

**Ontario Energy Board**



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# **Staff Discussion Paper**

**on Distribution Network Investment Planning**

**EB-2010-0377**

November 8, 2011

**This page inserted for two sided printing purposes**

## Executive Summary

In its October 27, 2010 letter to stakeholders, the Ontario Energy Board (the “Board”) described the context for a renewed regulatory framework for electricity transmitters and distributors, acknowledging that the need for significant investment in the sector and concerns over bill increases are leading to a sharper focus on the total cost to consumers. This is discussed in more detail in an attachment to the Board’s cover letter for this paper.

On December 17, 2010 the Board initiated a coordinated consultation process for several inter-related policy initiatives. This staff discussion paper has been prepared as part of the Board’s consultation on Distribution Network Investment Planning (the “planning initiative”). The objective of this initiative is to ensure that electricity distributor network investment plans (“network plans”) are demonstrably economically efficient and cost-effective, and paced so as to match required expenditures with fair and reasonable rate adjustments and predictable changes to the elements of customer bills affected by the plans.

To address this objective, this discussion paper has been prepared by staff to solicit input from all interested stakeholders on how the Board’s framework and approach to regulatory assessments of network plans can be enhanced.

This discussion paper reviews the Board’s current framework and approach as set out in various regulatory instruments, and identifies for stakeholder comment a number of potential opportunities and options for enhancing and refining the Board’s framework, including:

- harmonizing existing information requirements;
- adopting a systematic, proportional approach to network planning-related filing requirements and associated level of Board scrutiny;

- improving the quality and consistency of planning information submitted in support of regulatory applications;
- enhancing the qualitative and quantitative information that distributors could use to support the Board's assessment of their planned investments thereby enhancing regulatory predictability; and
- periodic reviews of the Board's network investment planning framework.

To assess the practical feasibility of estimating the impact – in terms of both amount and pacing of expenditures – of a distributor's proposed investments on customer bills, Power Advisory LLC was engaged to design a prototype spreadsheet model (the "PA Model") and provide a report (the "PA Report") explaining the structure and function of the model. The PA Model and PA Report are being released for stakeholder discussion and written comment at the same time as this discussion paper.

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# 1 Introduction

In its October 27, 2010 letter to stakeholders (the “October 27<sup>th</sup> Letter”), the Ontario Energy Board (the “Board”) described the context for a renewed framework for electricity transmitters and distributors, acknowledging that the need for significant investment in the sector and concerns over bill increases are leading to a sharper focus on the total cost to consumers. This is discussed in more detail in Attachment A to the cover letter issued with this paper.

*The Board’s  
October 27, 2010  
letter to  
stakeholders*

On December 17, 2010, the Board initiated a coordinated consultation process for several inter-related policy initiatives. A stakeholder consultation meeting was held on February 2, 2011 at which Board staff (“staff”) made presentations describing the context in which policies will be developed, potential guiding concepts for the work, potential issues to be considered, and an approach to the upcoming consultations. The purpose of the meeting was to provide all interested stakeholders with an opportunity to exchange ideas with staff and each other on the scope of the inter-related policy initiatives and to provide greater detail on the planned consultation.

*February 2, 2011  
Stakeholder  
Meeting*

This consultation process will lead to the formulation of Board policies in relation to network planning, rate mitigation and network utility performance. Any amendments to Board documents (e.g., filing requirements) that may be required or desirable to give effect to the policies would be addressed subsequently.

*How information  
from this  
coordinated  
consultation  
process will be  
used*

With respect to distribution network investment planning, this coordinated consultation process will assist the Board's determination of its policies in relation to distribution network plans, including in relation to information to be provided by distributors in support of cost of service ("CoS") rate and other applications to demonstrate how investments are prioritized and paced with a view to the total bill impact on consumers.<sup>1</sup> It is expected that enhancing the Board's framework and approach to regulatory assessments of network plans should also facilitate the timely approval of appropriate network investments.

### **Overview of this Paper**

As noted in Attachment A to the cover letter issued with this paper, this initiative is intended to ensure that electricity distributor network investment plans ("network plans") are demonstrably economically efficient and cost-effective, and paced so as to match required expenditures with fair and reasonable rate adjustments and predictable changes to the elements of customer bills affected by the plans. For present purposes, a network plan is defined as a *plan for maintaining and developing a distributor's distribution system*, where "network" and "system" have the same meaning.<sup>2</sup>

### **Key definitions**

The term "distribution system" is used here as defined in the Distribution System Code (the "Code"):

*"distribution system" means a system for distributing electricity, and includes any structures, equipment or other things used for that purpose. A distribution system is comprised of the main system capable of distributing electricity to many customers and the connection assets used to connect a customer to the main distribution system.*<sup>3</sup>

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<sup>1</sup> See KPMG's [Review of Asset Management Practices in the Ontario Electricity Distribution Sector](#) (the "KPMG Report") regarding current distributor practice.

<sup>2</sup> Unless specified, "network" does not refer to transmission "network facilities".

<sup>3</sup> "Connection assets" is used here as defined in the Code.

This paper consists of two main elements. Section 2 reviews and summarizes the Board's regulatory framework, highlighting the types of network planning information distributors are required or expected to use to support regulatory applications involving network investment proposals. Section 3 identifies potential opportunities for enhancing the Board's regulatory framework and approach.

### *Outline*

Staff invites comment from stakeholders in order to provide it and the Board with a thorough analysis of alternatives and requisite issues.

## 2 Current Regulatory Framework

Network investments, including those that accommodate renewable energy generation (“REG”) connections, can affect three parts of customer bills above and beyond the impact that such investments have on the distribution charges payable by the investing distributor’s ratepayers:

- ‘electricity’ charges – through the Global Adjustment mechanism, this part of a customer’s bill will reflect the customer’s share of payments to REG that operate under contract with the Ontario Power Authority (“OPA”);
- ‘regulatory’ charges – costs incurred by a distributor to connect or enable the connection of REG (net of ‘direct benefits’ as discussed in section 2.4 below) can be recovered from all provincial ratepayers through a component of the ‘Wholesale Market Service Charge’ (“WMSC”) which is included in this part of the bill;<sup>4</sup> and
- ‘delivery’ charges – that portion of the costs incurred by a distributor to connect or enable the connection of REG that is determined by the Board to represent the ‘direct benefits’ to that distributors’ customers, and that are therefore not pooled and included in the WMSC as noted above, are recovered through the distribution charges included in this part of the bill.

*Directly and indirectly, network investments affect three parts of customer bills*

Figure 1 illustrates staff’s view of how the Board’s regulatory framework can affect a distributor’s network planning and related

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<sup>4</sup> The underlying provincial pooling mechanism is set out in section 79.1 of the Act. Excerpts from the Act are provided in Appendix A. O. Reg. 330/09 (Cost Recovery re: Section 79.1 of the Act) provides for the calculation of amounts that are subject to recovery through the pooling mechanism.

regulatory application preparation processes, primarily by identifying the network planning information that a distributor is required or expected to include in certain regulatory applications. This section reviews and summarizes the elements of the Board's regulatory framework shown on Figure 1, highlighting the types of network planning information distributors are required or expected to use to support regulatory applications involving network investment proposals.

*The regulatory framework identifies information needed by the Board to assess network investments*

In staff's view, network plans and planning processes are more likely to yield information that better supports regulatory assessments if they are:

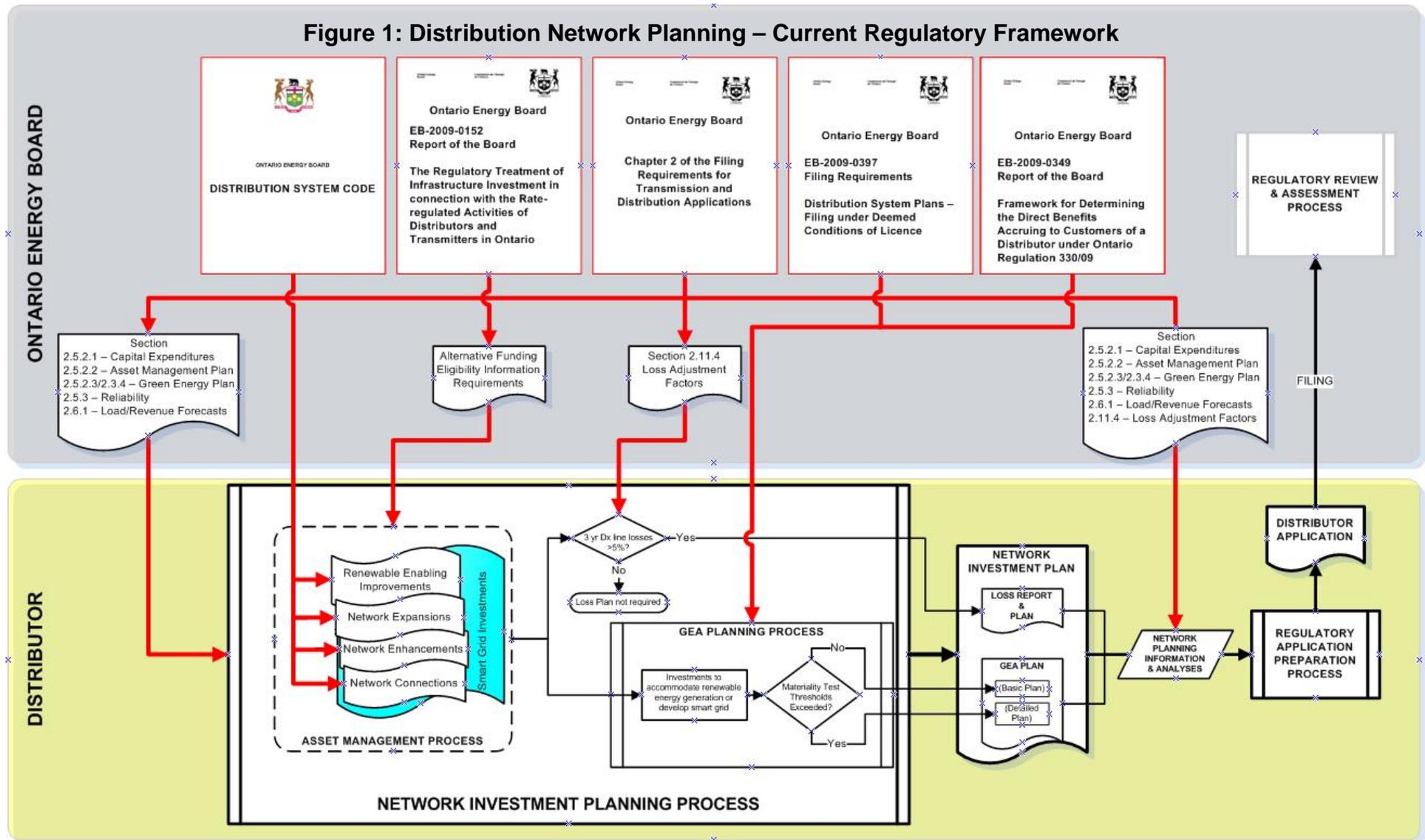
- **Optimized** – Optimizing distribution infrastructure investment is one of the stated goals of the Board's *2011-2014 Business Plan*.<sup>5</sup> In staff's view, network planning is an optimization process whereby a number of objectives are sought to be met within the confines of applicable technical, resource, funding, and risk related constraints. The result is a "multi-year investment plan that maximizes stakeholder value".<sup>6</sup>
- **Integrated** – Figure 1 illustrates staff's view of the relationship between a distributor's asset management process and planning for the four types of investment shown (defined in the Code, as described below). In staff's view, a 'holistic', longer term planning approach that seeks and, where available, utilizes opportunities to achieve multiple objectives through an investment project is more likely to yield economically efficient and cost effective outcomes than a relatively more narrow, shorter term planning approach.

*Characteristics of network plans and planning processes*

<sup>5</sup> *2011-2014 Business Plan*; p. 5.

<sup>6</sup> KEMA Inc.; [Leveraging Network Asset Management Practices for Regulatory Purposes](#); November 2009 (the "KEMA Report"); p. 2-7.

**Figure 1: Distribution Network Planning – Current Regulatory Framework**



- **Rationalized** – Sections 2.3 and 2.4 below show how the Board’s current framework recognizes that network plans and planning processes may vary in terms of complexity depending on the characteristics of a distributor’s network. In staff’s view, planning tools and processes that reflect such characteristics enhance the effectiveness of network planning.
- **Adaptable** – In staff’s view, long term ratepayer value is enhanced by distributor planning processes and network plans that acknowledge and accommodate the potential for change in areas such as underlying drivers, resource availability, and sources and levels of risk.
- **Clear** – Several Board instruments reviewed below refer to the role that information quality has in fostering an efficient and effective regulatory process. In staff’s view, network planning processes and plans that are clear, coherent and comprehensible will facilitate the regulatory process for all concerned.

Staff welcomes stakeholder comment on the above and on any additional network plan and planning process characteristics that should be considered.

The five Board instruments shown in Figure 1 are reviewed below, highlighting elements that can contribute to the assessment of whether network plans are economically efficient, cost effective, and paced in a manner that considers overall bill impacts.

- The *Distribution System Code* sets out minimum conditions that a distributor must meet in carrying out its obligations to distribute electricity.

- The Board's *Filing Requirements for Transmission and Distribution Applications* sets out the minimum information required for various applications. The minimum information for cost of service applications is addressed more specifically in Chapter 2.
- The *Filing Requirements: Distribution System Plans – Filing under Deemed Conditions of Licence* establishes the time, manner and minimum requirements for the preparation and filing of a distributor's plans to accommodate REG connections and develop a smart grid.
- The *Framework for Determining the Direct Benefits Accruing to Customers of a Distributor under Ontario Regulation 330/09* provides the policy framework for determining a distributor's ratepayers' share of certain costs incurred to connect or enable the connection of REG.
- The *Report of the Board: The Regulatory Treatment of Infrastructure Investment in Connection with the Rate-regulated Activities of Distributors and Transmitters in Ontario* sets out the Board's policy on alternative investment funding mechanisms that the Board may grant in relation to certain investments, which can affect the timing of the impact of those investments on customer bills.

*Five Board instruments constitute the main elements of the current regulatory framework relevant to distribution network planning*

## 2.1 Distribution System Code

The [Code](#) sets out, among other things, how a distributor is to fulfill its obligation to connect and identifies who bears cost responsibility for each type of investment identified in the Code. The investment categories defined in the Code (connections, expansions,

*The Code defines four categories of network investment*

enhancements and renewable enabling improvements or 'REI') can be used by distributors for network planning purposes.

To facilitate stakeholder discussion, Table 1 provides, for each of the four categories of investment defined in the Code, a summary description including its purpose, driver(s) and, for certain categories, the asset types and/or network functions specifically included or excluded from the category. Also shown for each category is the customer<sup>7</sup> type or group(s) to which the associated costs are to be assigned when not borne initially by the distributor.

Staff notes that aspects of the Code may influence network planning. For example, the Code requires that when planning 'enhancements', distributors consider, among other things, cost effectiveness; specifically, "costs to customers associated with distribution reliability and potential improvement from the enhancement." The pace of 'enhancement' investments may also be conditioned by the Code provision that "[a] distributor shall continue to plan and build the distribution system for *reasonable forecast load growth*" (emphasis added).<sup>8</sup>

*Reliability and  
load growth  
are key drivers  
of  
'enhancement'  
investments*

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<sup>7</sup> "Customer" is as defined in the Code, which includes a generation customer.

<sup>8</sup> The Code; section 3.3.1.

**Table 1 – Categories of Network Investment**

Category	Driver	Cost Responsibility <sup>1</sup>	Purpose	Definition
<b>Connection Assets</b>	Customer request for connection	Distributor <sup>2</sup> or Connecting Customer	<ul style="list-style-type: none"> <li>to establish the physical connection between a distributor's main distribution system and a customer's assets</li> </ul>	That portion of the distribution system used to connect a customer to the existing main distribution system, and consists of the assets between the point of connection on a distributor's main distribution system and the ownership demarcation point with that customer.
<b>Expansions</b>	Non-REG customer request for connection	Connecting Customer(s) <sup>3</sup>	<ul style="list-style-type: none"> <li>to enable one or more non-REG customer connections</li> </ul>	<p>A modification or addition to the main distribution system in response to one or more requests for one or more additional customer connections that otherwise could not be made, for example, by increasing the length of the distribution system, and includes:</p> <ul style="list-style-type: none"> <li>building a new line to serve the connecting customer</li> <li>rebuilding a single-phase line to three-phase to serve the connection customer</li> <li>rebuilding an existing line with a larger size conductor to serve the connection customer</li> <li>rebuilding or overbuilding an existing line to provide an additional circuit to serve the connection customer</li> <li>converting a line to operate at a higher voltage</li> <li>replacing a transformer to increase MVA size</li> <li>upgrading a voltage regulating transformer or station to a larger MVA size</li> <li>adding or upgrading capacitor banks to accommodate the connection of the connecting customer</li> <li>Excludes REI</li> </ul>
	REG customer connection request	<p>Distributor (up to cap) and REG Customer(s) (above cap)</p> <p>Distributor (if in a Board-approved plan or mandated by the Board)</p>	<ul style="list-style-type: none"> <li>to enable one or more REG customer connections</li> </ul>	
<b>Enhancements</b>	Forecast load growth & network operational objectives	Distributor <sup>4</sup>	<ul style="list-style-type: none"> <li>accommodate forecast load growth</li> <li>improve system operating characteristics (e.g. reliability; power quality)</li> <li>relieve system capacity constraints</li> </ul>	<p>A modification to the main distribution system that is made to improve system operating characteristics such as reliability or power quality or to relieve system capacity constraints resulting, for example, from general load growth.</p> <ul style="list-style-type: none"> <li>Excludes REI in the case of a REG facility</li> </ul>

**Table 1 – Categories of Network Investment (con't)**

Category	Driver	Cost Responsibility <sup>1</sup>	Purpose	Definition
<b>Renewable Enabling Improvements</b>	Need to accommodate REG customer connections <sup>5</sup>	Distributor	<ul style="list-style-type: none"> <li>▪ enable the main distribution system to accommodate generation from REG facilities</li> </ul>	<p>A modification or addition to the main distribution system that is made to enable the main distribution system to accommodate generation from REG facilities as follows:</p> <ul style="list-style-type: none"> <li>▪ modifications to, or the addition of, electrical protection equipment;</li> <li>▪ modifications to, or the addition of, voltage regulating transformer controls or station controls;</li> <li>▪ the provision of protection against islanding (transfer trip or equivalent);</li> <li>▪ bidirectional reclosers;</li> <li>▪ tap-changer controls or relays;</li> <li>▪ replacing breaker protection relays;</li> <li>▪ Supervisory Control and Data Acquisition system design, construction and connection;</li> <li>▪ any other modifications or additions to allow for and accommodate 2-way electrical flows or reverse flows;</li> <li>▪ communication systems to facilitate the connection of REG facilities</li> </ul>

- Notes: 1. The Code assigns cost responsibility as between the distributor and a connecting customer. Costs that are the responsibility of the distributor may be recovered from the distributor's ratepayers and, in certain cases, from ratepayers throughout the Province.
2. "Basic connection" costs are recovered by the distributor through the revenue requirement; or for non-residential customers may alternatively be recovered through a basic connection charge to the customer. Connection costs above the basic connection cost are subject to a variable connection charge that the distributor may recover from the customer. See sections 3.1.4 to 3.1.6 of the Code.
3. Customer responsible for the capital contribution calculated using the 'economic evaluation' methodology provided in Appendix B of the Code. Under that methodology, the capital contribution is determined by deducting the present value of the distribution revenue that is expected from facilities from the present value of the projected capital cost and on-going OM&A costs associated with the facilities.
4. A distributor is required by the Code to bear the cost of constructing any enhancements made after the distributor's rates have been set based on a cost of service application for the first time following the 2010 rate year.
5. The Board has noted that it expects that REI investments "will be planned prior to, or regardless of, a specific generator requesting connection". See *Notice of Proposal to Amend a Code* (EB-2009-0077); p. 8.

Source: *Distribution System Code* (October 1, 2011)

## 2.2 The CoS Filing Requirements

Chapter 2 of the *Filing Requirements for Transmission and Distribution Applications* (the “[CoS Filing Requirements](#)”)<sup>9</sup> set out the information – including the network planning related information – a distributor must file to enable the Board to “make a determination as to whether the rates proposed by the distributor are just and reasonable.”<sup>10</sup> Since “[t]he [Board’s] examination of an application and the subsequent decision are based only on the evidence filed in that case”, the quality of the information provided by a distributor in its application directly affects the Board’s assessment of the network investment costs included in, and the associated rate implications of, the application:

*A clearly written application that advocates the need for the proposed rates, complete with sufficient evidence and justification for those rates, is essential to facilitate an efficient regulatory review and a timely decision.*<sup>11</sup>

Generally, the planning related elements of the *CoS Filing Requirements* (summarized in Table 2 to facilitate stakeholder discussion) represent network planning inputs (e.g. need, scope, purpose) and outputs (capital expenditure by project by year). This information can be used by the distributor to demonstrate, and by the Board to assess, whether the investments for which a distributor is proposing to recover costs (typically for the Test year only) are economically efficient, cost effective and appropriately paced in relation to bill impacts.

*The Board’s assessment of a rates proposal is affected by the quality of a distributor’s evidence*

*The onus is on the applicant to justify proposed investments using appropriate network planning inputs and outputs*

<sup>9</sup> The *CoS Filing Requirements* are subject to annual review and revision as warranted. This discussion reflects the version issued on June 22, 2011.

<sup>10</sup> *CoS Filing Requirements*; p. 3.

<sup>11</sup> *CoS Filing Requirements*; p. 3. The relationship between the “clarity and materiality of the evidence” filed and the efficiency and outcome of the regulatory process is noted on p. 4. See also sections 3.3 to 3.5 below.

**Table 2 – Selected Network Planning Related Filing Requirements for CoS Applications**

<b>Subject</b> Section #	<b>Information Requirement<sup>1</sup></b>
<p><b>Overview of Capital Expenditures</b></p> <p>2.5.2.1</p>	<p>Overall summary of capital expenditures grouped appropriately, avoiding the classification of significant portions of the capital budget in the miscellaneous category (format provided in Appendix 2-A):</p> <ul style="list-style-type: none"> <li>- overall summary of capital expenditures over the past five historical years; the bridge year; and the Test year</li> <li>- treatment of contributed capital</li> <li>- additions and deductions from Construction Work in Progress (CWIP)</li> </ul> <hr/> <p>On a project specific basis for projects over the applicable materiality threshold:</p> <ul style="list-style-type: none"> <li>- need</li> <li>- scope</li> <li>- purpose</li> <li>- related customer attachments</li> <li>- volumes</li> <li>- capital costs</li> <li>- any applicable cost-benefit analysis</li> </ul> <hr/> <p>Detailed breakdown of starting dates and in-service dates for each project</p> <hr/> <p>Drivers of capital expenditure increases for the Test year</p> <hr/> <p>Where a proposed project requires leave to construct approval under section 92 of the Act, with construction commencement in the Test year, the applicant must provide a summary of the evidence for that project consistent with the requirements set out in section 4.3, section 4.4 and Chapter 5 of the <i>Filing Requirements for Transmission and Distribution Applications</i></p> <hr/> <p>Components of Other Capital Expenditures, including a reconciliation of all capital components to Total Capital Budget</p> <hr/> <p>Written explanation of variances including that of the last Board approved year as compared to the actual expenditures for that year</p> <hr/> <p>Capitalization policy and any changes to that policy</p> <hr/> <p>For capital projects that have a project life cycle greater than one year, the proposed accounting treatment including the treatment of cost of funds</p>
<p><b>Asset Management Plan</b></p> <p>2.5.2.2</p>	<p>If the applicant has a formal asset management plan, the plan must be filed If the applicant does not have a formal asset management plan, they must file</p> <ul style="list-style-type: none"> <li>- an explanation as to why the applicant does not have such a plan</li> <li>- a statement as to whether the applicant is planning to have one in place in the future</li> <li>- information outlining its approach to the planning and prioritization of capital projects</li> </ul> <hr/> <p>At a minimum, a three year forecast of capital expenditures (Test year plus two subsequent years)</p> <hr/> <p>If the applicant has undertaken asset condition studies, the studies If not, a statement that asset condition studies have not been undertaken</p>
<p><b>Green Energy Act Plan</b></p> <p>2.3.4</p>	<p>A distributor filing a CoS rate application for 2012 or subsequent rate years must file a GEA Plan in accordance with the requirements of the GEA Filing Requirements.</p> <p>In a separate section of its CoS application, a distributor should provide:</p> <ul style="list-style-type: none"> <li>- an overview of any proposals with respect to renewable generation connection plans, or smart grid plans that will have an impact on the application, summarizing the key elements of any proposals made and their impacts on the application</li> <li>- the key impacts should be broken out from the remaining costs in the relevant sections of the application (e.g. operating, maintenance and administrative (OM&amp;A) impacts arising from the a GEA plan should be identified separately from the remaining OM&amp;A costs)</li> <li>- a proposal seeking approval for a GEA plan should also clearly identify the period for which the distributor is seeking prudence review and approval, and the distributor's proposal for how approved GEA plan costs are to be recovered (e.g., rate adder, rate rider, deferral/variance account).</li> </ul>

**Table 2 – Selected Network Planning Related Filing Requirements for CoS Applications (con't)**

<b>Subject</b> section #	<b>Information Requirement<sup>1</sup></b>
<b>Green Energy Act Plan Capital Expenditures</b> 2.5.2.3	Outline of any capital expenditures planned to address Renewable Generation Connection or Smart Grid development as per the Green Energy Act and the GEA Filing Requirements, including a proposal, where applicable, to divide the costs of eligible renewable generation connection investments between the applicant's ratepayers and all Ontario ratepayers as per Regulation 330/09 and taking into account the Benefits Framework.
<b>Reliability<sup>2</sup></b> 2.5.3	System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI) and Customer Average Interruption Duration Index (CAIDI) for the last three historical years, in each case reported for (1) All interruptions, and (2) All interruptions excluding Loss of Supply (Cause Code 2) In the event performance is outside of the established standard, the applicant must - provide an explanation for the under-performance - identify actions taken to address the issue and any outcomes, as applicable
<b>Load and Revenue Forecasts</b> 2.6.1	An explanation of the causes, assumptions and adjustments for the volume forecast. All economic assumptions and sources used in the preparation of the load and customer count forecast should be included (e.g. Housing Outlook & Forecasts, relative energy prices and other variables used in forecasting volumes) An explanation of the weather normalization methodology used and its application. Information specific to the type of load forecasting model used Information demonstrating the historical accuracy of the load forecast for at least the past 5 years; Schedule of volumes (in kWh and in kW for those rate classes that use this charge determinant), revenues, customer count by rate class and total system load in kWh for: - Historical Actual for the past 5 years; - Historical Board Approved; - Historical Actual for the past 5 years – weather normalized; - Bridge Year; - Bridge Year – weather normalized; - Test Year
<b>Loss Adjustment Factors</b> 2.11.7	The distributor must identify the proposed Supply Facilities Loss Factor (SFLF), distribution and total loss factor(s) for the Test year. The distributor must file the following information related to its proposed loss factors: - a statement as to whether the applicant is embedded - details of loss studies and recommendations, if required by a previous decision - calculations showing the losses in previous years. Five years of historical data is preferred. A minimum filing of three years of data is required - Appendix 2-P showing the energy delivered to the distributor with and without losses - explanation of distribution losses greater than 5% - details of actions currently planned, and actions taken to reduce losses in previous five years and results if proposed distribution loss factor is greater than 5% - explanation of the derivation of the SFLF, including reasons for any difference from the standard SFLFs referenced in Appendix 2-P, Section H.

Notes: 1. Descriptions are abridged.

2. Information pertaining to “service quality indicators”, understood as being the service quality requirements set out in section 7 of the Code, does not relate to network investment and is therefore omitted here.

Source: *CoS Filing Requirements* (June 22, 2011).

For example, the Board's review of the cost effectiveness and economic efficiency of projects could be informed by:

- asset management information (i.e. approach to capital project selection and prioritization) filed under section 2.5.2.2;
- any cost-benefit analysis information filed under section 2.5.2.1;
- information on system reliability performance filed under section 2.5.3 (a consideration in planning ‘enhancement’ investment as noted in section 2.1 above); and
- information related to line losses, as filed under section 2.11.7.

The Board’s assessment of the pacing of the investments proposed in an application (including projects described in a GEA Plan filed under section 2.3.4) could be informed by a distributor’s

- asset management information (section 2.5.2.2), including
  - the approach a distributor uses to plan and prioritize capital projects; and
  - the capital expenditure forecast over the Test year and two additional years, which when combined with the overall summary of capital expenditures over five historical years plus the Bridge year (filed under section 2.5.2.1) constitutes a nine year overview of capital expenditure; and
- the load and revenue information for the historical years, and the load and revenue forecast for the bridge year and the test year as provided under section 2.6.1.

*The Board’s  
assessment of  
investment  
pacing requires  
asset  
management and  
system use  
information*

## 2.3 Filing Requirements: Distribution System Plans

The Board's [Filing Requirements: Distribution System Plans – Filing under Deemed Conditions of Licence](#)<sup>12</sup> (the “*GEA Filing Requirements*”) provide direction to distributors as to the content of ‘GEA Plans’,<sup>13</sup> which relate to planned investments to connect REG and to smart grid development activities and expenditures.<sup>14</sup> The *GEA Filing Requirements* are a key element of the regulatory framework that has emerged to facilitate the achievement of government energy policy. The *GEA Filing Requirements* set out Board policy on certain aspects of network planning as discussed below.

### 2.3.1 General approach

The *GEA Filing Requirements* set out the requirements in relation to the quality and content of information provided as part of GEA Plans. The Board's general approach to the assessment of the projects and costs proposed for recovery in a GEA Plan is that they will be subject to “similar scrutiny as any other cost proposed to be included in rates”.<sup>15</sup> Where cost recovery is sought, the information provided in an application must be sufficient to allow the Board's

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<sup>12</sup> For the related Board proceeding, see [EB-2009-0397](#). These filing requirements supersede [Guidelines: Deemed Conditions of Licence: Distribution System Planning](#) (G-2009-0087); June 2009.

<sup>13</sup> A ‘GEA Plan’ is a plan filed by a distributor in accordance with the *GEA Filing Requirements*, issued in respect of the deemed condition of the distributor's licence referred to in paragraph 2 of subsection 70(2.1) of the Act. All distributors must file a GEA Plan with their CoS application for the 2012 rate year and beyond.

<sup>14</sup> This section focuses on GEA Plan investments to accommodate the connection of REG. Smart grid investment is currently the subject of a consultation – [Developing Guidance for the Implementation of Smart Grid in Ontario](#) (EB-2011-0004) – initiated by the Board in response to a Minister's Directive. Consequently, Table 3 excludes filing requirements related to smart grid as described in the *GEA Filing Requirements*; pp. 18 – 20.

<sup>15</sup> *GEA Filing Requirements*; section VI - ‘GEA Plan Approval’; pp. 20 – 21.

assessment of “the need for and prudence of the planned projects and their associated costs”.<sup>16</sup>

Under the *GEA Filing Requirements*, the general level of information detail required differs depending on the materiality of the investments proposed. More detail (a ‘Detailed’ rather than ‘Basic’ GEA Plan) is required where a GEA Plan includes total capital costs related to the connection of renewable generation and/or the development of a smart grid that

*The GEA Filing Requirements use a ‘proportional’ approach based on materiality*

- in any one year are more than \$100,000 AND exceed 3% of rate base; OR are over \$5 million; or
- over five years are more than \$100,000 AND exceed 6% of rate base; OR are over \$10 million.

The *GEA Filing Requirements* also emphasize that the information filed in either a ‘Basic’ or ‘Detailed’ GEA Plan should not only be sufficient as noted above; but must

*Information filed must be clear and comprehensible*

- be clear and readily comprehensible;
- describe estimated capital and OM&A costs for any planned investments; and
- be explicitly connected to any cost recovery sought in the rate application.<sup>17</sup>

### 2.3.2 Information requirements

The *GEA Filing Requirements*, summarized in Table 3 to facilitate stakeholder discussion, set out the minimum information and level of detail to be included in a ‘Basic’ or ‘Detailed’ GEA Plan. As

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<sup>16</sup> *GEA Filing Requirements*; p. 12.

<sup>17</sup> *GEA Filing Requirements*; pp. 9 - 10.

underscored by the Board, the quality of this information is critical to the Board's assessment of proposed GEA investments:

*The Board will approve [for recovery in rates] only those portions of a GEA Plan which it finds to have been appropriately supported by evidence, and it may attach conditions to its approval of a GEA Plan or any portion of a GEA Plan.*<sup>18</sup>

***Application outcomes can be affected by the quality of the evidence provided***

Table 3 reflects the information categories and subcategories mentioned in the *GEA Filing Requirements* and shows how 'Basic' and 'Detailed' GEA Plan requirements compare. Many of the information requirements listed refer to data that would inform or be produced by a distributor's network planning process.

***Regulatory assessments are based in part on various types of network planning information***

For example, a distributor must analyse for certain feeders<sup>19</sup> (over the recommended 5 year time horizon), the available capacity to connect REG. This would, in staff's view, require information on the technical characteristics of assets and on how load, REG and non-REG generation customers are expected to use the facilities.

Table 3 also shows that the Board's assessment of GEA Plan investments for which cost recovery is sought requires information on a number of variables that taken together comprise the distributor's intended investment response to the REG connections anticipated. Staff's view is that this information can be used to help assess whether these investments are economically efficient, cost effective and paced in manner that considers overall bill impacts.

***Information required should help demonstrate economic efficiency, cost effectiveness and pacing***

For example, as shown on Table 3, a distributor is to include a description of the manner in which a proposed project is expected to improve the ability of its distribution system to accommodate the

<sup>18</sup> *GEA Filing Requirements*; p. 21.

<sup>19</sup> *GEA Filing Requirements*; p. 9.

connection of REG facilities. The cost data required, as well as data on any projects considered by the distributor to constitute alternatives to the selected projects (see 'Project selection' in Table 3), can be used by the distributor to help demonstrate the economic efficiency and cost effectiveness of the selected investments.

In addition to the information requirements for projects summarized in Table 3, staff notes that certain provisions in the *GEA Filing Requirements* pertaining to the process and scope of GEA planning can serve to inform the Board's assessment as to whether projects in a GEA Plan have been selected, configured and scheduled (i.e. "paced") appropriately:

- The recognition that distributors must "share critical information necessary to the orderly connection of renewable generation with their embedded and host distributors, transmitters and the OPA";<sup>20</sup> and
- The requirement to consult with embedded and host distributors, upstream transmitters and the OPA in preparing a GEA Plan, and to provide any host distributor and upstream transmitter with a forecast of REG connections and any planned system investments to accommodate them.<sup>21</sup>

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<sup>20</sup> The *GEA Filing Requirements*; p. 6. The Board's [Regional Planning \(EB-2011-0043\)](#) consultation is focused on the development of regional planning requirements for the purpose of facilitating the determination of optimal electricity infrastructure solutions in circumstances where a localized geographic need can be resolved through one or more transmission and/or distribution solution.

<sup>21</sup> The *GEA Filing Requirements*; pp. 7 - 8.

**Table 3 – GEA Filing Requirements: Selected Network Planning Information<sup>1</sup>**

Category Subcategory	Information Requirement	
	Basic GEA Plan	Detailed GEA Plan
<b>A. Distribution system capacity to accommodate REG for all relevant feeders</b>		
Current capacity	Same as Detailed	A description of the distribution system's current capacity to accommodate generation from REG facilities, including the available capacity to connect generation. - must be provided for each feeder directly connected to a transformer station that is itself directly connected to a transmission system or a host distributor system and for which the OPA has received one or more applications from renewable generators under the FIT program
Limiting factors	Same as Detailed	Factors that may limit the distributor's ability to connect REG facilities, including constraints in the upstream transmission system or a host distributor system
Current REG costs	Same as Detailed	The identification of any expenditures (capital or OM&A) related to renewable generation connection that are <u>already</u> included in the distributor's approved capital plans, funded through current rates (including any approved rate riders or adders) or tracked in deferral accounts
Unique issues	Same as Detailed	A description of any relevant unique challenges and opportunities associated with the distributor's system as it is currently configured
<b>B. Planned development to accommodate REG</b>		
Anticipated REG connections <sup>2</sup>	Where OPA has received FIT applications for the service area or microFIT connection requests have been received by the distributor, same as Detailed  Where neither of the above applies: - a statement regarding the lack of FIT applications and microFIT connection requests. - OPA letter <sup>3</sup> commenting on FIT program applications from REG that would connect in the distributor's service area	OPA letter <sup>3</sup> commenting on FIT program applications from REG that would connect in the distributor's service area  The number and MW of REG connections anticipated over the five year period based on existing connection applications, information available from the OPA and any other information the distributor has about the potential for REG in its service area. Where a distributor has a large service area, or two or more non-contiguous regions included in its service area, a regional breakdown should be provided
Project description	The infrastructure projects and activities, if any, that the distributor intends to undertake in the next five years to accommodate generation from REG facilities and cost estimates for those projects or activities	For the infrastructure projects and activities the distributor intends to undertake in the next five years to accommodate REG generation: - description of the proposed project or activity - estimated construction schedule and completion date for the project or activity - a description of how the project or activity is expected to improve the system's ability to accommodate the connection of REG facilities - a description of the direct benefits accruing to the distributor's customers consistent with the Board's policy - a discussion of the risks to successful completion of the project or activity and the actions to be undertaken to mitigate those risks
Project selection	The method and criteria that will be used to prioritize expenditures in accordance with the planned development of the system	The method and criteria used by the distributor to select and prioritize the projects or activities related to renewable generation connection, including - how the application of this methodology led to the selection of the projects and activities - for projects for which a determination of prudence and cost recovery is sought, any alternatives to the projects considered and the reasons for selecting the proposed projects

**Table 3 – GEA Filing Requirements: Selected Network Planning Information<sup>1</sup> (con't)**

Category Subcategory	Information Requirement	
	Basic GEA Plan	Detailed GEA Plan
Project selection (con't)		<p>OPA letter commenting on:</p> <ul style="list-style-type: none"> <li>- the potential for coordination with other distributors and transmitters</li> <li>- whether the projects and activities to accommodate REG in the Plan are consistent with any integrated plan for the region or the province as a whole</li> </ul>
Project cost	<p>Where the distributor is seeking to recover costs related to the connection of REG from ratepayers:</p> <ul style="list-style-type: none"> <li>- detailed costing information for specific projects for at least the first year of the Plan</li> <li>- level of detail should be sufficient for the Board to assess the need for and prudence of the planned projects and their associated costs</li> <li>- where the distributor cannot provide the above level of detail for the remaining years of the Plan, the general level and type of investments and expenses for years 2 – 5 can be discussed but this will not allow the Board to assess the prudence of and approve cost recovery for the expenditures anticipated in those later years</li> <li>- Where costs may be recovered from provincial ratepayers, a calculation of the direct benefits accruing to the distributor's customers, consistent with the Board's policy</li> </ul>	<p>For each project or activity</p> <ul style="list-style-type: none"> <li>- detailed budgets (capital and OM&amp;A)</li> <li>- a delineation of the project elements and costs between: <ul style="list-style-type: none"> <li>- connection assets</li> <li>- expansions</li> <li>- renewable enabling improvements</li> </ul> </li> <li>- where costs may be eligible for recovery from provincial ratepayers, a calculation or quantification of the direct benefits accruing to the distributor's customers, consistent with the Board's policy</li> <li>- a clear statement of the costs sought to be recovered through rates in the current application, with cross-references to any other schedules in the application in which these costs appear</li> <li>- if the distributor is seeking a rate rider or funding adder, the dollar amount of, and the basis for calculating the rate rider or funding adder</li> <li>- capital expenditure/cost responsibility summary table</li> <li>- OM&amp;A/cost responsibility summary table</li> <li>- a revenue requirement calculation for the amounts to be recovered in rates beginning in the test year, including all assumptions used and the basis for those assumptions</li> <li>- where the distributor does not have information to support a more detailed analysis information for years 2 – 5 can be less specific and less detailed, and may be provided on an "activity" rather than a project-specific level</li> </ul>
Planning consultations	<p>OPA letter commenting on FIT program applications from REG that would connect in the distributor's service area</p> <p>Where OPA has received FIT applications for the service area or microFIT connection requests have been received by the distributor:</p> <ul style="list-style-type: none"> <li>- a description of the consultation, including planning meetings, undertaken with any affected distributors and transmitters</li> <li>- a description of how feedback received from any affected distributors and transmitters was reflected in the GEA Plan as filed with the Board</li> </ul>	<p>A description of the consultation, including planning meetings, undertaken with any affected distributors and transmitters</p> <p>A description of how feedback received from any affected distributors and transmitters was reflected in the GEA Plan as filed with the Board</p> <p>OPA letter commenting on whether the distributor has consulted with the OPA, or participated in planning meetings with the OPA</p>

- Notes: 1. Smart grid filing requirements are excluded as these are the subject of the Board's smart grid initiative (EB-2011-0004).
2. A distributor need not provide the system development information identified in the Project description, Project selection and Project cost fields where the distributor has not received requests for microFIT connection and is aware that no applications from renewable generators have been received by the OPA through the FIT program for connection within the distributor's service area.
3. The content of the 'OPA letter of comment' differs as indicated depending on whether a 'Basic' or 'Detailed' GEA plan is filed.

Source: *GEA Filing Requirements*

The *GEA Filing Requirements* explicitly recognize that investments aimed at enabling REG may involve components that address the objective of developing a smart grid.<sup>22</sup> More generally, the potential for certain investments to serve other distributor objectives (e.g. enable the connection of load customers) also underpins the Board's *Framework for Determining the Direct Benefits Accruing to Customers of a Distributor under Ontario Regulation 330/09*, as discussed below.

*Some investments can serve multiple distributor objectives*

## **2.4 Framework for Determining the Direct Benefits Accruing to Customers of a Distributor under Ontario Regulation 330/09**

Section 79.1 of the Act allows the recovery from all provincial electricity ratepayers of some or all of the Board-approved costs incurred by a distributor to make an “eligible investment”<sup>23</sup> for the purpose of connecting or enabling the connection of “qualifying generation facilities” to its system.<sup>24</sup> The [\*Framework for Determining the Direct Benefits Accruing to Customers of a Distributor under Ontario Regulation 330/09\*](#) (the “Benefits Framework”) identifies two categories of ‘direct benefits’ potentially associated with an investment to connect or enable the connection of REG facilities that must be calculated and deducted from the

*The Benefits Framework captures benefits for consumers of investments intended to accommodate REG*

<sup>22</sup> The *GEA Filing Requirements*; p. 18.

<sup>23</sup> Under section 79.1 of the Act, an ‘eligible investment’ is an investment “in the construction, expansion or reinforcement of a distribution line, transformer, plant or equipment used for conveying electricity at voltages of 50 kilovolts or less” for the purpose of connecting or enabling the connection of a qualifying generation facility that meets the criteria prescribed by regulation. Under O. Reg. 330/09: (i) to qualify as a “qualifying generation facility”, the generation facility must be a renewable energy generation facility; and (ii) to qualify as an “eligible investment” the costs associated with the investment must be the responsibility of the distributor as set out in the Code.

<sup>24</sup> As noted earlier, in accordance with O. Reg. 330/09, a “qualifying generation facility” is a REG facility. The investments described in Table 1 that can be subject to the pooling mechanism are expansions and REI.

investment costs<sup>25</sup> that can be recovered from all Ontario ratepayers under O.Reg. 330/09:

- reduced transmission<sup>26</sup> and WMSC charges realized by the distributor as a consequence of the production of electricity from the REG facility whose connection was enabled by the eligible investment; and
- improved capabilities of the distribution system for load customers and non-REG generation customers, including service quality improvements and the avoidance or deferral of system upgrade costs.

The *Benefits Framework* is of interest in the present context partly due to the potential impact of the calculations on customer bills. Under the *Benefits Framework*, Board-approved costs which represent the ‘direct benefits’ of eligible investments are recovered (along with other costs) through the distribution rates that are payable by the distributor’s ratepayers (the “Delivery” line item on low-volume consumer bills), while the balance of the approved costs are recovered from all Ontario ratepayers through a component of the WMSC, which is included in the “Regulatory charges” line item. Generally, the larger the share of ‘direct benefits’ as a proportion of the total Board-approved eligible investment costs, the greater the impact of those investments on the distributor’s customers’ bills.

The other relevant aspect of the *Benefits Framework* relates to the second category of ‘direct benefits’ mentioned above, namely those that may accrue to a distributor’s current (and/or future) customers from an eligible investment. The *Benefits Framework* recognizes

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<sup>25</sup> Initial capital investment costs and ‘up-front’ OM&A costs.

<sup>26</sup> Network charges, as well as connection charges related to REG ≤ 2 MW.

that an “eligible investment” can serve a number of purposes or have an effect beyond accommodating REG;<sup>27</sup> and furthermore, that the ways an eligible investment is used can change over time.<sup>28</sup>

*The way  
distribution  
assets are used  
by different  
types of  
customer can  
change over  
time*

Mirroring the proportional approach adopted in the *GEA Filing Requirements*, the *Benefits Framework* provides two approaches for calculating ‘direct benefits’: a ‘standardized’ approach that may be used by distributors that file a Basic GEA Plan, and a ‘detailed’ approach to be used for those that file a Detailed GEA Plan.

A calculation of ‘direct benefits’ using the ‘standardized’ approach requires little in the way of network planning information. For the ‘detailed’ approach, on the other hand, network planning information would be needed where non-REG customers may benefit from:

*A proportional  
approach to ‘direct  
benefit’  
calculations*

- use of the eligible investments;
- improved service quality due to the eligible investments; and
- avoided or deferred investment that would otherwise be required to
  - accommodate customer load growth;
  - replace assets at the end of their service life; or
  - upgrade existing assets.

<sup>27</sup> See *Benefits Framework*, pp. 19 – 22.

<sup>28</sup> “In such cases, the distributor should bring this to the attention of the Board” and any direct benefits not previously accounted for should be used to adjust future eligible investment costs; see the *Benefits Framework*, p. 19 - 20.

The calculation of these benefits may, in staff's view, require the use of asset management and network planning information inputs and outputs, such as:

- remaining service life of specific assets affected by eligible investments;
- relevant service quality data;
- asset upgrade and replacement costs deferred or avoided as a result of the eligible investments; and
- forecast load customer peak kW of load and non-REG generator peak kW of output.

*Asset management and other network planning information may be needed to calculate 'direct benefits'*

## 2.5 The Regulatory Treatment of Infrastructure Investment

The [\*Report of the Board: The Regulatory Treatment of Infrastructure Investment\*](#) in Connection with the Rate-regulated Activities of Distributors and Transmitters in Ontario (the "*Infrastructure Investment Report*") is noted here primarily because the manner in which a distributor plans and funds network investment projects can have short and longer term impacts on customer bills.

In the normal course, cash flow is the "envelope" from which network investments included in the approved revenue requirement are funded.<sup>29</sup> The *Infrastructure Investment Report* recognizes that the *Green Energy and Green Economy Act, 2009* "will increase the magnitude and complexity of infrastructure investment by distributors and transmitters", and further that the "long lead times

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<sup>29</sup> The Board's approach emphasizes that conventional recovery mechanisms remain at the core of the regulatory framework for the treatment of infrastructure investment, including situations involving "unforeseen events". See the *Infrastructure Investment Report*, pp. 10 – 11.

required to plan and construct new facilities can affect utility cash flow, in turn affecting the overall financial health of a company and its ability to attract capital on reasonable terms.”<sup>30</sup>

The Board adopted an approach whereby eligibility to access an alternative funding mechanism would be based on a distributor’s ability to demonstrate the existence of “a requisite relationship between the alternative [cost recovery] mechanism proposed and the investment project, in the sense that the proposal is tailored to address the demonstrable risks and challenges faced by the applicant”.<sup>31</sup>

*The relationship between circumstances and the alternative funding mechanism sought must be demonstrated*

To implement this approach, the Board set out the following considerations that a distributor would have to address in their application for an alternative funding mechanism in relation to an investment. Staff notes that much of the network plan-related information needed to address these considerations is otherwise identified in either the *CoS Filing Requirements* or the *GEA Filing Requirements*, as discussed in sections 2.2 and 2.3:<sup>32</sup>

- the need for the project (if not already demonstrated through another process);
- the public interest benefits of the project and of granting the alternative mechanism(s) requested;
- the overall cost of the project in absolute terms;
- the cost of the project in proportion to the current rate base of the utility;

*The Board’s assessment considers qualitative and quantitative information*

<sup>30</sup> *Infrastructure Investment Report*; pp. 13; 14 – 15.

<sup>31</sup> *Infrastructure Investment Report*; p. 14.

<sup>32</sup> The Board indicated that it would evaluate these elements, among others.

- the risks or particular challenges associated with the completion of the project;
- the reasons for not relying on conventional cost recovery mechanisms; and
- whether the utility is otherwise obligated to undertake the project.<sup>33</sup>

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<sup>33</sup> *Infrastructure Investment Report*, p. 21

### 3 Enhancing the Regulatory Framework

The previous section examined elements of the Board's current regulatory framework, highlighting the types of network planning information distributors are required or expected to use to support regulatory applications involving network investment proposals.

The purpose of this section is to identify potential opportunities for enhancing this framework, with a view to achieving the objective of this initiative as set out in section 1; i.e. ensuring distributor network plans are economically efficient, cost-effective and paced so as to match required expenditures with fair and reasonable rate adjustments and predictable changes to the elements of customer bills affected by the plans. Specific issues for stakeholder comment are listed throughout the section; however, comments are welcome on these and any related issues.

The KEMA Report reviewed how regulators elsewhere approach assessments of network plans for gas and electricity networks, focussing on how asset management information can be used for regulatory purposes. The KEMA Report noted that although jurisdictions share similar challenges they exhibit a range of regulatory approaches given the influence of various factors, such as:<sup>34</sup>

- network type (gas vs. electric; transmission vs. distribution);
- network characteristics (scale; asset vintage); and
- the “philosophy” of market regulation and “maturity” of regulatory process in use.<sup>35</sup>

*Regulatory approaches to assessing network plans are shaped by a number of factors*

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<sup>34</sup> KEMA Report; pp. 1; 4 - 6.

<sup>35</sup> KEMA Report; pp. 4 - 5. The discussion below is also informed in part by pp. 5-20 – 5-24.

For the purposes of eliciting stakeholder comment, staff has identified below potential areas of opportunity for enhancing the Board's current framework for assessing distributor proposals for network investments, bearing in mind that

- the “network” type in question is electricity distribution, so the physical assets that are the subject of planning can be technically complex, unevenly dispersed, and operationally inter-related;
- in Ontario, network asset characteristics can vary widely from one distributor to another; and
- the Board sets rates by way of an adjudicative, evidence-based process.

### 3.1 Harmonizing Information Requirements

Section 2 above reviews Board documents that are relevant to the network planning process and identify the information that is used by the Board in assessing a distributor's network investment proposals. While each document is purpose-specific, there may be opportunities to harmonize related elements to enhance consistency and simplicity.

For example, as noted in section 2, the Code defines four categories of investment in terms of their respective purpose. While investment to connect new load remains an important planning objective, significant investments are needed to address other priority objectives. However, as noted in the above discussion of the *Benefits Framework*, investments undertaken by a distributor for the purpose of accommodating REG can have –

*Opportunities  
to align related  
elements of the  
regulatory  
framework*

when implemented – ‘direct benefits’ for the distributor’s load and non-REG customers, including improvements in service quality or the deferral or avoidance of investments otherwise needed to accommodate new load.

1. Are there elements of the Code, the *GEA Filing Requirements* and the *Benefits Framework* that require further alignment to promote, for example, the consistent categorization of investments for all regulatory purposes related to network planning?

Other opportunities may be available to harmonize aspects of the *CoS Filing Requirements* and the *GEA Filing Requirements*, both of which require (while the implementation of the *Benefits Framework* would call for) a significant amount of information that would be either an input to or output of a distributor’s network planning process. As summarized in Tables 1 and 2, while some information requirements share a common purpose, the detailed specifications can take different forms.

For instance, both sets of filing requirements have materiality thresholds that affect the amount of detailed information to be submitted in support of an application. However, whereas the materiality thresholds in the *GEA Filing Requirements* refer to the total cost of investments included in a distributor’s GEA Plan, the materiality thresholds in the *CoS Filing Requirements* apply on a project-specific basis.

Another instance is the time horizon used. Whereas the *GEA Filing Requirements* state that a GEA Plan should cover a five year time horizon, the *CoS Filing Requirements* (section 2.5.2.2) stipulate that a three year forecast of capital expenditures (i.e. Test year plus two additional years) be filed at a minimum.

*Opportunities  
to harmonize  
filing  
requirements  
elements*

2. Are there elements of the *CoS Filing Requirements* and the *GEA Filing Requirements* that could be further harmonized, having regard to the fact that both address facets of a distributor's overall network plan?

### 3.2 Proportional Processes & Information Requirements

As noted above and in section 2, both the *GEA Filing Requirements* and the *CoS Filing Requirements* set out materiality thresholds that affect the level of information detail to be provided by a distributor. As also noted in section 2, the *Benefits Framework* allows, under certain circumstances, for the use of a less detailed 'standardized' approach to the calculation of 'direct benefits' that requires relatively little network planning related information compared to the 'detailed' approach.

A similarly 'proportional' approach to regulatory assessments would systematically vary the degree of detail required for, and the level of scrutiny applied to, a given network investment proposal depending on its characteristics. The characteristics used to screen applications for this purpose could involve, for example, network topography, network asset demographics, etc.; the cost of planned investments; the potential impact of planned investments on distribution rates and/or the total bill; or some combination of these.<sup>36</sup>

*Matching the assessment process and related information requirements to the characteristics of proposed investments*

Under such an approach, filing requirements for complex plans involving investments with potentially significant bill impacts would be correspondingly detailed, while 'business as usual' investment

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<sup>36</sup> Such criteria are discussed in the KEMA Report; p. 5-14.

plans might attract examination at a more generalized level, such as through a review of the asset management processes that are used by the distributor to identify, select and prioritize the investment projects included in its application.<sup>37</sup>

3. What are the merits and key challenges of pre-establishing network investment assessment processes and corresponding filing requirements based on criteria involving the characteristics of the proposed investments?

### 3.3 Information Quality

The importance of the quality of the network planning information provided by a distributor in an application was noted in section 2. The higher the quality, including the degree of certainty attached to the network planning information submitted for the period covered by an application, the greater the Board's ability to assess investments proposed in the application. Where, such as under an incentive regulation mechanism, years can elapse between Board assessments of network investments in CoS reviews, the quality of a distributor's network planning information is of particular significance.

*Enhancing  
information  
quality*

There may be ways to enhance the quality of information provided in response to filing requirements. For example, the U.K. Office of the Gas and Electricity Markets ("OFGEM") plans to use an 'Information Quality Incentive' to encourage the provision by utilities

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<sup>37</sup> Such reviews are an aspect of the Australian Energy Regulator's approach; see the KEMA Report; pp. 4-27 – 4-28.

of information demonstrating that certain costs have been incurred efficiently and are valued by customers.<sup>38</sup>

4. Should the Board consider mechanisms, such as an incentive-based approach to information filings, to promote network planning filings that achieve a requisite degree of quality?

### 3.4 Qualitative Information

While the *CoS Filing Requirements* and *GEA Filing Requirements* include direction as to the form and content of certain information, as noted earlier in this discussion paper the onus is on the applicant to provide the information and analyses necessary to justify the costs that are the basis for the applicant's proposed rates. In this light, the qualitative information filed in an application (e.g. on asset management practices; distributor objectives and priorities; evolving customer and customer class characteristics) can be as important as quantitative information and analyses.

*Opportunities to enhance 'qualitative' information to justify planned investments*

For example, as noted in Table 2, under the *CoS Filing Requirements* a distributor is to provide information on the “drivers” for capital expenditure increases for the Test year and on the “need” for each project that exceeds the applicable materiality threshold. The corresponding stipulations in the *GEA Filing Requirements* effectively call on a distributor to establish a ‘direct link’ between its asset management process and the selection of the individual projects proposed in its GEA Plan by

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<sup>38</sup> See the *Staff Discussion Paper on Defining & Measuring Performance of Electricity Transmitters & Distributors* issued at the same time as the present paper; pp. 57 – 58.

- showing how the selection/prioritization methodology was used to identify the projects in its GEA Plan; and
- where cost recovery is sought for investments in a ‘detailed’ GEA Plan, filing information on any alternatives considered and the reasons for selecting the proposed projects.<sup>39</sup>

The *GEA Filing Requirements* also contain detailed provisions that could be useful for CoS purposes. For example, providing information on consultations with interconnected transmitters and distributors and with the OPA can demonstrate for Board assessment purposes whether a distributor’s investment proposals have considered alternatives in a broader context in order to ensure that potential cost efficiencies are captured, and that the risk of redundancy or underutilization is minimized.

*Aligning  
‘qualitative’  
information  
elements of filing  
requirements*

5. Are there elements of the *GEA Filing Requirements* related to qualitative investment planning information that can be usefully adapted for *CoS Filing Requirements* purposes?

Although it refers to situations where a distributor proposes to access an ‘alternative’ mechanism to fund a network investment, the *Infrastructure Investment Report* (section 2.5 above) provides a useful analogy wherein qualitative information (in this case, the “requisite relationship”) is leveraged for the purpose of establishing a business case for the distributor’s proposal. The information required focuses on how the distributor generally determines the appropriate approach to implementing proposed investment projects, including the level, timing and source(s) of funding needed.

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<sup>39</sup> Such comparisons are also required for transmission projects that require leave to construct, as discussed below.

Qualitative analyses of individual projects or investment programs (i.e. projects related to the same purpose(s) or objective(s), such as improving reliability or the accommodation of REG) could also be useful in justifying investment proposals. For example, [Chapter 5](#) of the *Filing Requirements for Transmission and Distribution Applications* (the “*Transmission Filing Requirements*”) distinguishes between projects that are “discretionary” and those that are not.<sup>40</sup> To enable the assessment of whether (or the extent to which) a proposed project is discretionary, the applicant is to provide “a list identifying the key driving factors of the evidence justifying the project...”<sup>41</sup>

Although the *Transmission Filing Requirements* is of limited application to distributors, the manner in which it contemplates the use of qualitative information to justify investments can be instructive for present purposes. For example the *Transmission Filing Requirements* calls upon the applicant to provide:

- information on alternatives to a preferred project;
- an assessment of the ‘qualitative benefits’, if any, of all project options (which may be taken into account in ranking the options);
- for connection projects only, “specific information on the nature and magnitude of the network impacts”;<sup>42</sup> and

*Alternative ways  
of using  
‘qualitative’  
information and  
analyses to help  
justify proposed  
network  
investments*

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<sup>40</sup> *Transmission Filing Requirements*; p. 32 – 33. The *Transmission Filing Requirements* apply to transmission applications for approval of capital budgets under section 78(1) of the Act and for leave to construct under section 92 of the Act. However, rate regulated distributors applying for transmission classed projects i.e., above 50 kV, that would require leave to construct are also expected to follow these requirements.

<sup>41</sup> *Transmission Filing Requirements*; p. 34.

<sup>42</sup> *Transmission Filing Requirements*; p. 35.

- detailed information on the “cost of similar projects constructed by the applicant or by other entities for baseline cost comparisons”.<sup>43</sup>

6. What are the best ways *qualitative* information can be used by a distributor to demonstrate the economic efficiency and cost effectiveness of their proposed network investments and should such methods differ depending on investment category or purpose?

### 3.5 Quantitative Information

The *CoS Filing Requirements* and the *GEA Filing Requirements* include provisions for a variety of quantitative *data* that can be used to assess proposed investments. Quantitative *analysis*, on the other hand, is called for in section 2.5.2.1 of the *CoS Filing Requirements*, which stipulates that a distributor should file any applicable cost-benefit analysis for projects that exceed the materiality threshold; and in the *GEA Filing Requirements* which require, where applicable, the detailed calculation of ‘direct benefits’ associated with ‘eligible investments’ consistent with the *Benefits Framework*.

*Opportunities to leverage ‘quantitative’ analyses to help justify proposed network investments*

It was noted in section 2.3 that the *GEA Filing Requirements* stipulate that where “cost recovery is sought” in the context of a ‘detailed’ GEA Plan, a distributor is to provide information on any alternatives that were considered and reasons for selecting the proposed projects.<sup>44</sup> The type of information a distributor may provide to meet this requirement is not specified, but quantitative analyses can be useful in this regard.

<sup>43</sup> Data on the in-service year of the comparator project, and comparisons in terms of voltage level, type of towers, type of terrain, etc. are to be included. *Transmission Filing Requirements*; p. 36.

<sup>44</sup> *GEA Filing Requirements*; p. 15.

One such approach is provided in the *Transmission Filing Requirements*, which offers a two part analysis. The first part involves, for each project, filing the results of a cost-benefit analysis showing the relative merits of the alternatives that meet the objectives met by the preferred option.<sup>45</sup> The analysis is to include the comparative effects of risk “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.”<sup>46</sup>

The second part of the analysis applies where a proposed investment project is “non-discretionary”. In such cases, the applicant should show that the proposed option is a “better project” than the alternatives by, for example, showing that the preferred project has a higher net present value than the other viable alternatives.<sup>47</sup>

*Matching  
required analyses  
to network  
investment  
characteristics*

7. Are there quantitative analyses that should be required in respect of planned network investments and therefore included in the *CoS Filing Requirements*?

Quantitative assessments of the bill impact of changes in a distributor’s revenue requirement must be filed under section 2.11.9) of the *CoS Filing Requirements*. Costs related to network investments for which recovery is sought are included in the proposed revenue requirement, but the specific rates impact of network investment related costs may not be readily discernable from the information filed.

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<sup>45</sup> The applicant is required to provide the smallest number of alternatives consistent with conveying the major solution concepts available “to meet the same objectives that the preferred option meets”.

<sup>46</sup> *Transmission Filing Requirements*; p. 35.

<sup>47</sup> *Transmission Filing Requirements*; p. 35.

Moreover, as outlined in the introduction to section 2 above, in addition to influencing the distribution rate (i.e. 'delivery' component of the bill), REG related network investments can have an indirect affect on the regulatory charge and – once implemented and new REG facilities are in operation – on the electricity charge portions of the bill. Consequently, in order to ensure network investments are paced in a manner consistent with “predictable changes to the elements of customer bills affected by the plans”, a quantitative methodology would need to be developed that estimates both direct (delivery charges) and indirect (electricity and regulatory charges) bill impacts.

To assess the practical feasibility and utility of this type of analysis, Power Advisory LLC was engaged to design a prototype spreadsheet model (the “PA Model”) and provide a report (the “PA Report”) explaining the structure and function of the model. Staff invites stakeholders to review and provide written comments on the PA Report and the PA Model, which are being released at the same time as this staff discussion paper. Written comments are welcome on any aspect of the PA Report and the PA Model, including the issues noted below.

*Assessing the  
direct and  
indirect  
impacts of  
network  
investments  
on customer  
bills*

8. In general and/or specifically in relation to the PA Model: what are the merits and potential weaknesses of using information on the potential direct and indirect bill impacts of proposed network investments for regulatory assessment purposes?
9. What are the merits and potential weaknesses of using estimates of direct and indirect bill impacts for network investment planning purposes (e.g. project selection; program configuration; scenario analysis)?
10. What are the key issues to consider when determining whether and if so in what form information on estimated direct and indirect bill impacts should be included in filing requirements?

### 3.6 Policy Framework Review

Staff notes that individual distributor network plans can have relatively long time horizons.<sup>48</sup> Over time, new planning drivers can emerge, investment priorities can shift and asset management and network planning processes may evolve. In this context, staff believes that it is useful for the Board's network planning policy framework to be regularly informed of distributor network investment outcomes and of planning process influences and advancements.

*Ensuring the Board's policy framework is regularly informed of outcomes and developments*

11. Should the Board consider mechanisms that would help ensure the network planning policy framework is regularly informed of network investment outcomes and planning process developments?

For convenience, Table 4 below provides a list of the questions posed in this section for stakeholder written comment.

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<sup>48</sup> According to the KPMG Report, planning horizons of 5 to 10 years are in use and in some cases can be over 10 years for major assets. See the KPMG Report; p. 19.

**Table 4 – Summary of Questions for Stakeholder Written Comment**

1	Are there elements of the Code, the <i>GEA Filing Requirements</i> and the <i>Benefits Framework</i> that require further alignment to promote, for example, the consistent categorization of investments for all regulatory purposes related to network planning?
2	Are there elements of the <i>CoS Filing Requirements</i> and the <i>GEA Filing Requirements</i> that could be further harmonized, having regard to the fact that both address facets of a distributor's overall network plan?
3	What are the merits and key challenges of pre-establishing network investment assessment processes and corresponding filing requirements based on criteria involving the characteristics of the proposed investments?
4	Should the Board consider mechanisms, such as an incentive-based approach to information filings, to promote network planning filings that achieve a requisite degree of quality?
5	Are there elements of the <i>GEA Filing Requirements</i> related to qualitative investment planning information that can be usefully adapted for <i>CoS Filing Requirements</i> purposes?
6	What are the best ways <i>qualitative</i> information can be used by a distributor to demonstrate the economic efficiency and cost effectiveness of their proposed network investments and should such methods differ depending on investment category or purpose?
7	Are there quantitative analyses that should be required in respect of planned network investments and therefore included in the <i>CoS Filing Requirements</i> ?
8	In general and/or specifically in relation to the PA Model: what are the merits and potential weaknesses of using information on the potential direct and indirect bill impacts of proposed network investments for regulatory assessment purposes?
9	What are the merits and potential weaknesses of using estimates of direct and indirect bill impacts for network investment planning purposes (e.g. project selection; program configuration; scenario analysis)?
10	What are the key issues to consider when determining whether and if so in what form information on estimated direct and indirect bill impacts should be included in filing requirements?
11	Should the Board consider mechanisms that would help ensure the network planning policy framework is regularly informed of network investment outcomes and planning process developments?

## Appendix A

### Referenced Provisions of the *Ontario Energy Board Act, 1998*

#### Board objectives, electricity

1. (1) The Board, in carrying out its responsibilities under this or any other Act in relation to electricity, shall be guided by the following objectives:
  1. To protect the interests of consumers with respect to prices and the adequacy, reliability and quality of electricity service.
  2. To promote economic efficiency and cost effectiveness in the generation, transmission, distribution, sale and demand management of electricity and to facilitate the maintenance of a financially viable electricity industry.
  3. To promote electricity conservation and demand management in a manner consistent with the policies of the Government of Ontario, including having regard to the consumer's economic circumstances.
  4. To facilitate the implementation of a smart grid in Ontario.
  5. To promote the use and generation of electricity from renewable energy sources in a manner consistent with the policies of the Government of Ontario, including the timely expansion or reinforcement of transmission systems and distribution systems to accommodate the connection of renewable energy generation facilities. 2004, c. 23, Sched. B, s. 1; 2009, c. 12, Sched. D, s. 1.

#### Cost recovery, connecting generation facilities

- 79.1** (1) The Board, in approving just and reasonable rates for a distributor that incurs costs to make an eligible investment for the purpose of connecting or enabling the connection of a qualifying generation facility to its distribution system, shall provide rate protection for prescribed consumers or classes of consumers in the distributor's service area by reducing the rates that would otherwise apply in accordance with the prescribed rules. 2009, c. 12, Sched. D, s. 14.

#### Definitions

- (5) In this section,

“eligible investment” means an investment in the construction, expansion or reinforcement of a distribution line, transformer, plant or equipment used for conveying electricity at voltages of 50 kilovolts or less that meets the criteria prescribed by regulation; (“investissement admissible”)

“qualifying generation facility” means a generation facility that meets the criteria prescribed by regulation. (“installation de production admissible”) 2009, c. 12, Sched. D, s. 14.

**Appendix B**

## References

KEMA Inc.; [Leveraging Network Asset Management Practices for Regulatory Purposes](#); by KEMA Inc. for the Ontario Energy Board; Toronto, November 2009

KPMG LLP; [Review of Asset Management Practices in the Ontario Electricity Distribution Sector](#); by KPMG LLP for the Ontario Energy Board; Toronto; March 2009

Ontario Energy Board; [2011-2014 Business Plan](#); January 31, 2011

[Distribution System Code](#); October 1, 2011

[Filing Requirements for Transmission and Distribution Applications](#); Chapter 2; June 22, 2011

[Filing Requirements for Transmission and Distribution Applications](#); Chapter 5 (EB-2006-0170); November 14, 2006

[Filing Requirements: Distribution System Plans – Filing under Deemed Conditions of Licence](#); (EB-2009-0397); March 25, 2010

[Framework for Determining the Direct Benefits Accruing to Customers of a Distributor under Ontario Regulation 330/09](#) (EB-2009-0349); June 10, 2010

[Notice of Proposal to Amend a Code](#) (EB-2009-0077); June 5, 2009

[Report of the Board: The Regulatory Treatment of Infrastructure Investment](#) (EB-2009-0152); January 15, 2010