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BY E-MAIL ONLY

July 26, 2013

Kirsten Walli
Board Secretary

**Re: Application by Hydro One Networks Inc. for Leave to
Construct Upgraded Electricity Transmission Line
Facilities in the Kitchener-Waterloo-Cambridge-
Guelph Area
Application Board File Number EB-2013-0053**

Please find attached Board staff's submission in the above proceeding.

Yours truly,

Nabih Mikhail
Project Advisor
Electricity Facilities and Infrastructure

Attachment

cc: Parties to EB-2013-0053 proceeding



BOARD STAFF SUBMISSION

**Application by Hydro One Networks Inc. for Leave to Construct
Upgraded Electricity Transmission Line Facilities in the Kitchener-
Waterloo-Cambridge-Guelph (“KWCG”) Area**

EB-2013-0053

July 26, 2013

A. APPLICATION AND PROCEEDING

Hydro One Networks Inc. (“Hydro One”) filed an application on March 11, 2013, with the Ontario Energy Board (the “Board”) under section 92 of the Ontario Energy Board Act, 1998 (the “Act”). Hydro One has applied for an order of the Board granting leave to upgrade existing electricity transmission line facilities (the “Project”).

Following issuance of the Notice of Application and Written Hearing on April 1, 2013, and Procedural Order No. 1 on April 26, 2013, the following parties were granted intervenor status: the Independent Electricity System Operator, the Ontario Power Authority (the “OPA”), Cambridge and North Dumfries Hydro Inc., Guelph Hydro Electric Systems Inc., Kitchener-Wilmot Hydro Inc., Waterloo North Hydro Inc. and Environmental Defence.

Pursuant to Procedural Order No. 1, Hydro One filed responses to interrogatories of Board staff and Environmental Defence on May 16, 2013.

On May 21, 2013, the Board issued Procedural Order No. 2, which set out the schedule for filing intervenor evidence, interrogatories on intervenor evidence and the schedule for filing arguments.

Environmental Defence filed a letter with the Board on May 22, 2013 seeking more complete responses from Hydro One with respect to certain interrogatories. Hydro One replied on May 24 to the Environmental Defence letter and indicated that it was providing a response to Environmental Defence interrogatory No. 2, and also stated that it was not intending to provide any further responses to the other interrogatories of Environmental Defence.

On May 31, 2013, Environmental Defence filed a Notice of Motion in relation to the adequacy of the responses provided by Hydro One to certain interrogatories, and sought an order of the Board directing Hydro One and/or the OPA to provide “revised responses” that are “full and adequate” to various interrogatories.

The Board issued Procedural Order No. 3 on June 5, 2013 setting out June 18 for an oral hearing on the Motion. The Motion was heard orally on June 18, 2013.

On July 8, the Board issued its Decision and Order on Motion and Procedural Order No. 4. Per the Board directions, on July 15 Hydro One filed additional information with the Board in relation to interrogatories No. 5 (a) and 26 (a) and (b).

As directed by the Board, Hydro One filed its Argument-in-Chief on July 22.

B. BOARD STAFF SUBMISSION

B.1 Project Description

Hydro One is proposing to upgrade existing transmission line facilities in and around Guelph. The proposed work on Hydro One's existing transmission facilities includes upgrading approximately 5 km of existing 115 kV transmission line to a double circuit 230 kV line. This upgrade consists of replacing 4 km of existing 115 kV double circuit wood pole line from CGE to ABB Junction and 1 km of 115 kV steel pole line from ABB Junction to Campbell TS. The project also provides for a new Optical Ground Wire over the 1.9 km section of the upgraded line.

There are also additional facilities related to the overall refurbishment, but they are not part of this application. These are:

1. Providing two 230 kV circuit breakers and creating the "Guelph North Switching Station", to be known as Inverhaugh SS, at the location of the existing Guelph North Junction;
2. Providing two 230 kV /115 kV autotransformers and two 115 kV circuit breakers at Cedar TS

B.2 Project Need

Project Classification and Categorization

Board staff notes that the evidence addresses the need¹, and classifies the proposed project as a "Development Project" based on the criteria², as defined in the Filing Requirements³. Justification for the "Development" classification is essentially based on the fact that the proposed project provides for a supply capacity increase to meet

¹ Exh. B/Tab 1/ sch. 4

² Ibid, page 3/lines 19 - 27

³ *Minimum Filing Requirements*, EB-2006-0170, revised June 28, 2012, Chapter 4, pages 9 - 11

the needs of the three subsystems until 2014, The three subsystems are the South-Central Guelph, Kitchener-Guelph and Cambridge.

Board staff also notes that the evidence indicates that the proposed upgrade to 230 kV for the existing 115 kV double circuit transmission line is categorized⁴ as “non-discretionary”. The evidence indicated⁵ that the “non-discretionary” categorization is based on the fact that the project will not only enable meeting the requirements of the Ontario Resource and Transmission Assessment Criteria (“ORTAC”), set by the IESO, and the TSC requirements set by the Board, but also accommodate new load and relieve system elements where the load has exceeded capacity.

Board staff agrees with the evidence that the project classification as “development” and its categorization as “non-discretionary” meets the criteria set out in the noted OEB Filing Requirements.

Conservation and Demand Management (CDM) & Distributed Generation (DG)

In the application, the OPA describes the process of evaluating the capacity and reliability improvement options. As a first step, it reviewed the possibilities for CDM and DG over the study horizon. This process establishes the net demand after accounting for CDM programs and DG contribution.

Board staff notes that Hydro One responded to the Board’s July 8, 2013 Decision and Order on Motion⁶ in regard to Environmental Defence Interrogatory #26 (a) and (b) by providing additional reports and “thorough analysis” to address whether increased CDM and/or DG could avoid or defer the need for a new transmission line in the KWCG area. In that Supplementary Response⁷, Hydro One provided 12 Attachments, including 5 CDM strategies, all filed in 2010 by the distributors in the KWCG study area plus that of Hydro One, and 2011 CDM Annual Reports by the same distributors and Hydro One all as per the Conservation and Demand Management Code for

⁴ Exh. B/Tab 1/Sch. 4/Page 4

⁵ Ibid, page 4/lines 20 - 28

⁶ Exh I/Tab 2/Sch. 26-S

⁷ Ibid/page 2

Electricity Distributors. In the noted response, Hydro One also provided the OPA's conclusion which stated in part that:

"The CDM Strategies of the KWCG area LDCs illustrate their plans for achieving their CDM targets, and the LDC's CDM 2011 Annual Reports describe their achievement towards their CDM targets as of December 2011. Both of these reports are based on the unique composition of the LDCs' service territories. These factors influenced the OPA's view that the LDCs' 2011-2014 CDM targets are aggressive and will require a significant level of effort to achieve. This further reinforced the OPA's view that additional conservation is not a feasible means of addressing the KWCG area's near- and medium-term needs.[emphasis added]"

Board staff agrees with the OPA's view, included in the noted response by Hydro One, that additional conservation is not a feasible means of addressing the KWCG areas near- and medium-term needs, and in addition notes that no party presented any evidence to suggest that any of the KWCG distributors are not meeting their CDM targets as set out by the Board.

In regard to DG, Hydro One's response to Environmental Defence Interrogatory #2 (a) and (b) further clarified the OPA's views⁸. In that response, the OPA indicated that the amount of potential solar, biogas and combined heat and power projects that have been proposed in the City of Guelph, through the Combined Heat and Power Standard Offer Program and Feed-in-Tariff Program, is 60 MW⁹. The OPA¹⁰ concluded that even if all the noted 60 MW of potential DG is implemented, a supply capacity need would still exist in South-Central Guelph starting in 2017. Under the same assumption that the 60 MW DG potential is implemented, the OPA also indicated that the remaining capacity needs of the other subsystems in the KWCG area would not be addressed starting in 2013¹¹.

The response also further indicated that¹² "Should transmission investments be made at Cedar TS in Guelph to allow for the 60 MW distributed generation the projects could

⁸ Ibid, page 3

⁹ Exh. I/Tab 2/Sch. 21

¹⁰ Exh I/Tab 2/Sch. 26-S, Attachment 11, Page 1, and page 2 (Table 1)

¹¹ Ibid, page 3, Table 2

¹² Exh I/Tab 2/Sch. 26-S/Attachment 11, Page 1, lines 12-16 and Page 3 (Table 2)

help contribute to the capacity needs of the broader KWCG area, but a supply capacity need would still exist in the KWCG area starting in 2013.”

Board staff also notes that the DG projects cited as prospects are now all subject to the new directive by the MOE to the OPA dated June 12, 2013 which would impose further caps on small FIT projects, and no further procurement for Large FIT projects.

Board staff submits that the need for the recommended transmission reinforcements is established and the evidence¹³ that all three subsystems¹⁴ supplying the KWCG are in need of immediate reinforcement has been adequately demonstrated. Board staff also supports the view that two subsystems¹⁵ that do not now comply with the ORTAC service interruption criteria are also added justification for the proposed project.

B.3 Transmission Cost & Alternatives Considered

Hydro One offered Alternatives to the proposed transmission upgrade in the form of the OPA’s evidence¹⁶.

The options for transmission enhancement were considered including reinforcing Grid connections into the area from the west, south and north. In response to a Board staff interrogatory¹⁷, where a table summarizing the cost comparison of the three alternatives was provided, Hydro One updated that summary table, shown below.

¹³ Exhibit B/Tab 1/Schedule 5/page 16/Table 2

¹⁴ The three subsystems are: South-Central Guelph (115 kV); Kitchener- Guelph (115 kV); and Cambridge (230 kV).

¹⁵ The two subsystems are Kitchener & Cambridge (230 kV) and Watrelloo-Guelph (230 kV)

¹⁶ Exh B/ Tab 1/ Schedule 5

¹⁷ Exhibit I/Tab 1/Schedule 6

OPTION Reinforcement from the	TOTAL COST	Km of line to be upgraded	Other upgrades required	
South (Burlington TS)	\$200m	42km	Reconductored 115kV or new 230kV B5G/B6G	Requires temporary bypass, conversion of numerous TSs
West (Kitchener-Guelph)	\$130m	33km	Reconductored 115kV or new 230kV F11C/F12C	Requires temporary bypass, conversion of numerous TSs
North (Waterloo-Guelph) PROPOSED OPTION (includes current Leave to Construct Application)	\$80m	5km	Reconductoring/new 230kV at \$27.5m	New Cedar TS auto-transformers and 4-115kV breakers, advancing the relocation of the existing Hydro One Distribution operating centre and transfer of an existing directly connected customer to the distribution system.

Board staff submits that the proposed “North” option is the least cost alternative for meeting the capacity and reliability requirements for the KWCG area.

B.4 Cost Responsibility

Board staff submits that the pre-filed evidence complies with the Filing Requirements¹⁸ indicating an expected capital cost of \$27.5 million for the proposed transmission facilities.¹⁹

As part of a cost-benefit analysis, Hydro One undertook a 25-year discounted cash flow analysis assuming zero incremental load and network revenues attributable to the project. The result of the analysis is a net present value of negative \$74.8 million for the proposed transmission facilities²⁰, based on a 25-year discounted cash flow analysis, which includes both the line and station work, and is provided in the noted evidence at Table 1. The discounted cash flow analysis is based on:

¹⁸ *Minimum Filing Requirements*, EB-2006-0170, revised June 28, 2012, Chapter 4, page 5

¹⁹ Exh. B/Tab 4/Sch. 2/Page 1

²⁰ Exh B/Tab 4/Sch3/Page 1

- the estimated initial cost of \$88.121 million for the line upgrade, and the associated station facilities;
- adding assumed ongoing operating and maintenance costs; and
- subtracting the incremental revenue.

The result of the discounted cash flow analysis, show that the transmission refurbishment project will have a negative net present value of \$68.5 million with a profitability index (“PI”) of 0.2. An additional cost of \$7.4 million is attributable to the Hydro One Distribution advancement costs²² that are triggered by the GATR project – resulting in the total project NPV equal to negative \$74.8 million.

Board staff is of the view that the proposed project should be approved, since as addressed above the evidence supports categorizing the proposed project as “non-discretionary”. Although the PI of 0.2 is well below 1.0, it is the highest PI amongst the other considered alternatives given the cost comparison shown above demonstrates that the technically feasible alternatives have much higher costs than the proposed project. This view is consistent with the Filing Requirement²³ direction where it states in part that:

“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. [...]. 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.”

Reclassification of Line Connection Assets

Hydro One indicated that the existing 115 kV line facilities and associated stations that are being refurbished under the Guelph Area Transmission Reinforcement (“GATR”) project are currently classified as Line Connection assets²⁴. The new 230 kV facilities

²¹ Ibid, page 5, Table 1

²² Exh. B/Tab 4/Sch. 2

²³ *Minimum Filing Requirements*, EB-2006-0170, revised June 28, 2012, Chapter 4, page 12

²⁴ Exh. B/Tab 4/Sch. 3/Page 1/lines 24-25

resulting from the GATR project will provide enhanced interconnection capability and reliability among the KWCG sub-systems²⁵. As such, Hydro One indicated that the GATR facilities will perform a network function and for that reason they are proposed to be classified as Network assets²⁶.

Hydro One further indicated that this approach follows the general direction in the Board's "Renewed Regional Planning Framework for Electricity Distributors: A Performance-Based Approach" ("RRFE") report, released on October 18, 2012.

Hydro One also cited other Board Decisions to justify the reclassification of the assets from Line Connection Pool to Network Pool as follows;

- the approach is consistent with the concept of "local loops", as determined in a previous decision of the Board²⁷;
- the cost responsibility proposed in the GATR project is consistent with the approach approved by the Board in a recent similar project, EB-2009-0079 (Woodstock East) involving connection pool assets, where reliability was a key driver; and
- it is also consistent with the findings in EB-2004-0436 (John x Esplanade), where the Board approved the project as part of network facilities for cost responsibility purposes, in recognition of the project's network-like benefits.

Board staff agrees that the proposed Hydro One approach follows the direction of the RRFE report noted above;

The recent Board "NOTICE OF PROPOSAL TO AMEND A CODE" issued on May 17, 2013, identified proposed Transmission System Code ("TSC") amendments²⁸ that would be consistent with Hydro One's proposed reclassification of the Line Connection Assets to Network Assets, though these amendments have not yet been approved by the Board.

²⁵ Exh. B/Tab 1/Sch. 1

²⁶ Ibid, page 2/lines 2-7

²⁷ Proceeding EB-2006-0501

²⁸ NOTICE OF PROPOSAL TO AMEND A CODE, May 17, 2013/pages 16 - 18

Board staff notes that in response to a Board staff interrogatory²⁹ on this topic, Hydro One stated that:

6. a) No, Hydro One has not previously sought Board approval or acknowledgement of the classification of assets for the GATR project as Network Assets.
- b) Consistent with the Board's findings in the *"Renewed Regional Planning Framework for Electricity Distributors: A Performance-Based Approach"*, released on October 18, 2012, Hydro One is seeking approval in this proceeding to classify the new 230 kV facilities resulting from the GATR Project as Network assets. Hydro One Transmission would reflect the approved asset classification at its next cost of service application in 2014 for test years 2015 and 2016.[emphasis added]

Therefore, Board staff believes the issue is likely one of timing. Given the schedule of this hearing, a decision in the leave to construct application is expected in late August/first week of September, while the TSC amendments pertaining to asset reclassification are likely to be issued soon thereafter. Board staff believes that there are two options that the Board can consider in regard to the reclassification of the Line Connection Assets to Network Assets in this proceeding. The two options are:

- to offer conditional approval, where the actual transfer of the assets from the Line Connection Pool to the Network Pool would take place if the proposed TSC amendments are approved by the Board, and the expectation that the actual transfer of the assets would take place at the next cost of service transmission rate hearing for the 2015 and 2016 test years; or
- to approve the reclassification on the basis that the rationale is similar to that used by the Board in proceeding EB-2004-0436. In that proceeding Hydro One indicated as one of its key rationale that the radial system in Downtown Toronto is destined to be converted to a Network configuration, so it would make sense to classify the project as Network, instead of classifying it as Line Connection to be reclassified at a later date as Network. The Board stated in its findings that:
"The Board accepts as reasonable Hydro One's proposal and Toronto Hydro's argument to include this project as part of network assets for ratemaking purposes. The proposal is consistent with the first phase of the Transmission System Code review proceeding, administratively easier, and grounded on the fact that the project would provide overload

²⁹ Exh. I/Tab 1/ Sch. 6, Questions 6.(a), and 6. (b)

relief for the network facilities at the Richview and Cherrywood stations. It contributes to the ability to transfer load which to some extent mirrors a capability of a network element.”

B.5 Transmission Rate Impacts

Hydro One estimates that the proposed transmission facilities will result in a network pool rate impact of 3 cents, and an overall effect on the average residential customers’ bill of 0.04%³⁰.

B.6 Impact of Project on Reliability and Quality of Electricity Service

System Impact Assessment (“SIA”)

The IESO has completed a draft System Impact Assessment³¹, dated February 28, 2013 and finds that there will be no negative impact on the system reliability, provided that various operating measures are respected to avoid overloading certain transmission lines during peak periods³².

Customer Impact Assessment (“CIA”)

Hydro One completed a draft CIA Report dated March 25, 2013 and a final CIA Report on May 28, 2013³³. The CIA report conclusion and recommendation³⁴ indicated that the short-circuit levels observed at connection points are within the requirements of the Transmission System Code, and that Hydro One recommends that the customers review the impact of the short-circuit change on their facilities and take appropriate and timely action to address any safety/technical issues arising from the incorporation of the transmission facilities in the Fall of 2015.

Board staff is satisfied that subject to respecting the recommended operating measures noted in the SIA report, there are no material negative impacts on the transmission system reliability.

Board staff is also satisfied that the proposed project will not have any adverse impact on the transmission system owned by Hydro One. Board staff notes that the reliability

³⁰ Exh A/T1/Sch. 1/ Page 3/paragraph 8

³¹ Exh B/Tab 6/Sched 3

³² Ibid, pages 3-4, section titled “Rationale for Conditional Approval for Connection”

³³ The final CIA Report dated May 28, 2013 was filed with the Board by Hydro One on June 6, 2013

³⁴ Final CIA Report, dated May 28, 2013, page 20

for transmission customers identified in the CIA study would not be negatively impacted provided that they review the impact of the short-circuit change on their facilities and take appropriate and timely action. There is no information on the record on the extent of the action required by each of these transmission customers.

B.7 Land Matters and Forms of Agreement

Board staff notes that the proposed project involves upgrading existing Hydro One owned transmission facilities on the existing corridor from Campbell TS to CGE Junction³⁵. The pre-filed evidence describes the existing and required land rights, and the process for acquiring these required land rights³⁶. Various forms of Agreement are also included in the pre-filed evidence³⁷ covering the “Offer to Grant Easement”, “Off-Corridor Temporary Access and Access Road”, “Temporary Construction Licence Agreement for Construction staging”, and “Damage Claim Agreement and Release Form”.

Board staff notes that construction of the proposed transmission facilities will require permits³⁸ for crossing of three railway spurs, from Guelph Junction Railway and Canadian National; 7 road allowance crossings in the City of Guelph and one highway crossing owned by the Ministry of Transportation.

Board staff is satisfied that the Applicant’s procedures for acquiring the land rights are in accordance with the requirements set out in the Filing Requirements³⁹ and the Act⁴⁰.

B.8 Environmental Assessment & Approval

The pre-filed evidence⁴¹ indicated that the proposed project falls within the definition of the projects covered under the Hydro One (1992) “Class Environmental Assessment

³⁵ Exh. B/Tab 6/Sch. 7/Page 1/lines 21 - 27

³⁶ Ibid Ibid, pages 2 – 3, Section 2 “Description of Land Rights” and Section 3” Land Acquisition Process”

³⁷ Ibid, Attachments 1, 2, 3, and 4

³⁸ Exh. B/Tab 6/Sch. 6/Page 2/lines 4 - 17

³⁹ *Minimum Filing Requirements*, EB-2006-0170, revised June 28, 2012, Chapter 4, page 15 “Exhibit F: Land Matters”

⁴⁰ *Ontario Energy Board Act, 1998*, S.O. 1998, c.15 (Schedule B), Section 97.

⁴¹ Exh. B/Tab 6/Sch. 1/pages 2 - 3

for Minor Transmission Facilities” (“Class EA”) process, which is approved under the *Environmental Assessment Act* (“EA Act”) by the Ministry of Environment (“MOE”).

Board staff also notes that by filing the Environmental Study Report (“ESR”) with the MOE on October 30, 2012, Hydro One has complied with the EA Act for the Class EA for the GATR Project.

Board staff submits that completion of the EA process is assurance that the proposed route for the transmission line as defined in the GATR project has now been approved.

All of which is respectfully submitted