

Ontario Energy Board



G-2009-0087

Guidelines:

**Deemed Conditions of Licence: Distribution
System Planning**

June 16, 2009

I. Introduction

A. Objective

This document sets out a regulatory framework which covers accounting, funding, and planning for electric distribution system investments to accommodate the connection of renewable energy generation facilities and/or develop a smart grid. Its principal objective is to enable electricity distributors to get an early start on investments that should appropriately be made now in furtherance of the Government's policy goals as set out in the *Green Energy and Green Economy Act, 2009* (GEGEA),¹ and on planning for investments that may be required in the future.

The framework is both preliminary and transitional. It is preliminary in the sense that the Board's approach to system development planning in particular is expected to evolve over time with the benefit of further consultation and practical experience. Accounting, funding and planning for smart grid development will also evolve as the objectives of the smart grid, for example in relation to interoperability, and the standards for smart grid technologies are developed. The framework is transitional in the sense that, as distribution system plans become widespread and as the investment planning process potentially becomes more closely integrated with the rate-setting process, the need for deferral accounts and funding adders will diminish.

The Board expects that all distributors will immediately start to actively examine, in particular, the need for system investments and other expenditures to accommodate renewable generation facilities, and to ready themselves for the preparation and filing of renewable energy connection and smart grid development plans. However, the Board is not at this time requiring all distributors to file formal system development plans covering smart grid development or renewable energy connection activities.

Nor is the Board mandating that all distributors make investments relating to those activities now. Distributors may make expenditures relating to renewable generation connections and smart grid development that they consider appropriate without a Board-approved plan or a funding adder. The prudence of those expenditures and recovery of their cost will be subject to Board review in the normal course.

¹ Yet to be proclaimed.

Nothing in this document should be construed as limiting a distributor's obligation to proceed with the connection of renewable generation facilities in accordance with applicable legal and regulatory requirements.

B. Scope

This document comprises three elements; namely, deferral accounts, funding and planning guidelines.

The Board has established four deferral accounts that electricity distributors may use to begin recording capital investments and expenses incurred in relation to qualifying projects undertaken to accommodate renewable generation or towards the development a smart grid (see section II.A for details regarding qualifying expenditures).

The Board has also put into place a mechanism to fund qualifying expenditures to accommodate renewable generation connections and to develop a smart grid (the "Renewable Connection/Smart Grid Funding Adder") for those distributors that choose to obtain advance funding for those activities.

Finally, the Board is providing initial guidance for distributors who choose to file, in the near term, plans to accommodate renewable generation and/or to further the development of a smart grid.

C. Legal and Regulatory Framework

1. *The Green Energy and Green Economy Act, 2009*

On May 14, 2009, the GEGEA received Royal Assent. Once the relevant sections are proclaimed into force, the GEGEA will amend the *Ontario Energy Board Act, 1998* (OEB Act) to address renewable generation connections and smart grid development. Two provisions of the GEGEA are particularly relevant to these Guidelines.

First, the GEGEA will amend subsection 1(1) of the OEB Act by adding the following new objectives:

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.

Second, the GEGEA will amend section 70 of the OEB Act to include the following provisions that create deemed licence conditions for all licensed electricity distributors and transmitters:

(2.1) Every licence issued to a transmitter or distributor shall be deemed to contain the following conditions:

...

2. The licensee is required to prepare plans, in the manner and at the times mandated by the Board or as prescribed by regulation and to file them with the Board for approval for,
 - i. the expansion or reinforcement of the licensee's transmission system or distribution system to accommodate the connection of renewable energy generation facilities, and
 - ii. the development and implementation of the smart grid in relation to the licensee's transmission system or distribution system.
3. The licensee is required, in accordance with a plan referred to in paragraph 2 that has been approved by the Board or in such other manner and at such other times as mandated by the Board or prescribed by regulation,
 - i. to expand or reinforce its transmission system or distribution system to accommodate the connection of renewable energy generation facilities, and
 - ii. to make investments for the development and implementation of the smart grid in relation to the licensee's transmission system or distribution system.

The Board acknowledges that the legislative framework set out in the GEGEA may over time be supplemented by regulations or directives. This is expected to be the case in particular in relation to the smart grid. To the extent that regulations or directives are issued that are relevant to the subject-matter of this document, the Board will reflect those developments in subsequent releases of these Guidelines or otherwise as appropriate.

2. Other Board Initiatives

On June 5, 2009, the Board issued a Notice of Proposal to Amend a Code that proposes amendments to the Distribution System Code (DSC) relating to the assignment of connection cost responsibility between distributors and renewable generators. Under the proposed amendments to the DSC, distributors would be

responsible for some or all of the costs of “expansions” and would be responsible for all of the costs of “renewable enabling improvements” associated with the connection of renewable generation facilities. A revised definition of “expansion” and a new definition of “renewable enabling improvement” are included in the proposed amendments. This initiative is relevant to the recording of capital expenditures and expenses in the new deferral accounts (section II.A.1 below) and to the availability of the Renewable Connection/Smart Grid Funding Adder (section III below).

On June 10, 2009, the Board issued for comment a staff Discussion Paper on “The Regulatory Treatment of Infrastructure Investment for Ontario’s Electricity Transmitters and Distributors”. The Discussion Paper considers more innovative approaches to cost recovery for electricity infrastructure projects associated primarily with renewable generation connections and the development of a smart grid. It identifies a number of alternative treatments that could be considered for infrastructure projects, and discusses how applications for alternative treatments could be considered. The Board anticipates that the distribution system plan approval process may provide a forum in which applications for one or more of these alternative mechanisms may be determined.

II. Capital and OM&A Deferral Accounts for Renewable Generation Connection and Smart Grid Development Expenditures

To allow distributors to begin recording expenditures for certain activities relating to the accommodation of renewable energy or the development of a smart grid, the Board is creating four new deferral accounts in the Uniform System of Accounts. These deferral accounts are authorized to be used to record the qualifying incremental investments or expenses, respectively, that are described in sections 1 and 2 below. In this context, incremental means that an investment was not included in previous capital plans approved by the Board and/or is not funded through current rates.

While the Board has not set a cap on the amounts that can be recorded in these new deferral accounts, the Board expects distributors to file a system development plan that satisfies the requirements set out in section IV below if they anticipate significant expenditures. Regular reporting of the balances in the deferral accounts and of the associated rate impacts will enable the Board to monitor the situation.

Appendix A sets out the structure for the four deferral accounts, the categories of capital expenditures or expenses that can be included in each account and reporting requirements associated with the deferral accounts. The Board may issue further instructions regarding these accounts, including in relation to reporting, as required.

As noted in section II.B below, recovery of amounts recorded in the new deferral accounts will be subject to a prudence review.

A. Recording Expenditures in the Deferral Accounts

1. Renewable Generation Connection Deferral Accounts

As noted in section I.C.2, the Board is currently consulting on proposed amendments to the DSC regarding the assignment of connection cost responsibility between distributors and renewable generators. Until that consultation is complete, the Board will limit amounts that can be recorded in the “Renewable Connection Capital Deferral Account” and the “Renewable Connection OM&A Deferral Account” to expenditures that are associated with “renewable enabling improvements” as proposed to be defined in the DSC. Specifically, a “renewable enabling improvement” is a modification or addition to the main distribution system that is made to enable the main distribution system to accommodate generation from renewable energy generation facilities and that consists of one or more of the following:

- modifications or additions to allow for and accommodate 2-way electrical flows, as opposed to radial flow;
- modifications to, or the addition of, electrical protection equipment;
- modifications to, or the addition of, voltage regulating equipment; or
- the provision of protection against islanding (transfer trip or equivalent).

In addition, costs that can be recorded in these accounts include the cost of preparing a plan pursuant to the planning guidelines set out in section IV below and the cost of changes to a distributor’s Customer Information System to enable the automated settlement of contracts under the feed-in tariff (FIT) program.

The Board recognizes that an investment in a “renewable enabling improvement” may incorporate what the distributor believes to be smart grid technologies. In such cases, distributors should allocate any costs associated with the incorporation of smart grid technologies to the smart grid deferral accounts

described below, with the balance of the costs going to the renewable generation connection deferral accounts.

2. Smart Grid Development Deferral Accounts

At the present time, the legislative and regulatory framework regarding the development and establishment of the smart grid is still under development. Most importantly, the objectives, interoperability requirements and technology standards for the smart grid are not currently known. For that reason, the Board will for now limit amounts that can be recorded in the “Smart Grid Capital Deferral Account” and the “Smart Grid OM&A Deferral Account” to expenditures associated with the following (which are discussed further in section IV below):

- smart grid studies or demonstration projects;
- smart grid planning; and
- smart grid education and training.

Expenditures for smart meter-related investments and activities, including advanced metering infrastructure, are adequately addressed through existing mechanisms and may not be recorded in these deferral accounts.

The Board is aware that work has been and is being done in Ontario and in other jurisdictions (most notably the United States) regarding smart grid development. The Board expects that distributors will, prior to making smart grid-related expenditures, familiarize themselves with that work to ensure that efforts are not being unnecessarily duplicated. In addition, the Board does not expect distributors to be engaging in research and development activities related to smart grid development at this time.

B. Review and Recovery of Deferral Account Balances

The recording of amounts into the four deferral accounts described above in these Guidelines does not guarantee recovery of those amounts through rates. Recovery of any balances accumulated in the four deferral accounts will be subject to a prudence review at the appropriate time. This may be at the time at which the Board approves a project (whether individually or as part of a plan) to which the amounts relate, or during a proceeding to set the distributor’s rates.

III. Funding Adder for Renewable Generation Connection and Smart Grid Development Expenditures

Distributors who anticipate substantial expenses related to the qualifying renewable connection or smart grid development investments and activities described in section II.A above may apply for a “Renewable Connection/Smart Grid Funding Adder”. The Renewable Connection/Smart Grid Funding Adder is a tool to provide advance funding for these qualifying investments and activities and thus also to mitigate the anticipated rate impact of the associated costs.

A distributor that applies for a Renewable Connection/Smart Grid Funding Adder will be expected to support that application with a plan that provides detail regarding the nature of the project(s) or activity(ies) for which funding is sought. While this need not necessarily be a formal 5-year plan that satisfies the requirements set out in section IV below, the plan supporting the application must clearly identify and describe the project(s) and activity(ies) that underlie the request for funding. An application for a Funding Adder should also include the rationale for the dollar amount of the Funding Adder requested and the basis for calculating the Funding Adder. Where applicable, the application should separate any planned expenditures for “renewable enabling improvements” from those for smart grid development.

When the Board considers an application for a Renewable Connection/Smart Grid Funding Adder, it will assess the prudence of the project(s) and activity(ies) that underlie the request for funding to the extent permitted by the level of detail provided. In the normal course, the Board expects that it will consider an application for a Renewable Connection/Smart Grid Funding Adder through a hearing.

Collection of an approved Renewable Connection/Smart Grid Funding Adder would normally be authorized to commence on either November 1st or May 1st, as the timing of approval allows. Where a Renewable Connection/Smart Grid Funding Adder is approved, the Board will make provision for deferral or variance accounts as required to enable the tracking of revenues collected through the Funding Adder. The Board will also make provision for periodic reporting on the status of the project(s) and activity(ies) for which the Funding Adder was approved.

IV. Preliminary Planning Guidelines for Distributors

The preliminary guidelines set out below create a structure for distributors to follow in preparing a plan for review and approval by the Board in relation to the accommodation of renewable generation and/or the development of a smart grid. The Board anticipates that its approach to investment planning will evolve following additional consultation with stakeholders and with the benefit of further practical experience. The Board also expects that the investment planning process will ultimately become more closely integrated with the rate-setting process.

As noted above, the Board is not requiring all distributors to file plans at this time. However, these preliminary guidelines have been prepared for use by distributors that may ultimately be required by the Board to file a plan before the next iteration of these Guidelines is issued, or by distributors that choose to file and seek approval of a plan either due to the types and significance of their intended investments or to support an application for a Renewable Connection/Smart Grid Funding Adder.²

A. Principles

A development plan may be prepared in relation to the accommodation of renewable generation, the development of a smart grid or both (“Distribution System Plan” or “Plan”). A Distribution System Plan is expected to articulate, to the best of the distributor’s ability based on current information, the distributor’s view of its longer-term outlook and objectives for accommodating the connection of renewable generation facilities and for developing a smart grid. A Distribution System Plan should cover a five-year horizon, and should clearly identify the information that formed the basis for the development of the Plan. In the case of a Plan related to renewable generation, this should include a discussion of the level of renewable generation connections anticipated over the period based on existing connection applications, information available from the OPA and any other information the distributor has about the potential for renewable generation in its service area.

The Plan should include the specific investments the distributor intends to make and expenses it expects to incur at a level of detail sufficient for the Board to assess the need for the planned projects and activities and the benefits of

² As noted in section III above, an application for a Renewable Connection/Smart Grid Funding Adder may, but need not be, tied to an application for approval of a plan.

undertaking the planned expenditures. This level of detail should be provided for at least the first 3 years of the Plan. If a distributor is unable to provide this level of detail for all years of the Plan, the distributor may discuss the general level and type of investments and expenses anticipated for the 4th year, the 5th year or both. Plans should separate expenditures to accommodate the connection of renewable generation from those for the development of a smart grid.

B. Plan Elements

A Distribution System Plan should contain all of the elements set out below.

1. Executive Summary

Present a brief overview of the Plan. This section should identify anticipated expenditures for both capital and expenses, separated between renewable generation connections and smart grid, for the first 3 years of the Plan at a minimum. For subsequent years, a distributor may provide expenditure estimates that identify the general level of capital investment and expenses and the types of activities that form part of the distributor's longer-term outlook and objectives during those subsequent years.

2. Longer-term Outlook and Objectives

Describe how the distributor expects its system to evolve over the next five years to accommodate renewable generation projects likely to be developed and/or the smart grid features that the distributor expects to see over the next five years related to matters such as communications, sensing, computer analytics, automated response and any other elements that the distributor believes may contribute to the development of a smart grid. This section should include information on the benefits that the proposed evolution will bring, how these benefits will be assessed against cost, the factors that will influence the timing of the proposed evolution and the method and criteria that will be used to prioritize expenditures in accordance with the longer-term outlook.

3. Current Assessment

Discuss the distribution system's current capacity to accommodate the connection of renewable generation and/or its state with respect to development of a smart grid. The assessment should identify any expenditures (capital or expense) related to these two areas that are already included in the distributor's approved capital plans and/or funded through current rates. This section should also discuss any relevant unique challenges and opportunities associated with the distributor's system as currently configured.

4. Near-term Activities (Years 1 through 3)

A Plan prepared pursuant to these preliminary guidelines should describe in detail the activities expected to occur within the Plan’s first three years and their costs.

A distributor should provide a table, similar to the one below, which categorizes its anticipated near-term activities and their cost as being related to the accommodation of renewable generation and/or the development of a smart grid. For each category, the distributor should provide the information described in the subsections that follow.

Activity		Year One		Year Two		Year Three	
		Capital	Expense	Capital	Expense	Capital	Expense
A	Renewable Connection						
	Smart Grid						
B	Renewable Connection						
	Smart Grid						

a. Renewable Generation Connection Information

Describe projects and activities to accommodate renewable generation and their associated expenditures (capital or expense). These are comprised of “renewable enabling improvements” (see section II.A.1 above) and “expansions” that are not triggered by a specific generator application to connect. These activities should be incremental to activities (on-going or planned) currently included in rates or in Board-approved capital budgets. This section should also discuss the method and criteria used by the distributor to prioritize the activities into the near and longer terms, and show how application of this methodology leads to selection of the activities included in the near term.

The discussion of each activity should contain:

- a description of the proposed activity;

- the amount to be spent in each year allocated between capital and expense;
- a description of the benefits that the activity is expected to produce in terms of accommodating the connection of renewable generation facilities; and
- a discussion of the risks to successful completion of the activity and the actions to be undertaken to mitigate those risks.

b. Smart Grid Development

For the reasons set out in section II.A.2 above, smart grid development plans should focus on smart grid studies or demonstration projects, smart grid planning and smart grid education and training. These activities should be incremental to activities (on-going or planned) currently included in rates or in Board-approved capital budgets. This section should discuss the method and criteria used by the distributor to prioritize the activities into the near and longer terms, and show how application of this methodology leads to selection of the activities included in the near term. As also noted in section II.A.2 above, the Board expects distributors to avoid unnecessary duplication with work being done by other distributors in Ontario and in other jurisdictions, and does not expect distributors to be engaging in smart grid research and development activities at this time.

For smart grid demonstration projects:

- a discussion of the technology to be demonstrated and the anticipated benefits from a successful application of the technology;
- a discussion of any risks or barriers to the widespread implementation of the technology if the demonstration phase proves successful;
- information on any other demonstration projects that have been conducted using the technology and a discussion of why additional demonstration is necessary; and
- a discussion of any joint participation agreements, information sharing arrangements and other efforts that the distributor has made to avoid undertaking projects that unnecessarily duplicate other ongoing or planned demonstration projects so as to avoid redundant demonstration projects.

For smart grid studies and planning exercises:

- a statement of the objectives of the study or planning exercise that clearly indicates the information that will be developed and how that information will aid in developing and implementing a smart grid;
- a discussion of any joint participation agreements, information sharing arrangements and other efforts that the distributor has made to avoid undertaking studies that unnecessarily duplicate other ongoing or planned studies so as to avoid redundant studies; and
- information on how the distributor has incorporated the results of any previous studies or planning exercises with similar objectives and a clear explanation of the new information that the distributor expects from the study or planning exercise it is proposing.

For smart grid education and training:

- a statement of the nature and purpose of the staff education or training that clearly indicates how the activity will aid in smart grid development and implementation; and
- a discussion of how participation in smart grid training or education programs such as conferences, workshops or forums will further the distributor's understanding of smart grid development or otherwise aid in developing and implementing a smart grid.

As discussed below with respect to reporting, the Board intends to maintain an on-line repository of smart grid study and demonstration project reports. To maximize the utility of this repository, the Board expects distributors to avoid to the maximum extent possible any restrictions on the disclosure of information. Distributors must in all cases ensure that any information disclosure restrictions that cannot be avoided will not hinder meaningful reporting or replication of the results of the study or demonstration project.

5. Longer-Term Activities (Years 4 and 5)

To the extent that it is known, information relating to activities intended for years 4 and 5 should be presented at the level of detail and in the manner applicable to the near-term period. Where this is not feasible, this section should provide a qualitative assessment of the activities that will be undertaken in the remaining years (4th year, 5th year or both) for which distributor is unable to provide that level of detail. This discussion includes the types of projects that will be

undertaken and the anticipated spending in these remaining years, recognizing that specific projects may not have been finalized.

6. Costs and Funding

This section should estimate the annual amounts that are likely to be incurred for the near-term projects and activities (and, if known, for activities in the 4th year, the 5th year or both). If the distributor is seeking a Renewable Connection/Smart Grid Funding Adder, then the dollar amount of, and the basis for calculating, the Funding Adder requested should also be included in this section.

7. Appendices

Include a description of the distributor as Appendix A. Include any studies or supporting analyses for the Plan as Appendix B. Include additional appendices as required.

C. Plan Approval

The Board will review each distributor's Distribution System Plan to determine whether it demonstrates that the proposed near-term projects and activities (and longer-term projects and activities if described at the requisite level of detail) are appropriate to accommodate the connection of renewable generation facilities or useful in developing a smart grid, as the case may be, and represent reasonable approaches to achieving these goals. The Board will also review the method and criteria that the distributor has proposed to prioritize near-term projects and activities in the Plan.

When the Board considers a Plan, it will assess the prudence of the activities and costs described in the Plan to the extent permitted by the level of detail provided. Issues of need, project selection, project budget and prioritization of expenditures that are addressed through the Plan approval process will not be revisited in subsequent proceedings except in relation to material deviations.

The Board understands the need for timely decision-making in relation to the approval of Plans. However, given that approval of a plan is intended to provide a greater degree of regulatory predictability in relation to the recovery of costs as noted above, an appropriate degree of scrutiny should be expected.

D. Reporting

The Board will require that distributors file annual status reports on the implementation of their approved Distribution System Plans. These reports should provide the current status of projects and explain any material deviations from the Plan as approved.

In respect of smart grid studies and demonstration projects, the Board will require distributors to provide reports on the outcome of such activities to ensure that the benefits of experience are shared. These reports should include:

- a description of the activity;
- the specific technologies tested or demonstrated, where applicable;
- activity costs;
- the performance of the demonstrated technologies, where applicable;
- the benefits of the activity, quantified where appropriate or otherwise presented on a qualitative basis; and
- recommendations and lessons learned from the project.

Smart grid study and demonstration project reports will be maintained by the Board in an on-line repository.

Where a report contains information that the distributor believes to be confidential, the distributor will be required to file a version of the report that contains the confidential information and a redacted version that does not. The redacted version should be prepared such that the report is meaningful and the results may be replicated regardless of the deletion of the confidential information. In the event that the Board believes that a distributor's claim of confidentiality is not warranted, the Board will so notify the distributor and will provide additional direction at the relevant time.

V. Further Information

Questions related to these Guidelines should be addressed to:

Ontario Energy Board
Market Operations Hotline
Telephone: 416-440-7604
E-mail: market.operations@oeb.gov.on.ca

Appendix A

Deferral Accounts

I. **Capital**

The distributor's normal capitalization policies from its last cost of service proceeding should be followed in identifying fixed asset expenditures.

Account 1531: Renewable Connection Capital Deferral Account

Investments related to "renewable enabling improvements" will be recorded in this capital deferral account. A "renewable enabling improvement" is a modification or addition to the main distribution system that is made to enable the main distribution system to accommodate generation from renewable energy generation facilities and that consists of one or more of the following:

- modifications or additions to allow for and accommodate 2-way electrical flows, as opposed to radial flow;
- modifications to, or the addition of, electrical protection equipment;
- modifications to, or the addition of, voltage regulating equipment; or
- the provision of protection against islanding (transfer trip or equivalent).

In addition, the capital cost of changes to a distributor's Customer Information System to enable the automated settlement of FIT contracts may be included in this account.

Account 1534: Smart Grid Capital Deferral Account

Investments related to smart grid demonstration projects will be recorded in this capital deferral account.

This account will also be used to record the cost of smart grid investments that are undertaken as part of a project to accommodate renewable generation.

This account may not be used to record expenditures for smart meter-related investments, including advanced metering infrastructure.

II. Expenses

Do not record in the OM&A deferral accounts described below any allocation of general expenses that are not specifically related to the investments that can be recorded in the associated capital deferral accounts.

Account 1532: Renewable Connection OM&A Deferral Account

Incremental operating, maintenance, amortization and administrative expenses directly related to “renewable enabling improvements” (see above) will be recorded in this operating deferral account. In addition, costs that can be recorded in this account also include expenses associated with preparing a Distribution System Plan pursuant to the planning guidelines set out in section IV of these Guidelines and expenses associated with changes to a distributor’s Customer Information System to enable the automated settlement of FIT contracts.

Account 1535: Smart Grid OM&A Deferral Account

Operating, maintenance, amortization and administrative expenses directly related to the following smart grid development activities will be recorded in this operating deferral account:

- smart grid studies or demonstration projects;
- smart grid planning; and
- smart grid education and training.

This includes expenses associated with preparing a Distribution System Plan pursuant to the planning guidelines set out in section IV of these Guidelines.

This account may not be used to record expenditures for smart meter-related expenses, including in relation to advanced metering infrastructure.

III. Reporting

Under section 2.1.1 of the Board's Electricity Reporting and Record Keeping Requirements, distributors are required to report quarterly on the balances of all deferral and variance accounts. The relevant forms will be updated to include the deferral accounts referred to in these Guidelines and distributors should start reporting any balances in these accounts effective for the quarter ending September 30, 2009.

In addition, distributors will be required to provide, in each quarter, the rate impact of the balances in the deferral accounts, off-set where applicable by the balances in any deferral or variance accounts related to the recovery of a Renewable Connection/Smart Grid Funding Adder. The rate impact should be determined for a customer who consumes 1000 kWh per month (expressed in dollars) as determined using the Board's model and the inputs from the distributor's latest cost of service decision.

IV. Interest

Interest carrying charges will apply to the monthly opening balances in these deferral accounts using the Board's prescribed interest rates in effect for the relevant quarterly period.

V. Other

The Board may issue further instructions regarding these deferral accounts, including in relation to reporting, as required.