guelph Cambridge		186
DG Alternative		Installed Capacity (MW) Required to Meet Peak Capacity Needs
Combined Heat and Power (CHP) on Natural Gas		190
Peaking Natural Gas		190
Solar - Ground Mount		620
Solar - Rooftop (10-250 kW)		620

- b) The required installed capacity for each of the distributed generation alternatives was multiplied by its corresponding all-in annualized cost to represent the annual cash flow associated with building and operating the facility in 2012 \$. For the recommended transmission reinforcements, the all-in annualized cost was multiplied by 186 MW - the peak needs in 2023 in South-Central Guelph, Kitchener-Guelph and Cambridge.
- c) The annual value of displaced system energy that would occur through distributed generation operation was determined by multiplying an estimate of the system marginal cost by an estimate of the amount of energy that would be produced by each of the distributed generation alternatives (based on planning assumptions). The annual value of displaced energy was subtracted from the

annual cost described in step b) above; the present value of the resultant cash flows to 2023 is shown in COLUMN A of Table 3, below.

d) The value that distributed generation can provide to the broader system in contributing to peak capacity needs was factored in by including the cost of building and operating a peaking natural gas facility (sized at 190 MW as per Table 2) to the cost of the recommended transmission reinforcements, starting in 2018 (the time frame in which peaking needs are expected to emerge). In terms of technical and cost considerations, a peaking natural gas facility is assumed to be the most appropriate resource to meet the system's peak capacity needs. This cost is represented in COLUMN B of Table 3, below.

e) The total estimated present value cost of each alternative is determined by adding COLUMN A and COLUMN B of Table 3, below. The relative performance of the alternatives, compared to the recommended transmission reinforcements, is shown in COLUMN C of Table 3 below.

f) A social discount rate of 4 percent was used to estimate the present value costs.

Table 3 (2012 \$ in Millions)

Typical DG Alternatives and the Recommended Transmission Reinforcements	COLUMN A			COLUMN B		COLUMN A+B		COLUMN C	
	Estimated PV of All-In Costs & Energy Displacement to 2023			Estimated PV of All-In Cost for Additional Generation (@ peaking natural gas) Required in the Rest of the Province Starting in 2018		Total Estimated PV Cost		Delta from Recommended Transmission Reinforcements	
Combined Heat and Power (CHP) on Natural Gas	395			-		395	250		
Peaking Natural Gas	160			-		160	15		
Solar - Ground Mount	1,245			-		1,245	1,100		
Solar - Rooftop (10-250 kW)	2,045			-		2,045	1,900		
Recommended Transmission Reinforcements	45			100		145	-		

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Environmental Defence INTERROGATORY #29 List 1

Reference: Ex. B, Tab 1, Schedule 4, Page 1

Interrogatory

- a) Did any members of the KWCG Working Group request that the OPA implement *additional* CDM programs and/or procure more DG in the KWCG area relative to what the OPA's evidence in this proceeding states that it is proposing to do? If "yes", please identify all the members that made such a request and fully describe their requests and the OPA's responses.
- b) Please provide copies of all of the KWCG Working Group's meeting agendas and minutes and reports.

Response

- a) No members of the KWCG working group requested that the OPA implement additional CDM programs and/or procure more distributed generation in the KWCG area relative to what the OPA is proposing in its evidence.
- b) The KWCG Working Group's report is not finalized; however, to assist the Board and intervenors, the OPA is providing a copy of the draft report at Exhibit I, Tab 2, Schedule 30, Attachment 1. The OPA is not providing copies of all Working Group documentation.

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Environmental Defence INTERROGATORY #31 List 1

Reference: Ex. B, Tab 1, Schedule 5, Page 10, Table 1; and Ex B, Tab 4, Schedule 3, Pages 5 and 6.

Interrogatory

- a) Please provide Hydro One's forecast of the peak day demands of the KWCG area and each of the subsystems listed in Ex. B, Tab 1, Schedule 5, Page 10, Table 1 for each year from 2013 to 2040 inclusive.
- b) Please provide the studies and analyses that support Hydro One's load forecasts.

Response

- a) Each Local Distribution Company provided a load forecast for each of their stations. These forecasts were sent to the OPA where they were merged to produce the area and subsystem forecasts. Hydro One did not provide the area or subsystems load forecasts.
- b) Please see response to 31 a).

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Environmental Defence INTERROGATORY #40 List 1

Reference: Ex. B, Tab 1, Schedule 5, Section 5

Interrogatory

On page 13, the OPA KWCG Report states as follows:

Today, the double-circuit 115 kV transmission line (B5G/B6G) supplying South-Central Guelph from Burlington TS has a load meeting capability of approximately 100 MW. ... Based on the summer peak demand in the South-Central Guelph area, this supply capacity was exceeded in 2012 and is expected to remain beyond capacity over the next decade. Additional capacity is therefore required to meet current and growing electricity demand in the area. Until additional capacity is provided, operating measures (such as opening bus-tie breakers) will be required, resulting in a degradation of the level of supply security to the area.

- a) Describe how the operating measures (such as "opening bus-tie breakers") in the South-Guelph 115kV subsystem have assisted in meeting the subsystem's supply needs until now. Please describe all operating measures used, including "opening bus-tie breakers."
- b) What other operating measures were investigated?
- c) The OPA states that these operating measures degrade the level of system security to the area. Please describe how these operating measures degrade the level of system security to the area?

Response

- a) The load meeting capability of 100 MW on B5G/B6G is derived based on the conditions and testing set out by the ORTAC. The transmission system is designed such that no load is interrupted and all equipment ratings are respected following single element outages.

Under actual operations the IESO and Ontario Grid Control Centre ("OGCC") must ensure safe and reliable operation of the system at all times. As such, the IESO and the OGCC have been required to implement temporary operational measures whenever the 100 MW threshold is expected to be exceeded on the South-Central Guelph 115 kV system. Opening the bus-tie breakers at each of the transformer stations in the area so that the load is supplied solely from one circuit or the other is one of the primary operational measures used by the IESO and the OGCC. Because these loads are no longer supplied from two sources, a contingency involving either

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1 of these circuits will automatically result in load being interrupted. In the event of a
2 single element outage on the South-Central Guelph 115 kV subsystem, half of the
3 load in South-Central Guelph will be interrupted. This effectively results in a
4 degradation of the level of supply security to the area.

5
6 b) In addition to opening bus-ties breakers, other operational measures such as load
7 rejection (if available) and load transfers (limited availability) may be used to ensure
8 safe and reliable operation of the South-Central Guelph 115 kV subsystem.

9
10 c) Please see part a) above.

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Environmental Defence INTERROGATORY #44 List 1

Reference: Ex. B, Tab 1, Schedule 5, Section 6, Page 18

Interrogatory

On page 18, the OPA states that it is the view of the OPA that additional conservation is not a feasible means of addressing the KWCG area's near- and medium-term needs. Please describe the background to the OPA's experience with conservation programs on why additional conservation is not feasible. Please cite examples in other regions of the provinces.

Response

The KWCG area has both a supply capacity need and a restoration need in the near- to medium- term.

Conservation is not a resource that can be used to restore power to customers following a transmission outage and thus cannot resolve the KWCG area's restoration needs.

Conservation can be an effective resource for addressing capacity needs. The planned conservation of nearly 270 MW by 2023 for the KWCG area will contribute to deferring the KWCG area's capacity needs as shown in Exhibit B, Tab 1, Schedule 5, page 22.

The OPA's view that additional conservation is not a feasible means of addressing the KWCG area's near and medium-term needs is based on the OPA's experience coordinating province-wide conservation efforts. Since 2006 the OPA has worked closely with industry partners including LDCs and a broad range of stakeholders to design and deliver energy saving initiatives for homes and businesses. The amount of additional conservation that would be required to fully address the KWCG area's near- and medium-term capacity needs is significant compared to the amount of planned conservation, especially for the South-Central Guelph and Cambridge subsystems.

As shown in the table below, by 2016, this would mean achieving more than four times the amount of conservation as a percentage of load for South-Central Guelph and more than twice the amount of conservation as a percentage of load for the Cambridge subsystem relative to the planned conservation amounts. Due to this immediate nature and magnitude of the capacity needs in the KWCG area, it is not feasible for conservation to fully address the region's near- and medium-term needs.

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	2016 Gross Demand (MW)	2016 Planned Conservation (MW)	Planned CDM as % of Load	2016 Incremental Conservation Required	Planned & Incremental CDM as % of Load
South-Central Guelph	150	12	8%	37	33%
Cambridge	443	37	8%	31	15%

The amount of planned conservation savings for the KWCG area was allocated from the OPA's Provincial conservation forecast, which is in line with the conservation targets described in the Long-Term Energy Plan ("LTEP") and prescribed in the Supply Mix Directive. These targets are aggressive and will require a significant level of effort to achieve.

On November 12, 2010, the OEB established two mandatory CDM targets for each LDC: a 2014 net annual peak demand savings target and a 2011-2014 net cumulative energy savings target. These LDC targets are included as part of the planned conservation savings for the KWCG region.

The table below shows the KWCG LDC's progress towards their peak demand savings target. The KWCG LDCs are among the top performing LDCs, performing well compared to the provincial average. However, there is still a significant amount of work remaining for them to achieve the 2014 target.

	2011 Net Annual Peak Demand Savings (MW)	Net Annual Peak Demand Savings Persisting in 2014 (MW)	2014 Annual CDM Capacity Target (MW)	% of Target Achieved
Cambridge and North Dumfries Hydro Inc.	3.21	2.45	17.68	14%
Guelph Hydro Electric Systems Inc.	3.42	2.93	16.71	18%
Kitchener-Wilmot Hydro Inc.	4.63	2.49	21.56	12%
Waterloo North Hydro Inc.	2.10	1.45	15.79	9%
Hydro One Networks Inc.*	35.05	17.42	213.66	8%
Provincial LDC Total	215.7	128.9	1330.0	10%

*Note: Hydro One serves a significant number of customers outside of the KWCG area, and as such only a portion of their savings will have taken place in the KWCG area

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- 1 It may be possible in the longer term to achieve more conservation in the KWCG area
- 2 above currently planned amounts. As such, the OPA will continue to monitor
- 3 conservation results in the KWCG area and look for opportunities for further cost
- 4 effective conservation to address supply capacity needs of the area over the longer term.