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BY COURIER

April 19, 2011

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

Dear Ms. Walli:

EB-2011-0118 – Hydro One Networks' Request for Exemption from Section 6.2.6 & 6.2.7 of the Distribution System Code – Hydro One Networks' Application

Please find attached an application by Hydro One Networks Inc. ("Hydro One") for a six-month exemption from the obligations in sections 6.2.6 and 6.2.7 of the Distribution System Code (the "Code"). Hydro One also requests an order or order(s) for an immediate interim stay of the obligations specified in sections 6.2.6 and 6.2.7 of the Code, as of the date of this Application, and until such time as the Ontario Energy Board ("the Board") renders a decision on this matter. The volume of requests to connect micro-embedded and capacity allocated exempt projects has been well beyond all expectations for some time and is not expected to slow down.

During the proposed exemption period, Hydro One is proposing to:

- employ reasonable commercial efforts in processing applications for offers to connect, and
- follow the existing timelines and similar conditions to those that section 7.2 of the Code prescribes for new load connections.

Hydro One requests that this proceeding be conducted by way of a written hearing.

Hydro One respectfully notes that, in light of the issues raised in this Application, the Board may wish to entertain certain amendments to the Code. Hydro One would be pleased to participate in a consultation process on the merits of such changes, should the Board choose to initiate a consultation.

Sincerely,

ORIGINAL SIGNED BY SUSAN FRANK

Susan Frank

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998*;
AND IN THE MATTER OF an Application by Hydro One Networks Inc.
for an Order or Orders including an exemption from sections 6.2.6 & 6.2.7 of the Distribution System Code

SUMMARY OF APPLICATION

1. The Applicant is Hydro One Networks Inc. ("Hydro One"), a subsidiary of Hydro One Inc. Hydro One is an Ontario corporation carrying on the business, among other things, of owning and operating distribution facilities in Ontario.

2. Hydro One requests a six-month exemption from the obligations specified in section 6.2.6 of the Distribution System Code (the "Code") and proposes to employ reasonable commercial efforts to process applications for proposed micro-embedded generator connections during the exemption period.

3. Hydro One requests a six-month exemption from the obligations specified in section 6.2.7 of the Code and proposes, during the exemption period, to apply to the connection of micro-embedded generation facilities the obligations that apply to the Connection of New Services, as set out in sections 7.2.1 and 7.2.3 of the Code.

4. Hydro One also requests that the Ontario Energy Board (the "Board") grant to Hydro One an immediate, interim stay of the obligations specified in section 6.2.6 and 6.2.7 of the Code, as of the date of this Application, until such time the Board renders a final decision on this matter

The details of this Application are set out below.

The relevant sections of the Code are reproduced in Appendix A.

CONTENTS OF APPLICATION

OVERVIEW

The microFIT Program is part of the Ontario Power Authority's ("OPA") Feed-in Tariff ("FIT") Program for renewable energy. The Program is intended to encourage the development of micro-scale (up to and including 10 kW in size) renewable energy projects across the Province.

The response to the microFIT Program has been remarkable. As a result, Hydro One has received numerous applications for connection of such projects, which has caused several challenges for Hydro One. Some of these challenges relate to the Company's ability to meet its obligations as a distributor, pursuant to the Code.

Volume of Applications

Hydro One's understanding is that to date, well over 25,000 applications have been made to the OPA's microFIT program and that over 18,000 of the applications were for proposed connections to Hydro One's Distribution system.

As of April 11, 2011, approximately 12,350 micro-embedded generation project applications have been received by Hydro One. The number of applications continues to grow, with applications arriving at a current rate of about 500 per week, and recently as high as 700 per week.

Code Requirements

The Code sets out the requirements and timelines with which distributors must comply in processing applications for the connection of micro-embedded generation facilities. The following are the key steps that Hydro One undertakes in the processing of such applications, and the corresponding Code requirements, where applicable.

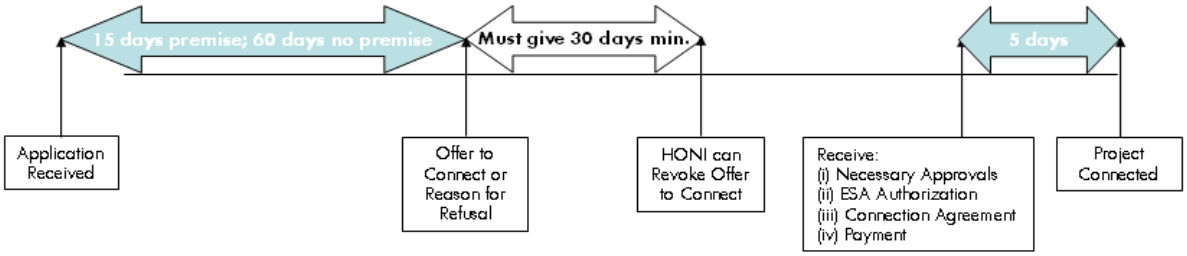
1. Upon receiving an application from a proponent, Hydro One uses its screening tool to identify any technical limitations and/or reliability and safety concerns with the proposed connection. If necessary, work is initiated to scope and estimate the connection requirements. Specifically, transformers and/or poles that serve an existing customer location (i.e., at an indirect micro-embedded generation connection) may require an upgrade. This work is Hydro One's responsibility but needs to be identified and estimated by Hydro One when the application is processed.

2. Hydro One then provides the applicant with an Offer to Connect, along with a Connection Agreement, or provides reasons for refusing to connect the proposed generation facility The Code requires the former or the latter to be completed in 15 or 60 days, dependent on whether the connection is at an existing connection point or a new connection point, respectively (section 6.2.6).

3. For any offers sent, Hydro One awaits the customer's executed Connection Agreement, receipt of all necessary approvals, and payment for the connection.

4. Hydro One then connects the proponent's generation facility to the Distribution system. The Code requires the connection to be completed within five days after step 3.

These steps and timelines for micro-embedded generation are shown in the figure below.



The Code-mandated timelines for the connection of micro-embedded generators were instituted in response to the amendments to the *Ontario Energy Board Act, 1998* ("the OEB Act") that were made by the *Green Energy and Green Economy Act, 2009*. Hence, they did not have the benefit of any significant industry experience with processing and connection of micro-embedded generation in Ontario. From its experience to date in this area, Hydro One offers two observations:

- While the Code requirements may be appropriate for a stable and mature business environment, they are not necessarily suitable for periods of volatile, uncertain and high volumes of activity, such as those associated with the early take-up of the microFIT program.

- The timelines, as developed, did not anticipate or allow for certain technical aspects associated with connection of micro-embedded generation. These considerations are now known to include:

  (i) the cumulative impact that small facilities can have on the distribution system, especially in rural areas; and
  (ii) the nature, duration and timing of the work necessary to assess and connect these facilities. This information became available only once Hydro One and others gained experience in dealing with micro-embedded distributed generation.

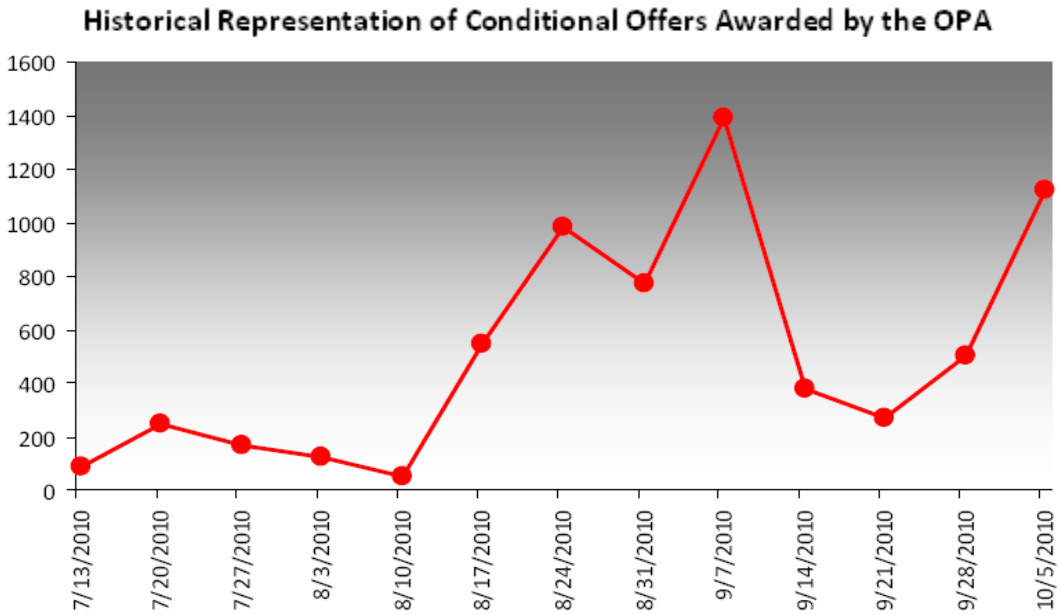
These shortcomings in the existing Code are not surprising. The requirements were developed with urgency and were instituted as part of the Board's activities to promote the connection of renewable generation and in response to its new objective under the OEB Act.

In fact, Hydro One had anticipated that certain challenges would be faced by distributors in meeting such timelines. In responding to EB-2008-0102, "Notice of Proposal to Amend A Code" dated May 16, 2008, Hydro One shared with the Board its concerns about unpredictable volumes and the proposed fixed timelines as stated in the Code at the time. Specific mention was given to the timelines in sections 6.2.6 and 6.2.7 of the Code. Hydro One's experience has validated its initial concerns. Although Hydro One's comments in that proceeding were made in response to a Board proposal to expand the classification of micro-embedded generation, they foreshadowed some of the volume-related, timeline, and technical issues that the Company now faces in managing even smaller micro-embedded generation. For the Board's convenience, Hydro One's full comments are attached in Appendix B.

Compliance Status and Hydro One's Efforts to Comply

Hydro One is currently in non-compliance with sections 6.2.6 and 6.27 of the Code, as it is unable to meet the 15-day and 60-day timelines for making an offer to connect or providing reasons for refusing a connection, and also the 5-day timeline for connecting micro-embedded generation.

The chart below documents the historical increase in volumes over the summer of 2010 and leading to Hydro One's letter to the Board, on November 25, 2010, disclosing its non-compliance with section 6.2.6 of the Code.



Late 2010 was a challenging period, and Hydro One recognized and began responding to the compliance issues that surfaced at that time. For example, during one week, Hydro One received over 1,000 applications from generation proponents. Previous to that, from launch of the microFIT program, Hydro One was receiving an average of 20 to 40 micro-embedded applications per week.

The surge created a backlog and resulted in the Company's inability to meet the prescribed turnaround time. To compound the issue, in many cases, applications were incomplete and required coordination with proponents to resolve, which diverted resources and further compromised compliance with timelines. As well, Hydro One prepared generation studies, to identify the specific types of upgrades needed and reasons for such upgrades in cases where micro-embedded projects could not be connected immediately.

The volume issues continue: in early 2011, Hydro One received about 200-250 applications per week; and recently, Hydro One received almost 1500 applications within an 18-day period[1].

As a result, the Company undertook and continues to take significant actions in its efforts to meet customer expectations, its compliance obligations and its own commitment to supporting the connection of renewable energy generators. Following are some of the generic actions undertaken. Additional information about mitigating measures, specific to sections 6.2.6 and 6.2.7, is found in the corresponding Parts A and B, respectively, of this Application.

Resourcing: Hydro One's initial response to the high volumes of applications naturally involved staffing and other resourcing actions, to first address any backlogs at the front end, namely application processing. This involved the use of overtime, hiring, redeployment of staff, training, and shifting work among work groups. While Hydro One has significant resources in place to serve generation proponents, the acquisition of certain additional resources requires lead times as long as six weeks, arrangements for additional workstations, and sometimes relocation of staff.

Screening: In response to the many cases where the assessment of technical limits was delaying Hydro One's response time, the Company developed and established a screening tool and a process to identify, in a timely manner, projects that are constrained. The screening tool is described in further detail below, in Part A.

Executive and Management Oversight: Hydro One's commitment to the efficient and effective connection of distributed generation is reflected in senior management's attention to the high volumes, customer issues and complaints, and regulatory compliance through bi-weekly meetings.

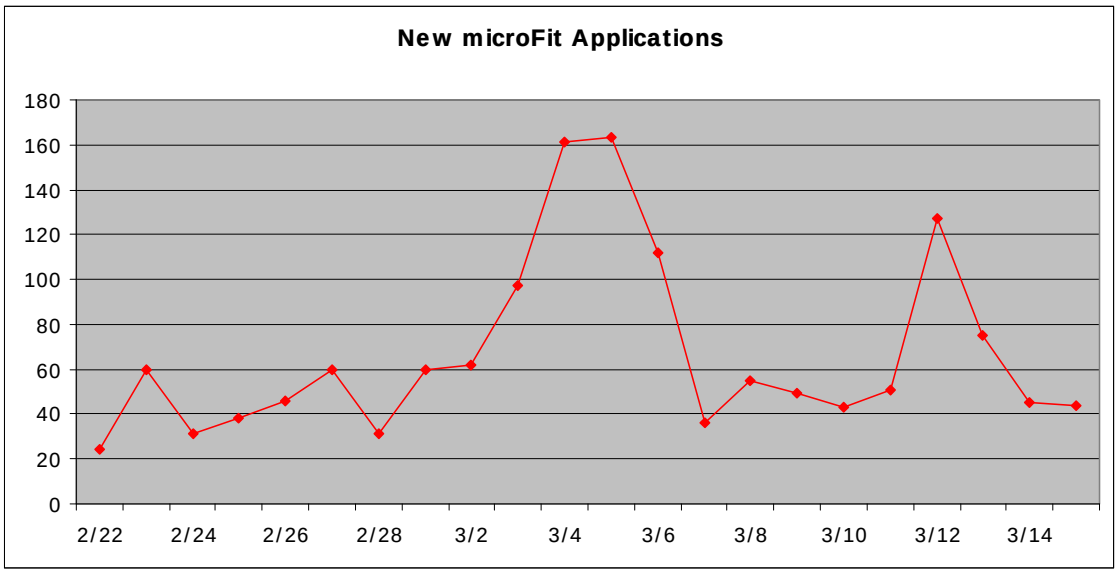
Customer Communications: Hydro One's Business Customer Centre ("BCC") is accountable for the processing of micro-embedded generation connection applications and for interfacing with customers. The Company has had to rely on its website and on generic written communication with customers rather than responding to customer specific enquires and concerns. Improved resourcing and other measures have to a large degree mitigated this deficiency, and the BCC is now positioned to deal with customers both proactively and reactively on a more timely and informative basis.

It is in the absence of any further significant mitigating actions that Hydro One has decided to approach the Board for relief by way of exceptions from these Code requirements.

[1] Hydro One's records indicate that 1485 applications were received between February 10 and February 28, 2011. In total, 1853 applications were received by the Company in February 2011.

Projected Volumes

Hydro One is currently experiencing high volumes of applications for connection of micro-embedded generation facilities and expects the volume of applications to remain high or even increase over the coming months. On February 10, 2011, the OPA released 5,500 letters to proponents who hold conditional offers from the OPA, advising them to contact Hydro One to confirm connection capability. The chart below depicts recent volumes of applications during the 22 days from February 22 to March 16, 2011, some of which are likely in response to the 5,500 letters. The chart shows that 1,470 applications were received and prepared for processing during this 22-day period.



As a result of the letters, Hydro One is expecting many more proponents to apply for connection by the end of the year, and likely much before then.

Compounding the already high volume of applications, on August 13, 2010, there was an extension granted by the OPA to certain micro-embedded generation ground-mounted solar applications for meeting the 60% domestic content rules. Because the extension expires on May 31, 2011, Hydro One expects many microFIT proponents to apply for connection before that date.

The OPA has also made a rule change that applies to all microFIT applications submitted on or after December 8, 2010. Proponents are required to obtain an offer to connect from their distributor prior to the OPA's issuing a microFIT conditional offer of contract. While this change is intended to allow any potential connection issues to be identified as early as possible, it also has the effect of driving generation proponents to Hydro One sooner, amplifying near-term volumes. Of the 18,000 applications to the OPA that are in Hydro One's service area, some 2,000 applied to the OPA after the Dec 8, 2010, rule change, and about 25% of these have already acted by applying to Hydro One for connection.[2]

[2] Data as of March 17, 2011

On February 1, 2011, the OPA announced, but is yet to launch, a new component of the FIT program, specifically for commercial aggregators (CFIT, or commercial Feed-in Tariff). This program is expected to result in a large, but yet unknown, number of applications for connection of micro-embedded generation facilities. Admittedly, these are expected to be bundled in packages (several facilities under a single applicant aggregator) when applying to the OPA, but the bundling does not apply to distributors, and therefore offers them no further efficiencies. Hence, the number of individual facilities that need to be processed and assessed by Hydro One could be significant. The nature of the program is expected to result in unpredictable fluctuations in the number of facilities that need to be processed and assessed at any given time, depending on the number of applications and the number of facilities in each one.

While all of the above factors are expected to put upward pressure on the volume of applications for connection of micro-embedded generation, their individual and aggregate impact is difficult to quantify. This exacerbates Hydro One's challenge in planning its work programs and resourcing them to meet customer expectations, comply with regulatory requirements and manage work efficiently.

PART A

REQUESTED EXEMPTION FROM SECTION 6.2.6 OF THE CODE

On November 25, 2010, Hydro One sent a letter to the Board disclosing its non-compliance with section 6.2.6 of the Code, and describing the underlying issue and mitigating actions. However, despite the elapsed time and actions taken by Hydro One to become compliant, the Company continues to find itself in non-compliance. Hydro One submits that the time-based requirements of this section are not achievable by Hydro One at this time due to:

- volume of micro-embedded generator applications (as described above);
- technical screening and rescreening required to ensure that generation can be connected without jeopardizing the reliability of the existing system or negatively affecting existing customers;
- non-volume related issues; and
- the need and time required for Hydro One to identify and explore investments that would allow for proposed generator connections to proceed.

Technical screening: Hydro One wants to ensure that micro-embedded generation connections are within acceptable industry standards. Through experience, Hydro One has learned that, although an individual micro-embedded project may have little or imperceptible impact on the performance of the distribution and transmission systems, in aggregate, micro-embedded generation connections can have a substantial effect. If permitted to proceed nonetheless, such connections could eventually exceed capacity constraints and reverse flow limits, and result in breaches of accepted industry operating standards.

Hydro One has therefore found it necessary to introduce technical screening, similar to, but simpler than a Connection Impact Assessment, to ensure that generation projects can be connected without unduly risking the reliability of the existing system or negatively affecting existing customers.

Although micro-embedded generators are not subject to Connection Impact Assessments, Hydro One's technical screening is required before a micro-embedded generator is given an offer to connect, giving the Distributor authority to refuse connection unless mitigating actions are undertaken. This approach is preferred to disconnecting micro-embedded generation that put the reliability of the system at risk, under sections 3.1.1, 4.1.8 or 4.2.4.

Non-volume related issues: Hydro One's BCC processing of applications for the connection of micro-embedded generation includes technical screening and a determination of the need for a site visit by Hydro One staff. A site visit is required if the customer selects a standalone generator connection, an upgrade is needed of a load transformer for purposes of connecting a generator, Hydro One or the Customer requires further validation to complete a design estimate, or a three-phase connection is involved.

For example, a subset of all applications at existing customer connections (where the 15-day timeline in section 6.2.6 applies) requires an investigation to determine if any upgrades are required to existing

connection assets serving that customer before the proponent can connect. The investigation includes, but is not limited to, a check of the existing transformer and associated assets at the connection, and a possible site visit which may require the proponent to be on site. This investigation work requires more than 15 days' time, and therefore Hydro One cannot achieve compliance with the Code in such cases, regardless of the volume of applications being processed. It is the Company's intent, during the exemption period, to confirm the time needed and to assess the long-term resolution to this compliance issue.

The need for the field visit and/or estimate for the indirect connections to determine if a transformer and pole upgrade impacts not only the offer to connect, but also Hydro One's ability to connect within 5 days after Electrical Safety Authority authorization (see Part B).

Exploring options: In cases where generation cannot be connected, Hydro One's view is that it is not sufficient to immediately dismiss the proposal, refuse connection, and proceed to the next applicant. Instead, it is the Company's intent and current practice that investments to permit generator connections be identified and planned in a managed, integrated fashion that would allow for multiple generation connections and other system benefits. These additional practices increase the required time to deal with these applications.

Volumes of Applications and Compliance Status

As of April 11, 2011, some 12,350 generation projects have applied to Hydro One. Of these, about 100 projects, mostly more recently arrived, are currently waiting processing through Hydro One's Customer Relationship Management system, and will be categorized as direct or indirect connections. The remaining 12,215 projects are broken down as follows.

	Total Projects	Offer to Connect or Reasons for Refusal Issued	Application under review within required timelines	Offer to Connect or Reasons for Refusal Yet to be Issued
15 day	9,159	8,883	68	208
60 day	3,092	2,323	535	234
Total	12,251	11,206	603	442

Thus the current level of non-compliance is estimated at 442 applications.

15 Days

As noted, of the approximately 12,350 proposed micro-embedded generation projects that have applied to Hydro One, as of April 11, 2011, about 100 were being prepared for processing. The remaining 12,215 comprise some 9,159 where the proposed micro-embedded generation facility is located at an existing customer connection, and therefore require Hydro One to issue an offer to connect or reason for refusal within 15 days. Hydro One has issued such notice to 8,883 project proponents. Of the remaining, 68 were being processed, still within the 15-day timeline, and 208 had not been issued notice

within the required 15 days, and as such, those proponents were made aware by Hydro One of the delay but were not offered or refused a connection as required by the Code.

60 Days

Of the same 12,215 projects, there are 3,092 projects where the proposed micro-embedded generation facility will be located elsewhere than at an existing customer connection, thereby requiring Hydro One to issue an offer to connect or reason for refusal within 60 days. Hydro One has issued such notice to 2,323 proponents. Of the remaining, 535 are being processed, but are still within the 60-day timeline, and 234 have not been issued notice within the 60 days, and as such, those proponents were not offered or refused a connection as required by the Code.

In all cases where Hydro One is unable to meet the Code-mandated timelines, customers are informed in writing that Hydro One is still working on their application, and they are reminded not to invest in their project until they receive an offer to connect.

Hydro One does not anticipate achieving full compliance in the near term.

Hydro One's Specific Efforts to Comply with Section 6.2.6

Hydro One has invested significant resources to serve generation proponents and continues to work toward compliance with the Code. In addition to the measures mentioned in the Background section of this Application, the following specific measures were taken regarding obligations in Section 6.2.6.

Implementation of screening in an effort to connect generation: To help expedite the identification of technical issues and their impact on projects, Hydro One developed a screening tool that would assess each individual project against a number of relevant technical criteria. This was done to allow Hydro One to connect as much generation as possible, while identifying projects that cannot connect. Such technical screening for micro-embedded generation was not originally contemplated, and as such the timelines in Section 6.2.6 do not allow for the necessary assessments. The development of criteria, a tool, and an assessment process was identified by Hydro One as a means of approaching, but not achieving, compliance.

In building the screening tool, Hydro One also considered the Federal Energy Regulatory Commission "Standardization of Small Generation Interconnection Agreements and Procedures" which state that such generation "*on a radial distribution circuit shall not exceed 15 percent of the line section annual peak load as most recently measured at the substation*", as well as the Institute of Electrical and Electronics Engineers Application Guide 1547.2, related to "Interconnecting Distributed Resources with Electric Power Systems".

The screening tool is applied when Hydro One receives a connection application from a project proponent. To be able to use the screening tool, Hydro One requires connectivity information from the proponent (e.g. station and feeder information), and therefore screening cannot commence until the proponent has applied to Hydro One Distribution and has supplied the appropriate information with its

application. The application to the OPA for a microFIT contract does not include the information required to make the necessary assessment, so this screening cannot be performed earlier.

As noted, the screening tool allows Hydro One to analyze, at the project level, each application, test it against a number of technical criteria, and, dependent on the outcome, provide a "pass" leading to an offer to connect, or "fail" and reasons for refusal to connect. The tool is based on the following criteria:

1. F*eeder limitations*

- Total current shall not exceed 200A for Hydro One feeders operating below 13.8kV
- Total current shall not exceed 400A for Hydro One feeders operating at or above 13.8kV

2. Generation connected to a Transmission Station (TS) or Distribution Station (DS)

- Total generation shall not exceed 60% of maximum MVA rating of the Hydro One single transformer and the minimum station load.

3. Total Generation Connected to a Distribution Line Section

- Total generation shall not exceed 7% of the annual line section peak load (excludes generators that cannot export power from a customer's site) on F-class feeders
- Total generation shall not exceed 10% of the annual line section peak load (excludes generators that cannot export power from a customer's site) on M-class feeders

4. Short Circuit limits

- Short Circuit limits at the TS High or Low voltage bus shall not be exceeded by the addition of the generation facilities

Based on the above, the tool returns a "pass" or "fail" assessment for any micro-embedded generation project application. If the result of the screening is "fail", then the tool identifies the reason for the inability to connect the micro-embedded facility, according to the described criteria.

In Hydro One's latest Transmission Cost of Service Application (EB-2010-0002), the Company requested that the cost of certain Transmission System Protection and Control upgrades be recovered through the transmission rate pools. The Board's Decision and Order in that proceeding denied the said request and noted that prospectively benefiting generator(s), necessitating the investment, are to be held responsible for the costs. To comply with this Decision and Order, Hydro One's assessment must consider whether the proponent will trigger, or benefit from, upstream investments for which the proponent will therefore bear cost responsibility. Given the large volume of applications, this additional screening, too, has slowed the processing of applications to connect.

Approach to Failed Projects - Finding a Solution: A contributing factor to the time required by Hydro One to respond to proponents is the Company's commitment to identify and plan for investments that would allow connections to proceed.

These activities include checking on an ongoing basis for any earlier projects (of any size) where a previous capacity allocation has expired or where the proponent has withdrawn an application. These

checks are not limited to the distribution system, but also involve a consultation with the transmitter to assess whether capacity has recently been made available, or can be made available, through short term operating measures. Such assessments can involve multiple iterations through Hydro One's screening tool.

Having assessed a large number of projects and having identified those that exceed the technical limits in the screening tool, Hydro One continues to identify investments, including, but not limited to, transformer upgrades, series compensation and reconductoring of lines where required.

With respect to these and other investments, Hydro One requires the time to prudently plan and prioritize investments to facilitate connecting the maximum amount of generation with each investment.

Hydro One also intends to examine any relatively low-cost, low-risk operational measures that would allow more generation to connect to the system. This type of analysis is more detailed in nature and requires Hydro One to make a complete assessment of all potential impacts to ascertain that the operational measures will suffice and if other system problems might occur now and in the future. In alignment with Government policy and the *Green Energy and Green Economy Act, 2009*, Hydro One is committed to providing generation proponents with feasible connections to the distribution system.

Customer Communications: In cases where the Company was, or is, unable to meet the 15 day or 60 day timeline stipulated in the Code, customers are informed in writing that Hydro One is still working on their application, and they are reminded not to invest in their project until they receive an offer to connect.

Work Program Management: In an effort to improve compliance with the obligation to process micro-embedded generation facilities, Hydro One communicated to field staff prioritization of work, and in particular the need to prioritize site visits in response to an estimate request for parallel connections.

Request for Exemption

For the reasons cited above, Hydro One seeks the following exemptions from the Code, by way of Board Order(s), licence condition(s) or amendment(s), or any other vehicle that the Board may deem appropriate:

- An immediate and interim stay of the obligations of section 6.2.6 of the Code, from the date of filing of this Application, to remain in effect while the Board considers the merits of this Application.
- A six-month exemption from the timelines in section 6.2.6 of the Code. During the six-month period Hydro One will apply reasonable commercial efforts in responding to the applications for connection.

It is Hydro One's assessment that a period of six-months would be sufficient, as it would allow the Company to deal with the anticipated high volume of micro-embedded generator applications, while at the same time managing its activities through the summer construction, new connects and high load periods, and make any necessary revisions to business process.

Given sufficient processing time, as Hydro One continues to screen and assess applications for more generation connections, it continues to gain information about potential opportunities to connect more generators. This time covered by the requested exemption would also permit Hydro One to gain further process efficiencies and, as volumes subside, Hydro One expects to come into compliance within six-months.

PART B

EXEMPTION FOR SECTION 6.2.7 OF THE CODE

According to section 6.2.7 of the Code, a Distributor must connect a micro-embedded generator within five days of receiving all necessary approvals, a copy of Electrical Safety Authority ("ESA") authorization to connect, a signed Connection Agreement, and payment for the connection costs.

Hydro One notes some key differences between the requirements of section 6.2.7 of the Code and the service quality requirements for new load connections in section 7.2 of the Code. Specifically, these differences relate to:

- the opportunity for a connection date to be agreed to by the customer and distributor;
- the need for certain service conditions to be met before connection; and
- the percentage of time that the Code requirement must be met.

These differences are summarized in the table below.

	Code requirements for micro-embedded generation connections	**Code requirement for load connections**
Relevant Sections of Code	6.2.7	7.2.1 and 7.2.3
5-day window commences after…	- Applicant receipt of approvals, - Copy of ESA authorization - Entered Connection Agreement - Paid connection costs	the day on which all applicable service conditions are satisfied
Allowance for a mutually agreed later date	No	Yes
Allowance for Service Conditions to be met	No	Yes
Target (Percentage of time)	Not stated (assumed 100%)	90% or higher on yearly basis

Compliance Status and Reasons

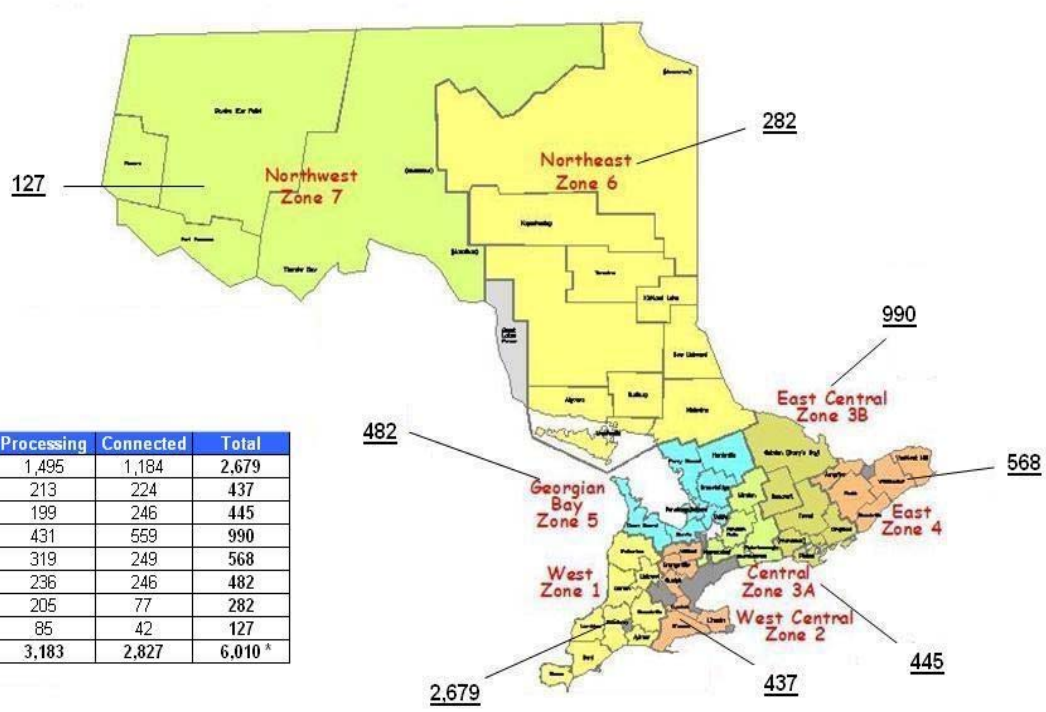
Currently, Hydro One finds itself in non-compliance with Section 6.2.7 and submits that the time-based requirement is not practically achievable by Hydro One. As a minimum, Hydro One requires that certain important prerequisite service conditions (cable locates, easements, trenching, line work, and others that are further detailed below) be met before a connection can take place. Additionally, some flexibility is needed when generation proponents elect not to be connected within the five-day timeline. Finally, for efficient management of work programs during times of high work volumes, a 100% compliance target is too onerous.

Using a small sample set of data across four zones where there is relatively high activity in micro-embedded generation connections, Hydro One tried to identify areas for potential improvement to bring the Company back into compliance. This very specific review confirmed that the Company is not in compliance with the current requirements of 6.2.7 and identified some confusion in applying the requirements for micro-embedded generation, as opposed to the requirements for new load connections. It also identified opportunities to better track the root cause(s) for instances when Hydro One is unable to achieve compliance in this area.

Geographic Concentration

Hydro One microFIT Map

February 2, 2011



Zone	Processing	Connected	Total
1	1,495	1,184	2,679
2	213	224	437
3A	199	246	445
3B	431	559	990
4	319	249	568
5	236	246	482
6	205	77	282
7	85	42	127
Total	3,183	2,827	6,010 *

* All completed and active projects that are in the various stages of the connection process

The above figure illustrates that proposed and actual micro-embedded generation projects are not uniformly distributed throughout Hydro One's service area. The current Code requirements in section 6.2.7 tend to drive Hydro One to divert resources to connecting micro-embedded generation projects, sometimes at the expense of other priority work or at the expense of efficient bundling of various types of work in one geographic area. For example, staff may need to be dispatched on special trips solely to meet the tight timelines.

Practical Considerations: Hydro One acknowledges its current non-compliance with section 6.2.7 but notes that it would be able to meet the requirements of the Code that apply to the treatment of new load connections, in section 7.2 of the Code. Specifically, Hydro one can connect micro-embedded generation projects within 5 days after all service conditions are met, or at such a later date agreed to by the customer and distributor. Hydro One feels that it is essential that the requirements for all service conditions be met is appropriate, and that it is also appropriate to mirror load connection requirements in the interest of:

- fair treatment of all customers;
- efficient and effective scheduling and bundling of work across the Province; and
- proper prioritization of work so that, for example, power restorations, load connections, and other demand work (e.g. cable locates) are not unduly compromised to meet more stringent requirements for generation connections.

Hydro One's Specific Efforts to Comply with Section 6.2.7

In addition to the measures mentioned in the Background section of this Application, the following specific measures were taken specific to meeting the obligations in Section 6.2.7 of the Code.

Work Program Management and Priorities: In an effort to improve compliance with the obligation to connect micro-embedded generation facilities within five days, Hydro One communicated to field staff the prioritization of work. In addition to increasing the priority of design work (estimates) for parallel connections (in support of the obligations in section 6.2.6), this involved placing work such as pole replacement, system maintenance, smart grid and smart meter work at a lower priority than micro-embedded connections.

Rationale for Exemption from Section 6.2.7

It is Hydro One's view that the requested exemption would allow Hydro One to manage work in a manner that would properly prioritize the Company's activities to meet various customer needs, including micro-embedded generator connections, new and modified load connections (covered by section 7.2 of the Code) and power restoration.

Service Conditions: There are certain service conditions that must be met prior to connection of a micro-embedded generator, and some of these are beyond the control of the Company and its staff. The current Code does not allow for these requirements to be met before the 5-day timeline is triggered, and as such Hydro One can be in non-compliance as it awaits the completion of those prerequisite activities. Following are some examples of prerequisite service conditions, which in many cases may be completed only after the ESA authorization, payment and contract are in hand and the 5-day window has commenced:

- *Locates:* Responsibility for all locates, such as cable TV or telephone locates, can rest with the customer or with Hydro One. The requests for locates can take a couple of days to obtain, and come with a 30-day expiration.

- Certain *easements* are a Hydro One responsibility and may be needed if a Line Expansion is required for the micro-embedded generation project. This obligation involves obtaining other customers' approvals to place Hydro One equipment (guys, anchors etc.) on their property. If approval cannot be obtained, the line expansion may need to be redesigned.
- *Joint Use* is also a Hydro One responsibility and is needed if a telephone or cable company's pole is involved in the connection, e.g. if such a pole is used as the take-off Pole for the micro-embedded connection. Paperwork must be signed by the appropriate parties before work can begin.
- *Line Work* can be a customer or Hydro One responsibility, as line expansions are eligible for alternative bid. The length of time required could vary, depending mostly on the length of the new line.
- *Staking* can only commence after payment for this work is received in the form of Hydro One's approved Staking Fees.
- *Trenching* for the customer's connection is a customer responsibility and may not commence in time; and once it does, it can take longer than five days.
- As noted in Part B, *upgrades of existing transformers and /or poles* that serve an existing customer location (i.e., at an indirect micro-embedded generation connection) may be required. This work is Hydro One's responsibility but needs to be identified and estimated by Hydro One when the application is processed, and then scheduled for completion as part of the connection.

It is noted that, especially in cases where the prerequisite service conditions are the customer's responsibility, Hydro One may be unaware that these activities are not yet completed (or even commenced) until field crews are on site to make the connection, which could be well within the five-day window.

It is sometimes assumed that ESA authorization for a micro-embedded generator is received only after all service conditions are satisfied, but this is not the case. The ESA authorization pertains only to the customer's generation facility, and as such, does not provide any assurance that other work, by the distributor, the customer, or a third party, is complete. In fact, ESA authorization is sometimes received by Hydro One before the signed contract and payment have been received by the Company.

Mutual Agreement: Hydro One occasionally encounters cases where a customer does not wish or is not ready to have a connection completed within the 5-day window. Strictly speaking, accommodating such customer requests places Hydro One in non-compliance. An ability to mutually agree to a connection date allows the Company to meet customer needs and provides Hydro One with the flexibility of scheduling the work efficiently from a resourcing perspective.

Compliance Target: Since requests for generator connections are not uniformly distributed across Ontario, a compliance requirement that is less than 100% would allow Hydro One to manage its work program in an efficient manner to meet its customers' needs, avoiding dispatching resources for the sole purpose of connecting a micro-embedded generator, and permitting bundling of work with other requirements. A 90% target, for example, would also allow flexibility in cases of unforeseen or emergent circumstances, such as diversion of crews to storm restoration.

Request for Exemption

Hydro One therefore seeks the following exemptions from the Code, by way of Board Order(s), licence condition(s) or amendment(s), or any other vehicle that the Board may deem appropriate:

- A stay of section 6.2.7 of the Code while the Board considers this Application.
- A six-month exemption from the timelines in section 6.2.7 of the Code. During the six-month period Hydro One will mirror the treatment in section 7.2 Connection of New Services for new load connections for micro-embedded generation. Specifically, Hydro One proposes to adhere to the following:

  The distributor shall connect the applicant's micro-embedded generation facility to its distribution system within 5 business days after the date that both of the following conditions are met:
  - *the applicant has informed the distributor that it has received all necessary approvals, has provided the distributor with a copy of the authorization to connect from the ESA, has entered into a Connection Agreement in the form set out in Appendix E and has paid the distributor for the connection costs, including costs for any necessary new or modified metering.*
  - *all applicable service conditions have been satisfied,*

  or at such later date as has been agreed to by the customer and distributor.

  This service quality requirement must be met at least 90 percent of the time on a yearly basis.

CONCLUSION

Hydro One has placed and continues to place a very high priority on generation connections and has made significant efforts to address its non-compliance with the Code in this area.

Most notably, Hydro One has recently implemented remediation plans which involve process changes and a screening tool to more expeditiously assess those connections that can be accommodated at this time. These will help Hydro One identify any proposals that require upgrades to the distribution or transmission system in order to connect generators. Specifically, these measures will allow Hydro One to process the large volume of connection requests by identifying those that are eligible to connect (no mitigation measures required) and those that are not, so that Hydro One can make offers to connect, provide reasons for refusing to connect, or provide an opportunity to wait until the system constraint is removed.

Together with the requests in this Application, the Company expects that these measures would allow Hydro One to continue to support the timely connection of renewable energy generation projects while maintaining the reliability and safety of its distribution and transmission systems.

APPENDIX A

DISTRIBUTION SYSTEM CODE EXCERPTS

6.2.6 Where the proposed micro-embedded generation facility is located at an existing customer connection, the distributor shall, within 15 days of receiving the application, make an offer to connect or provide reasons for refusing to connect the proposed generation facility. Where the proposed micro-embedded generation facility will be located other than at an existing customer connection, the distributor shall, within 60 days of receiving the application, make an offer to connect or provide reasons for refusing to connect the proposed generation facility. In either case, the distributor shall give the applicant at least 30 days to accept the offer to connect and the distributor shall not revoke the offer to connect until this time period has expired. The distributor shall not charge for the preparation of the offer to connect.

6.2.7 The distributor shall connect the applicant's micro-embedded generation facility to its distribution system within 5 days of the applicant informing the distributor that it has received all necessary approvals, providing the distributor with a copy of the authorization to connect from the ESA, entering into a Connection Agreement in the form set out in Appendix E and paying the distributor for the connection costs, including costs for any necessary new or modified metering.

7.2.1 A connection for a new service request for a low voltage (<750 volts) service must be completed within 5 business days from the day on which all applicable service conditions are satisfied, or at such later date as agreed to by the customer and distributor.

7.2.3 This service quality requirement must be met at least 90 percent of the time on a yearly basis.

APPENDIX B

HYDRO ONES COMMENTS OF JUNE 16, 2008: EB-2008-0102

EB-2008-0102

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

AND IN THE MATTER OF a proceeding pursuant to
subsection 70.2 of the *Ontario Energy Board Act, 1998*
to amend the Distribution System Code

SUBMISSION OF HYDRO ONE NETWORKS INC.
REGARDING THE BOARD'S PROPOSED CHANGES
TO AMEND THE DISTRIBUTION SYSTEM CODE

JUNE 16, 2008

Contact Information

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Hydro One Networks Inc. ("Hydro One") recognizes the benefits of distributed generation and the social and environmental benefits of renewable energy and is actively responding to the need to assist in the connection and the development of these generators. Hydro One continues to make every effort to meet the objectives of the Standard Offer Program ("SOP"), and in that context Hydro One is pleased to submit comments on the proposed amendments to the Distribution System Code ("DSC") intended to enhance the success of the SOP for smaller generators.

However, the proposed amendments could have negative implications for Hydro One's distribution system and for the reliability and quality of power delivery to other customers on the system as well as to new generators connecting as a result of the proposed amendments. Hydro One would like to assist the Board in supporting the goals of the proposed amendments while ensuring the reliability and integrity of electricity supply to other customers and ensuring Hydro One's ability to follow good utility practice.

The Board's proposed amendments to the DSC are based on the assumption that no technical review is needed for certain types of smaller generators as they will have minimal impacts on the distribution systems of LDCs in Ontario. The Notice states, "Smaller non-intermittent generation facilities have known, predictable and relatively minor impacts on existing infrastructure and could, therefore, be readily accommodated. As such, the Board believes that applications for connection of smaller non-intermittent generation facilities could be processed using the simplified connection process that is currently applicable to micro-embedded generation facilities while still respecting established technical limits."

Unfortunately, that statement is not correct. Distributors must therefore in all cases examine generator applications to confirm if the impact is manageable. The extent of the review depends on the nature of the generator application itself and on the part of the distribution system to which it is proposing to connect. There could be situations where the impacts of smaller generators are manageable, but only if a relatively small number of these generators connect to the distribution system and only if they connect to distribution lines and stations that are not heavily loaded and have available capacity. Hydro One agrees that in general, the first smaller generator on a feeder or station could be connected by using the simplified connection process in the DSC, but LDCs and the Board must be concerned about the cumulative effects of a number of smaller generators connecting to the same part of the system or proposing to connect to an already constrained or fully loaded part of the system. Hydro One offers the following comments on this area of concern.

1) Available Capacity on the Distribution System

There are an increasing number of feeders on Hydro One's distribution system that do not have spare capacity due to current connected customers and due to generators with assigned capacity in the SOP queue. Further, there are already a number of Transmission Stations ("TS") which have reached their technical limits. This is shown on Hydro One's website for generation applications already received. Each TS is shown with a list of generation projects that have applied at the TS. There is a red line on the

feeders at the TS where the 400 Amp limit has been reached and a red line on the TS when the 60% reverse flow limit or station short circuit limit has been reached for the full TS. Generation projects within the red line are in the SOP queue, and those beyond the red line are in a waiting mode as they are beyond the technical limits at the TS.

Another consideration In addition, Hydro One also has a number of feeders and stations where the remaining capacity is so small that a small number of 250kW generation connections would use up the capacity. The technical concern is that the cumulative effect of a number of 250 kW generators connecting at any point on the system could have significant adverse effects, and this cannot be determined without a check on the available capacity at the proposed point of connection. The proposed amendments have no limitation on the number of 250 kW generators that could connect to any point on the system; and without a check on the available capacity, this could lead to very high risks for other customers on the system.
for Hydro One is that in addition to its own service territory, Hydro One serves a number of embedded LDCs. Without the current Code requirement for these LDCs to request a technical review by Hydro One for generator connections greater than 10 kW, a number of 250 kW generators could connect to embedded LDCs without Hydro One's knowledge, and the implications for Hydro One's distribution system and Hydro One's customers could be very serious. As well, there is a related issue for feeders that are owned by more than one LDC over their length. With no assessment required, neither LDC will know how many 250 kW generation connections the other LDC has on the same feeder. This is another reason why a check for available capacity will be required – and it will be required by host LDCs as well when generators apply for connection to embedded LDCs.

2) Limitations of Connecting to the Single Phase System

The current definition of micro at 10 kW allows generators to connect to virtually any existing customer connection, a possibility that will no longer be the case if the level is raised to 250 kW. Hydro One's Conditions of Service state that up to 167 kVA (roughly 150 kW) of transformation capacity can be connected on a single phase supply. Therefore, all generators greater than 167 kVA will require three phase service. The vast majority of residential, farm and small general service customer are served on single phase supply. The majority of Hydro One's distribution system was not built to accommodate generators larger than 167 kVA, as it was designed to serve customers who require only single phase service. The 167 kVA level is set based on good utility practice and is necessary to protect the reliability and integrity of supply to other customers on the system.[3] Therefore, only generators less than 167 kVA will be able to connect to the majority of Hydro One's distribution lines.

[3] The results would include service transformer overloading as well as exceeding the CSA limits to which all utilities in Canada are required to adhere. For example, if a 250 kW generator were allowed to connect to a 4.8 kV single phase system, it would produce about 50 Amps, a level that would overload protective devices on the feeder (i.e. fuses rated from 20 to 30 Amps), resulting in customer outages. The high fault contributions of a 250 kW generator on a single phase low voltage system would also trigger the tripping of devices on the feeder designed to clear faults on the line and could lead to re-closer overloads, both of which events would result in customer outages. High voltages on the feeder would also lead to power quality problems for other customers on the system, because of voltage dip caused by generators during startup.

3) Cost Responsibility for Connections and Expansions

For customers who would need to convert their connection to a three phase supply to connect a 250 kW generator, there could be very significant costs. Also, for generators who want to connect directly to the distribution system and not at an existing load connection, there could be significant connection and expansion costs. Hydro One expects that the sections of the DSC relating to expansions and connections would apply to these generators in terms of cost responsibility for the construction of new facilities.

In addition, currently micro generators would not be required to have anti-islanding protection. There could be circumstances where this protection would be a requirement due to a number of 250 kW generators connecting to a single feeder, a situation that would raise issues of who pays for the protection equipment and installation, which can become very expensive for smaller generators.

4) Meeting Timeline Requirements

Hydro One is very concerned about the potential volume of applications it may receive for the new class of micro generators being proposed. Based on the proposed amendments to the DSC, the vast majority of the new micro projects will likely be in Hydro One's service territory. Biomass/biofuel and small hydro are certainly to be expected in rural settings; and even solar power greater than 10 kW and up to 250 kW should be expected in rural settings, as solar power will require adequate land for the size of equipment involved. A large majority of the applications for the SOP to date have been made to Hydro One because of the location of its service territory. Hydro One has received over 1,300 applications for Connection Impact Assessments regarding renewable generation.

Changing the definition of micro generator to up to 250 kW could attract more generation development companies. Commercial generators may look to develop multiple 250 kW solar generators, for example, to gain the economies of scale desired to make the SOP contract price viable for their projects. This could lead to fragmentation of larger projects, for example four 250 kW projects instead of one 1 MW project. If the projects are listed under different company names, it may be impossible for the OPA to prevent the approval of SOP contracts that are under related ownership. This could significantly increase the volume and complexity of applications.

Hydro One submits that the Board must be careful in setting expectations around timelines. Prudent distributors must manage fluctuations in volume of applications with limited resources. If the volume of applications is very high, Hydro One is concerned with hard timelines (such as 15 days) to make or refuse an offer to connect, and 5 days to make the connection.

Hydro One submits that where a check on system availability identifies that a generator is the first generation applicant on a particular feeder, the timelines may be manageable. If the system check identifies the presence of other generators on the feeder or station, the situation will become more complicated to assess. Where the check identifies constraints on the system at the proposed point of connection, a more thorough technical assessment will be required. The expectation on distributors with regard to meeting timelines needs to be gauged accordingly.

Consideration could be given to address what communication timelines should be required of distributors following the check on system availability, so that generators are made aware in a timely manner of system limitations and the actions required by the distributor and the generator to address the limitations. This would result in a more reasonable timeline for distributors to manage.

5) Unfairness to Generators in the SOP Queue

As explained above, there are a number of feeders on Hydro One's system where the capacity is either already allocated to generators in the queue or is close to capacity such that the addition of several 250 kW generators could trigger the 400 Amp feeder limit or the 60% reverse flow or station short circuit limit. There is currently no queuing process for micro generators, and a greater size limit of 250 kW for such generators would greatly increase the risk that cumulatively, micro-generators connecting to the system will result in larger generators that have queue positions no longer being able to connect. In most cases, the larger generators will have invested very substantial funds, and many will have SOP contracts with the OPA. Many larger SOP proponents who are already in the queue will not be connecting for some time because they are waiting for equipment delivery or for other reasons. The proposed amendments will create unfairness if later emerging micro projects are allowed to connect and previously assessed larger projects are then removed from the queue due to technical limits being reached or exceeded.

Hydro One expects that the Board wants to preserve the existing queue and that those generators who have had available capacity allocated to them will not have it taken away, especially since they may already have made significant investments. For this reason, the check on system availability should include all generators already in the queue. In other words the available capacity allocated to their projects would be treated by the distributed as unavailable capacity, or reserved capacity, and would not be made available to a micro generator applicant to bump other generators out of the queue.

6) Remedial Costs for Generators

Another issue raised by the Board's proposed amendments is that without a proper technical assessment being conducted before a generation connection has been made, it will not be possible to determine what impact the generator has on the distribution system. When problems occur after the generator is connected, the generator would be required to disconnect and correct the situation before reconnecting. These problems would typically involve power quality complaints by neighbouring customers on the system. Costs to modify an existing system are nearly always higher than if the necessary changes were included in the original design. In extreme cases it may not be possible to reconnect the generator. In both cases the generation customers will have made or will need to make significant investments and will find the process frustrating and expensive.

Summary of Recommendations

Hydro One understands that the Board is interested in simplifying the process for connecting smaller renewable generators, and Hydro One submits that this can be done by not requiring smaller generators, in many cases, to undergo a full Connection Impact Assessment.

Hydro One recommends that a check on system availability must be made before any generators are connected to the system. Hydro One further recommends that the determination of available capacity will respect the SOP queue and that no generators would be bumped out of the queue due to the connection of a micro generator. Hydro One also recommends that embedded distributors must check for system availability with host distributors for generation applications to the embedded distributor.

Hydro One recommends that the Board consider the issues of cost responsibility for generator connections, especially for generators > 167 kVA and for generators who propose to connect directly to the system and not at any existing customer connection.

Hydro One recommends that the Board give careful consideration to what timeline expectations should be made on distributors for any proposed amendments to the Code. If a generator is the first generator applicant on a particular distribution feeder and the point of connection is not in a constrained part of the system, the connection process could be greatly simplified. However, when there are increasing numbers of generator applicants at any point in the system, and as system constraints develop, the need for an increasingly thorough technical review and potentially a CIA will exist. Hydro One recommends that if the Board feels timelines are required, the timelines should focus on the communication steps between the distributor and generators to manage expectations and to outline project and cost responsibilities.

Where the check for system availability identifies that there is no available capacity at the proposed point of connection, the DSC provisions must provide the distributor with the right to refuse the connection of a generator. This is consistent with the wording of section 6.2.6, which states, “or provide reasons for refusing to connect the proposed generation facility.”

Hydro One also asks the Board to consider the costs to remediate generator connections that create power quality or reliability issues after they are connected.

Hydro One has made the above recommendations to assist the Board in considering the implications of the proposed amendments to generators and to other customers on the system. Hydro One submits that the proposed amendments must allow LDCs to maintain good utility practice and protect the interests of consumers with respect to the reliability and quality of electricity service, while facilitating the connection of renewable generators to the grid.