

**Ontario Energy Board**



**EB-2012-0410**

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# **Draft Report of the Board**

**Rate Design for Electricity Distributors**

March 31, 2014

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# 1 Introduction

The Ontario Energy Board has a new framework for the regulation of utilities. The Board's renewed regulatory framework is a comprehensive performance-based approach to regulation that aims to better align consumer and utility interests, support the achievement of important public policy objectives and place a greater focus on delivering value. Effective rate design for revenue recovery is an important element to achieving these objectives. While the regulatory and policy environment has evolved significantly over the years, the rate design has not been altered. The Board indicated in its Renewed Regulatory Framework for Electricity Report ("the RRFE Report") issued October 18, 2012, that it would proceed with the review of revenue decoupling that was suspended in 2010. Revenue decoupling is a regulatory framework that seeks to break the link between a distributor's revenue recovery and consumer consumption of energy.

The Board intends to pursue a fixed rate design solution to achieve revenue decoupling. The Board believes that a fixed rate design for recovery of electricity distribution costs is the most effective rate design for ensuring that rates reflect the cost drivers for the distribution system and best responds to the current environment.

- The Board believes that when consumers<sup>1</sup> understand what costs are being recovered in the amount they are being charged for the use of the distribution system, they are equipped to make informed choices about their use, their investments and the value of being connected.
- The Board's regulatory framework emphasizes the need for distributors to achieve sustained productivity improvements through effective asset management and planning that will optimize investments. The Board's rate

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<sup>1</sup> Throughout this Report "consumer" is used to mean anyone who consumes energy while "customer" is used as someone who pays a distribution bill. Thus customer is synonymous with "ratepayer."

- design policy best provides predictable and stable revenues necessary to implement the distributor capital investment plans.
- The government has stated in its Long Term Energy Plan that distributors will have an increased responsibility in the delivery of conservation programs to customers to help achieve the Conservation First policy to meet future energy needs. The Board's policy direction eliminates any disincentive to that role.

The purpose of this draft Report is to articulate the Board policy on implementing a new rate design for electricity distributors; to explain why the Board recognizes that a change to the rate design is appropriate at this time and to solicit stakeholder input on the best approach and design for moving forward.

This draft Report presents three proposals to achieve revenue decoupling for stakeholder comment. In determining which rate design is most appropriate, the Board will have regard to the following objectives:

- Providing stability and predictability to consumers on their bills,
- Enhancing consumer literacy of energy rates
- Providing consumers with tools for managing their costs;
- Focusing distributors on optimal use of assets and improving productivity;
- Removing or reducing regulatory costs; and
- Supporting the achievement of public policy objectives.

The Board's final Report may select one proposal for implementation or allow distributors to choose.

### **1.1 Scope of this Report**

In announcing its review of revenue decoupling in November 2012, the Board, indicated that it would consider decoupling for both electricity and natural gas

distributors. The Board views the policy objectives for electricity and gas revenue decoupling to be common in many respects.

However, the Board will defer examination of natural gas until the completion of several other major initiatives planned for natural gas in 2014-2015. Later this year, the Board will be conducting a Natural Gas Market Review to assess Ontario natural gas market conditions and regulatory guidelines including planning in the gas sector and the state of pricing, supply and demand. The Board will also be reviewing the framework for the demand-side management programs to be undertaken by natural gas distributors beginning in 2015.

For these reasons, the Board intends to proceed initially with the decoupling of rates charged for the use of electricity distribution systems.

The current rate design in Ontario for electricity distributors includes a fixed monthly service charge and a variable rate.<sup>2</sup> For low volume consumers, the variable rate is based on the kWh of consumption. The split between the fixed monthly service charge and the per kilowatt hour charge varies between distributors. Distributors typically receive about half their distribution revenue for residential customers from fixed monthly service charges, but the ratio varies by distributor, from a low of 30% to a high of 65%.<sup>3</sup>

Electricity use can be measured in two ways: **Consumption** is the amount of electricity that has been used in total over time and is measured in kilowatt hours (kWh). **Demand** is how fast the electricity is being used and is measured in kilowatts (kW).

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<sup>2</sup> As of July 1, 2014, losses will be included in the Delivery line for all low volume consumers on a variable basis.

<sup>3</sup> Data from the 2012 Yearbook of Electricity Distributors calculated from the fixed monthly charges (actually per 30 day period), the number of customers and a total of 12.15 of the 30day periods in the year as a percentage of annual Residential Service Classification revenue.

The larger customer classes<sup>4</sup> i.e., those in the group with demand greater than 50 kW have a rate design made up of a fixed monthly service charge and a charge based on monthly maximum demand that is aligned with distribution cost drivers. These classes represent an enormous range of end uses, size of connection, impact on the system, both in terms of timing and size of peak demand. While the alignment of rates with maximum consumer demand better reflects the costs of service, these rates are not sensitive to when the consumer's maximum demand occurs. The Board, in EB-2013-0311, has proposed amendments to the Distribution System Code to ensure that all customers in this class are able to measure demand on an hourly basis. This will enable other rate options for this diverse group of consumers. For these reasons the Board will address the rate design for larger consumers in due course.

The electricity distribution rate design for "Residential Service Classification" and "General Service less than 50 kW Service Classification" customer classes ("low volume consumers") relies on a variable rate based on the kWh of consumption.

As discussed later in the Report, a variable charge based on kWh is not aligned with the cost drivers for distribution. The Board has considered the Navigant analysis (see Appendix A) showing a consumer trend of decreasing average use which is discussed later in the Report. This analysis in the context of the public policy objectives set out in the LTEP regarding conservation has lead the Board to **conclude that it will proceed with revenue decoupling for the low volume customer classes.**

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<sup>4</sup> Distributors have various groupings for larger customers that are typically defined as General Service 50 to 999 kW Service Classification; General Service 1000 to 4999 kW Service Classification; and Large Use Service Classification. Other specific definitions for customer classes are also used.

## 2 The Need for a New Rate Design

The Board initiated a project on rate design for recovery of electricity distribution costs<sup>5</sup> in 2007. This work follow on from the Board's cost allocation policy development in 2006.<sup>6</sup> The Board's earlier review included three staff discussion papers and three stakeholder consultation sessions. The process was ultimately adjourned by the Board to allow staff to gather additional data on consumer usage and energy demand.

Early in the 2007 process, the Board stated its principles for rate design.<sup>7</sup> These principles encompass all of the "Bonbright attributes of a sound rate structure:"<sup>8</sup>

1. Full cost recovery for distributors including a return on equity with appropriate risk premium;
2. Fairness including cost causality, simplicity and lack of controversy; and
3. Efficiency to encourage maximum use and rational growth of the system.

In March 2010<sup>9</sup> the Board undertook to review revenue decoupling for the province's electricity and natural gas distributors. Board staff released a paper by the Pacific Economic Group LLC, "Review of Distribution Revenue Decoupling Mechanisms" (the "PEG Report"). Staff prepared a *Report to the Board*<sup>10</sup> summarizing the PEG Report and stakeholder comments. The Board suspended the initiative to complete the development of its renewed regulatory framework. The Board indicated at the time it would restart the review once the RRFE had established the mechanisms for planning and performance.

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<sup>5</sup> EB-2007-0031 – Rate Design for Recovery of Electricity Distribution Costs

<sup>6</sup> EB-2007-0667 – Application of Cost Allocation for Electricity Distributors

<sup>7</sup> "EB-2007-0031: Staff Discussion Paper - Rate Design for Recovery of Electricity Distribution Costs," March 2008, pp 15-17.

<sup>8</sup> Principles of Public Utility Rates, Bonbright, James C., et al., Public Utilities Reports Inc., 1988, pp. 383-384.

<sup>9</sup> EB-2010-0060 – Distribution Revenue Decoupling

<sup>10</sup> "EB-2010-0060: Staff Report to the Board - Distribution Revenue Decoupling", January 2011.



The materials and analysis prepared in the 2007 and 2010 reviews and the views expressed by stakeholders have provided useful information and guidance for the Board in developing the policy direction articulated in this Draft Report.

In the 2010 consultation on revenue decoupling concerns were expressed by some stakeholders that the research was limited in terms of its analysis of the current situation in Ontario. As part of the current review, the Board hired Navigant Consulting Ltd. to provide analysis of consumer energy usage data for distributors. The methodology and the limitations of the data are explained in Navigant's report which is attached to this report as Appendix A. The Board will refer to the Navigant report as necessary to illustrate its conclusions.

Since the suspension of the 2010 review of revenue decoupling, there have been several significant changes in the Board's regulatory approach and in the public policy objectives for the electricity sector. Through the RRFE, the Board has attempted to enhance utility focus on planning, optimizing investments and delivering sustained performance improvements. The Board has focused on reducing regulatory burden and costs, and importantly, increasing simplicity and accessibility for customers by providing tools and information to help them better understand and manage their energy costs.

In the context of broad public policy objectives, the government released "Achieving Balance: Ontario's Long-Term Energy Plan" ("LTEP") outlining the government's direction for the sector including conservation first as a way to meet future energy needs without major new investment. The LTEP outlines an enhanced role and expectation for electricity distributors to facilitate the achievement of the conservation objective particularly for the low volume consumer. The LTEP has also reinforced the government's stated challenge to the province's distribution companies to find significant savings through transformative initiatives that will result in electricity ratepayer savings. These new public policy objectives reinforce the appropriateness and timeliness of the Board's current review of the rate design for revenue recovery for electricity distributors.

*For the Consumer*

The RRFE puts the consumer at the centre of regulation and focuses on delivering value to the consumer. In order to achieve the objective of delivering value to consumers, the Board recognizes the need for consumers to understand more about the costs and value of the infrastructure and in turn, be able to make informed decisions about use and conservation. The government in the LTEP emphasized the importance of increasing consumer awareness about the energy sector. The Board intends the rate design to enhance consumer understanding of the energy sector, the cost drivers for distributors, and the value of being connected.

Today the distribution service is one part of the electricity service and typically reflects about 20-25% of a residential consumer's bill. The Board believes that for a consumer to make informed choices about energy use, the consumer should understand the bill and what parts of the bill the consumer can control. Through simplifying distribution charges and aligning them with distribution costs, consumers will better understand the fixed nature of distribution charges. The Board believes that this will enhance a customer's ability to make economic choices on its conservation efforts and investments.

In order to understand more consumer perspectives more directly the Board engaged the Gandalf Group to conduct focus groups with residential consumers from the greater Toronto area. These focus groups provided the opportunity to gather insight on consumers' understanding of the rate structure, system cost drivers and potential for new ways of pricing electricity distribution service. A report summarizing the results of the focus groups is attached as Appendix B to this draft Report. The Board makes reference to comments made by participants in the focus groups in this draft Report. Consumers in the focus groups identified the bill as the principal source of information regarding the electricity system. The Board believes the bill is where the policy objectives come together.

*For the Distributor*

In the electricity sector, the distributor has a positive obligation to connect customers.<sup>11</sup> Customers expect to be provided safe, reliable distribution service at a reasonable price. The Board's performance based approach to regulation establishes an expectation of greater cost control and sustained productivity improvements for individual distributors and the sector as a whole. Productivity is enhanced when utilities invest and operate efficiently. In order to achieve the outcomes set out for the electricity distribution sector, the Board has emphasized the need for distributors to focus on asset management and longer term planning to optimize their investments.

Under the new regulatory framework, distributors are required to file 5-year capital plans to support their rate applications. When revenue recovery is linked to variable throughput, distributors might not have the revenue certainty to facilitate the execution of long-term capital plans. Revenue flow should be commensurate with the plans, both in amount and timing, in order for those plans to be effectively implemented. As a result, a Board objective for its rate design approach is to facilitate the execution of distributor's long-term plans. This longer-term planning and cost containment will provide for greater predictability of rates, which ultimately helps consumers, both residential and small commercial, in their own planning.

*Public Policy*

The Ontario government recently released its LTEP setting public policy expectations for the electricity sector. The LTEP emphasizes "Conservation First" as the mechanism to meet future increases in energy needs. The Minister of Energy intends to work with the Board to incorporate the policy of conservation first into distribution planning processes to achieve efficiencies in investment, achieve savings and avoid unnecessary infrastructure.

Since 2005 electricity distributors have played an important role in the government's conservation strategy by delivering programs and services to assist consumers in

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<sup>11</sup> *Electricity Act, 1998*, section 28

reducing energy use. The LTEP confirms that the government will continue to depend on electricity distributors to deliver conservation programs and education to consumers. Revenue erosion that distributors experience due to consumer conservation under the current rate design is likely to increase. If a distributor's efforts in conservation result in a reduction in its anticipated revenues, it may not aggressively undertake emerging opportunities to support and deliver conservation programs in their service areas.

The policy of Conservation First describes building consumer understanding of the electricity system as a whole and awareness of the benefits of conservation. Social benchmarking, the ability for consumers to compare their energy consumption with other similar consumers, is a way to increase awareness of energy use. Aligning incentives and tools with consumer needs engages consumers and helps them make more informed choices about energy use which is necessary to achieve the conservation objective.

The LTEP indicates a continued emphasis on including small generation on to the networks as a means of meeting supply needs. It also identifies the intention to shift micro (under 10 kW) renewable distributed generation installations to net metering<sup>12</sup> as a policy direction. Under the current rate structure, this shift to net metering and onsite generation would decrease distributors' revenues as consumers with onsite generation reduce their energy draw. Many jurisdictions have begun to develop plans<sup>13</sup> to address the distribution revenue impact of increased penetration of distributed generation.<sup>14</sup> A rate design that focuses on the fixed costs of the distribution system will ensure that consumers' decisions to engage in generation are guided by the correct price signals in terms of the costs of the infrastructure.

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<sup>12</sup> Net metering is a system in which energy generators are connected to a public-utility power grid and any power not used by the consumer is transferred onto the grid and used to offset the cost of power drawn by the customer from the grid.

<sup>13</sup> Edison Electric Institute and NDRRC, "EEI.NRDC Joint Statement to State Utility Regulators," February 12, 2014.

<sup>14</sup> Borenstein, S., "Rate Design Wars Are the Sound of Utilities Taking Residential PV Seriously," SG Today, November 12, 2013.

Distribution systems are changing: from systems that rely entirely on power from the high voltage transmission system to supply end consumers, to one where many points are providing power to the distribution system, creating a complex network of inputs and two-way flows. The LTEP will foster the new structure by encouraging options for consumers to self-generate, store energy and have their demands managed in response to the development of markets for “demand response”.<sup>15</sup> All these changes will impact how the distribution system is fundamentally used. The way that users pay for use of the distribution system should be aligned with this emerging reality. Moving to a fixed rate design will ensure that all system users are treated equitably and with appropriate price signals in the collection of distribution costs to support a reliable system.

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<sup>15</sup> Demand response refers to the shifting of usage from peak periods.

## 3 A Rate Design Solution

The current environment and policy objectives as described in Section 2, lead the Board to the view that the distribution service rate design must change to help consumers understand the value of being connected, to encourage appropriate investment by distributors in the evolving distribution system and to address new policy priorities. The Board intends to address these objectives for electricity by adopting a new rate design for low volume consumers relying on a fixed charge per month rather than a combination of a fixed monthly service charge and a volumetric rate based on consumption.

### 3.1 A Rate Design for Consumer Understanding and Stability

One of the Board's policy objectives is to ensure that value to consumers is the focus of regulation.<sup>16</sup> The Board believes this can be achieved when consumers understand the rates that determine their electricity bills and are able to use that information to guide their energy consumption. As discussed earlier, consumers have identified their bill as the most important means of learning about the electricity sector. The lines on a consumer's energy bill represent the different segments of the industry:

- The commodity, the actual electrons or gas molecules that provide the energy to power appliances and processes;
- The delivery infrastructure to get the energy from the producer to the consumer through long-distance transportation and local distribution systems; and
- In electricity, the regulatory control that balances instantaneous demand with supply and directs its flow across provincial transmission lines.

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<sup>16</sup> Ontario Energy Board 2013-2016 Business Plan, p 4.

The average cost of distribution service for a residential consumer in Ontario falls in the range of \$18 to \$60 per month.<sup>17</sup> Yet few consumers “could articulate what they get for delivery”<sup>18</sup> or what costs they are intended to cover. The Board is of the view that a key mechanism for building awareness and increasing consumer engagement is through pricing and, particularly in this initiative, the rate design that determines how much a consumer will pay.

The result of the current rate design for low volume consumers is that the recovery of revenue is dependent on consumption in kWh.

Consumption is not linked to the distributors’ costs to serve. There is therefore no connection to the value of the service for the consumer.

Low volume consumers can likely benefit from more stable and predictable bills. A fixed charge pricing scheme acts like an equalized billing program in that it provides certainty, in at least the delivery portion of the bill, for budgeting purposes.

Greater stability and budgeting certainty should help low-income consumers since a significant number of Low-Income Energy Assistance Program participants cited either high heating costs or an unusually large bill as the reason for accessing the program.

Monthly Bill Statement	
Account Number:	000 000 000 000 0000 0
Meter Number:	0000000
<b>Your Electricity Charges</b>	
<b>Electricity</b>	
On-peak use: 300kWh @ \$0.10/kWh	\$30.00
Mid-peak use: 200kWh @ \$0.08/kWh	\$16.00
Off-peak use: 400kWh @ \$0.05/kWh	\$20.00
<b>Delivery</b>	\$37.00
<b>Regulatory Charges</b>	\$17.00
<b>Debt Retirement Charge</b>	\$6.00
<b>Your Total Electricity Charges</b>	\$126.00
H.S.T.	\$10.00
<b>Ontario Clean Energy Benefit (-10%)</b>	(\$14.00)
<b>Total Amount</b>	<b>\$122.00</b>

The current electricity bill presentation separates the commodity portion of the bill into Time of Use buckets in the Electricity section. Distribution monthly service charge and variable charges are totaled with variable transmission charges and presented on the Delivery line.

<sup>17</sup> Average cost is calculated from the 2012 Yearbook of Electricity Distributors as the class revenue divided by the number of customers in the class. There are reasons for the variation in average cost due to service areas and underlying costs. The lowest is Hawkesbury Hydro and the highest is Hydro One Networks Inc.

<sup>18</sup> The Gandalf Group, “Ontario Energy Board: Distribution Charge Focus Groups”, October 9, 2013, p 5.

### *Cost Drivers*

The current mechanism for recovery of the distributors' requirement for revenue contrasts with the typical drivers of those costs. Electricity distributors' costs of administration, maintenance, capital investment, asset amortization and rate of return are largely fixed<sup>19</sup> over the near term. The revenue required by a distribution company to operate its business and provide service for the year is predictable.

Work done for the Board in its establishment of the new rate-setting framework showed that the distributors' long-term planning horizon costs are driven largely by two factors: the number of consumers and the peak demand on the entire distribution system.<sup>20</sup> This work and its sources of outputs and business condition variables are discussed in section 5 of that report by Pacific Economics Group<sup>21</sup>. The conclusion was that “[c]ustomer numbers was therefore the dominant output-related cost driver, followed by peak demand followed by kWh deliveries.”<sup>22</sup> Based on further analysis, “...the updated cost model strengthens the finding that the main output-based drivers of power distribution cost are customer numbers and peak demand, with kWh having less quantitative impact.”<sup>23</sup>

Distribution systems have traditionally been built to serve consumers' load. To ensure that they are able to meet consumer demand reliably, distributors plan their systems to provide the necessary capacity. When an asset is close to the individual consumer like the meter or the line from the pole to the house, it is likely to be sized for that individual's use. When an asset serves more consumers, like the substation near the transmission connection or the wire leading from it, it is more likely to be sized to serve the total of the load for all the consumers that it serves. The sum of all of those loads is

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<sup>19</sup> Excluding extraordinary events such as major storms.

<sup>20</sup> Ibid, PEG Empirical Research, p. 48.

<sup>21</sup> Ibid PEG Empirical Research, p.48

<sup>22</sup> Ibid, PEG Empirical Research, p. 48.

<sup>23</sup> Ibid, PEG Empirical Research, p. 54.



what totals to the maximum demand on the system, also known as the system peak.<sup>24</sup>

Therefore investments in an electricity distribution system tend to come from:

- adding or replacing assets for individual consumers driven by customer numbers;  
or
- adding or replacing assets for system capacity driven by peak demand.

Under the current price mechanism the consumer is provided a signal that by reducing energy usage they may reduce the cost of distribution. This is not in line with the realities of the distribution system where the cost drivers are primarily numbers of customers and consumer peak demand with energy consumption being relatively insignificant. By providing a price that reflects the cost drivers, the Board links the consumer to distribution costs and therefore planning. Changing rate design to provide a more accurate price signal and greater certainty about costs of the service achieves alignment of consumer interest with utility interests.

The alignment of the price mechanism with the cost drivers for distribution creates a pricing system that is more efficiency focused and relies on cost causality: two important principles that underlie the rate design principles that the Board articulated in its previous work. When consumers focus on the costs that they can control, it helps the distributor focus on the costs that it can control. It addresses issues regarding consumer understanding and awareness, as well as stability of rates for consumers. There is currently only a very limited link between distribution system costs and the energy variable charge determinant in residential and small commercial class tariffs. Therefore, in terms of providing a cost signal, little is lost in moving from a kWh variable charge to a fixed charge. Linking the customer tariff to the distributor's cost driver fulfills the Board objective of aligning the consumer's and distributor's interests.

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<sup>24</sup> In cost allocation studies, this is also known as the *coincident peak*.

### 3.2 A Rate Design to Improve Distributor Efficiency

The period for the Navigant analysis is 2006 to 2011 and uses the information from the Board's Reporting and Record Keeping Requirements for distributors. Navigant found that both residential and small general service customer classes show an overall decline in throughput whether the data is weather normalized or not.<sup>25</sup> This is despite the fact that the average number of residential customers in the province increased over the same period.<sup>26</sup>

Nineteen distributors showed a statistically significant declining average use among residential customers from 0.25 to 1.2% per year over 6 years. Eight had a statistically significant increasing average use and 46 showed neither an increasing nor decreasing trend that was statistically significant. For small general service customers, 30 distributors showed significant declining average use, 11 were significantly increasing and 32 showed no significant trend. It is therefore important that any action the Board takes accounts for both the identified eventualities; increasing and decreasing average use.

This variation in distribution revenues caused by changes in use has effects on consumers and distributors that are contrary to achieving the Board's policy objectives.

As described in Chapter 2, the Board has required distributors to file integrated 5-year plans for capital investments to pace and prioritize asset management and system growth. It is the Board's view that those plans can best be implemented when the distributor has a stable, reliable revenue flow that is not impacted by variability due to factors that are not cost drivers.

The Board's performance-based regulation provides distributors with the ability to earn higher returns if they improve operational efficiency. As distributors experience

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<sup>25</sup> Op cit., "Navigant Analysis", Figures 1 and 3.

<sup>26</sup> Op cit., "Navigant Analysis", Figures 19 and 20.

increased volatility in throughput, there is potential for rewarding negative outcomes with respect to conservation. The results of the Navigant analysis indicate that a distributor's returns could increase solely by increased throughput instead of making gains in their own efficiency or helping consumers conserve. In fact, distributors that reduce throughput with consumer conservation or their own reductions would see a lower return and are potentially less able to finance necessary investments. The variation in revenues resulting from the current rate design works counter to the planned longer rate setting periods for distributors that is meant to encourage achievement of increased efficiencies and more investment planning certainty.

The current rate structure has a negative impact on the Board's efficiency incentive mechanism. The Board's objective with this mechanism is to encourage the industry to improve efficiency and increase productivity. Through these improvements consumers are expected to receive better service at lower potential costs. Changing the rate structure to one that does not rely on energy use will better align the revenue collection mechanism to the incentive mechanism which is designed to encourage the most efficient actions by distributors.

The Board has already implemented revenue decoupling to some extent for electricity distributors by providing a lost revenue adjustment mechanism (LRAM). This revenue decoupling mechanism has been designed primarily to address the disincentive for a distributor to promote conservation and demand management for consumers as a result of the current rate design that relies on consumption. This is a limited version of a true-up mechanism whereby the revenues are "trued" to what they would have been to protect the utility from an identified risk<sup>27</sup>.

The Board is concerned about the consumer acceptance of rate increases resulting from broader true-up mechanisms. Concern about subsequent rate increases due to

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<sup>27</sup> Through a hearing, the revenue foregone by the distributor from promoting conservation and delivering programs is determined and added to the allowed revenue for a subsequent year. Broader true-up mechanisms are usually symmetrical to 'claw back' windfall revenue from factors like severe weather.

true-ups could affect the consumer's decision to invest in efficiency. The Board sees increasing true-up levels beyond the current level of LRAM as a method to increase revenue decoupling to address concerns about net metering as inconsistent with a focus on the consumer.

### **3.3 A Rate Design for Regulatory Simplicity**

In the Board's view a price mechanism that relies on a fixed charge per customer connection to collect the revenue would allow for greater regulatory simplicity by eliminating the need for detailed kWh forecasts necessary for determining volumetric rates. Distributors (and therefore consumers) incur significant costs related to projecting consumption (load forecasts) and assessing impact of changes in consumption and their reasons (LRAM/CDM analysis). Substantial time is spent in rate hearings on whether or not the forecasts are accurate based on inputs and methodologies. When the primary forecasts are customer numbers for rates and capacity for system planning, producing evidence can be streamlined, hearing issues eliminated and the regulatory process refocused. This factor is true of all the proposals described in chapter 4 below.

In the case of conservation programs, revenue decoupling also eliminates the counter-intuitive awarding of higher distribution rates in order to offset the lost revenues associated with customer energy savings. Deferral and variance accounts that are required for true-up mechanisms between the revenue requirements and the reduced revenue received due to reduced throughput would no longer be required. These responsive funding mechanisms are not readily understood by customers and erode customer confidence in the credibility in the conservation programs.

### **3.4 A Rate Design to Support Public Policy**

The LTEP emphasizes conservation first in meeting future electricity needs. The LTEP recognizes that distributors are the face of electricity conservation for most Ontarians. It states that distributors will play a significant role in meeting the government's conservation agenda and will be provided the ability to meet conservation goals cost effectively.

A rate design based on fixed charges to recover the entire revenue requirement of certain customer classes supports the public policy objectives set out in the LTEP.

The LTEP has made energy conservation a primary tool for responding to increased electricity demand and to limit the need to invest in new infrastructure over the next 20 years. In the Board's view, a new rate design that will allow the sector to focus on conservation without needing to address potential lost revenues is necessary to support this policy direction. By making distribution charges more stable, consumers will be able to focus their decisions on the costs that vary primarily with use and time of use – generation. The Board expects that this will encourage consumers to focus on not only how much electricity used but also when to use it use. And they will be guided by a price signal that better reflects cost causality.

The government's policy also sets out the expectation that small distributed generation will be an important supply source and part of engaging consumers in the electricity system. In the LTEP, the government has envisioned a future where most small renewable distributed generation is being installed with net metering, where the power that the consumer does not need is transferred onto the grid and credited against the energy that the consumer uses that is supplied through the distribution system. Under the current rate design, increases in net metering would decrease distributors' revenue as consumers with onsite generation reduce their energy draw from the system. This is a problem that is being recognized in many jurisdictions where there have been

significant efforts to develop and expand distributed generation.<sup>28</sup> In 2006, the Board recognized the revenue impacts of a large uptake of net metering and limited the distributors' obligation to connect such generation.

The LTEP vision and concerns about financial integrity can be effectively addressed through rate design. A rate design that focuses on the fixed costs of the network system will ensure that consumers' decisions to engage in generation are guided by the correct price signals in terms of the costs of the system. Under a fixed charge for distribution, the consumer that installs generation will still be paying the necessary costs of being connected to a reliable system. This applies to their use of the system both to take their excess energy but, more importantly, to provide electricity when their generation is not operating. A properly designed fixed charge would nullify any impact the amount of distributed generation would have on a distributor's revenue stream and thus alleviate concerns about the financial impacts of greater net metering.

Currently, Section 6.7.2 of the Distribution System Code limits the amount of net metering that a distributor must accommodate to 1% of total peak load. This was to limit the distributor's exposure to revenue erosion.

### ***Board Policy***

The Board believes that a new rate design is needed to achieve the new regulatory and public policy objectives for the electricity sector. The new rate design supports and leverages new technologies available in the sector to better align with cost drivers and cost. By addressing the price mechanism the Board is able to address all of the objectives it has set out in a manner that will have long-term sustainability for the sector and provide greater stability for consumers. As discussed above the policy environment has changed since the Board first considered the issue of revenue recovery for

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<sup>28</sup> Borenstein, S., "Rate Design Wars Are the Sound of Utilities Taking Residential PV Seriously," SG Today, November 12, 2013.

distributors. In recognition of this new environment the Board intends to change the mechanism for revenue recovery to a monthly fixed charge rate design. The options for developing a fixed rate design solution are discussed in the next chapter.

## 4 Proposed Rate Designs for Revenue Recovery

The Board is considering potential rate design solutions that would achieve the objectives set out in the paper while linking the consumer's charge with the cost drivers for the distributor. These three proposals represent the spectrum of options being considered.

- **Proposal 1** – a single monthly charge which is the same for all consumers within the rate class.
- **Proposal 2** – a fixed monthly charge with the size of the charge based on the size of the electrical connection.
- **Proposal 3** – a fixed monthly charge where the size of the charge is based on use during peak hours.

Rate design to achieve revenue decoupling is not intended by the Board to change either the amount of revenue a distributor collects from a class or the cost allocations between the classes. In accordance with the Board's rate principle of class allocation of costs, the amount of revenue to be collected from each of the two affected classes (residential and small general service) should not change. Focus groups suggested that consumers see any change in rates or billing as an increase by the utilities.<sup>29</sup> This will be an important point of messaging for any consumer roll-out: the change in the way rates are charged is not about collecting more. Maintaining a strict class allocation of costs fulfills the Board's rate design principle of fairness.

The Board invites comment on any aspect of any proposal, and responses to the specific questions posed in this section. A sample *tariff*<sup>30</sup> for each proposal has been

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<sup>29</sup> Appendix B: The Gandalf Group, "Ontario Energy Board: Distribution Charge Focus Groups," October 9, 2013, p 8.

<sup>30</sup> A tariff is the combination of classes, rates and charges which a distributor uses to apply to the customer's measured use to calculate the bill. The Tariff of Rates and Charges is part of the Board



included in this discussion; it does not represent any particular distributor or an implementation position but is presented for illustration purposes only. To solicit stakeholder comments on a new rate design, the Board requested that Board staff prepare more detailed examples of each option which are attached as Appendix C to the Report. These examples are only illustrations for discussion purposes of how a new rate design might be constructed. The Board has not yet considered the detail of how either design might be implemented.

#### **4.1 Proposal 1: A single monthly charge for the rate class**

The simplest version of a fixed charge would be a single monthly charge which is the same for all consumers within the rate class.

A fully-fixed charge aligns the charge with a primary cost driver based on the analysis done for the Board - the number of customers. Since costs are most closely related to customer numbers, an argument can be made that moderate increases or decreases in customer numbers are linked to the costs for those consumers. A true-up for customer numbers would not be needed under a single fixed monthly charge. Because the Board uses a price cap IRM mechanism, small increases in costs due to increases in customer numbers are already provided for as part of the incentive mechanism. Very large swings in customer numbers may have the same effect as un-forecasted capital expenditures and might need to be treated the same way.

A tariff for a single fixed monthly charge might look like this:

<b>Residential Service Classification</b>	<b>Monthly Service Charge</b>
<b>Residential Customer</b>	\$25 per month

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Decision and Order in a rate case and can be found on the Board's website or requested from a distributor.

#### **4.1.1 Characteristics of a single monthly charge for the rate class**

##### *Consumer stability and understanding*

A single monthly charge provides the most consumer stability of all the proposals. The charge would not vary from month to month, reflecting the fixed nature of the assets and would vary from year to year only by the amount of the IRM adjustment under the price cap methodology used by the Board.

A single monthly charge is easy for the consumer to understand. It will help the consumer understand the cost of being connected and that distributor's short-term costs are largely fixed and do not vary from month to month based on energy consumption.

##### *Link to distribution planning*

A single monthly charge is tied to the most significant cost driver for the distribution system: customer numbers. With a fixed charge as the basis for revenues, the distributor focus will be on its own operational efficiency gains and the implementation of its 5 year capital plans because revenue is more predictably available for the execution on those plans. This should lead to greater certainty that the distributor's plan will be delivered in a manner that provides value to customers.

A single monthly charge is the simplest model and most straight-forward mechanism for recovering revenue that is intended to facilitate the distributor's intended activities which have substantiated the rates charged to consumers. The class revenue requirement divided by the forecasted number of customers in that class, billed monthly, provides a constant, reliable cash flow for the distributor. This will provide the distributor with a stable predictable cash flow with which to implement its capital and OM&A plans.

##### *Support for public policy*

A single monthly charge supports the LTEP by removing the distributor disincentive to promoting conservation and net metering since the distributor will not lose any revenue and therefore not be at risk of not delivering its approved distribution plan commitments.

It will allow distributors to focus on achieving both the government's conservation objectives and expectations for increased efficiency and savings for consumers.

Because of its simplicity, the single monthly charge approach could be implemented quite quickly.

#### **4.2 Proposal 2: Fixed monthly charge based on the size of the electrical connection**

Every consumer would have a fixed monthly charge with the size of the charge based on the size of the electrical connection to the distribution system. Each consumer has a capacity to draw power based on a combination of the connection voltage (V or kV) and the maximum current (amperage or amps) allowed through the electrical panel.

Virtually all of the low volume consumers are connected at less than 750 volts and the vast majority of residential consumers are connected at 120V. Therefore maximum current can be considered the measure of a low volume consumer's capacity to draw power. As a proxy for the size of connection, the rate design would use the maximum connection current in amps.

Distributors do not currently gather information regarding individual connections. One approach to implementing this Proposal would be on a go forward basis as new or rebuilt connections are made to the distribution system. An education program would be necessary to assist customers in understanding the rate design and how to determine their connection current.

A tariff based on maximum current for a Residential Service Classification might look like this.

<b>Residential Service Classification</b>	
<b>Maximum Connection Current</b>	<b>Fixed Monthly Charge</b>
<b>Less than or equal to 150 amps</b>	\$20 per month
<b>Greater than 150 amps but less than or equal to 250 amps</b>	\$30 per month
<b>Greater than 250 amps</b>	\$50 per month

#### **4.2.1 Characteristics of a fixed monthly charge based on the size of the electrical connection**

##### *Consumer understanding and stability*

A fixed monthly charge based on connection current provides consumer stability while also connecting with the consumer's expectations for delivery, i.e. the maximum demand they expect the distribution system to be able to provide. The charge would not vary from month to month, reflecting the fixed nature of the assets and would vary from year to year only by the amount of the IRM adjustment under the price cap methodology used by the Board.

A fixed monthly charge based on connection current would provide the consumer with the opportunity to make changes to their use of the system and hence change their costs. The consumer makes a conscious decision to choose a connection current on design of the premises and would have to make a further conscious choice to change that connection current in order to get a different grouping charge. It will help the consumer understand the cost of being connected and that distributor's short-term costs are largely fixed and do not vary from month to month based on energy consumption.

Under the current rate design, capacity is charged to all consumers within a class. Under this Proposal, a greater share of the costs are borne by the individual consumers who have larger connections. This is a fairer outcome.

*Link to distribution planning*

A rate design based on consumers' connection current could influence consumers to reduce their connection capacity. This pricing would also be signal to developers: customers would be aware that new homes with high connection current would pay higher monthly electricity bills. This in turn would encourage the "right sizing" of connections and lower the distributor's requirements, minimizing new infrastructure costs. To influence purchasing decisions, new buildings could be certified by something like the LEED<sup>31</sup> program or some other labeling program for efficiency. Like building codes and product standards, this is relatively easy to implement.

*Support for public policy*

Proposal 2 would remove the distributor disincentive to promoting conservation and net metering. Distributors will be able to focus on achieving both the government's conservation objectives and expectations for increased efficiency and savings for consumers.

Using connection current will encourage consumers to "right size" their connection. A consumer deciding on new appliances or uses would need to consider the effect that it would have on power use, grouping and electricity bills. Efficient equipment and lowered use would have a quantifiable payback beyond the avoided commodity costs.

### **4.3 Proposal 3: Fixed monthly charge based on use during peak hours**

Under Proposal 3 there would be a fixed monthly charge where the size of the charge is based on use during peak hours. At the end of a rate period, a consumer's use would be evaluated compared to the other consumers in their class. This would require the distributor to evaluate each consumer's peak usage against the class. If the consumer's peak use was substantially lower than the class average, they would be

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<sup>31</sup> Leadership in Energy and Environmental Design

assigned to the lowest use sub-group with the lowest charge. If their peak use was substantially higher than the class average peak usage they would be assigned to the highest use sub group and the highest distribution rate. Finally if the consumer were substantially the same as the class average they would be assigned to the middle group.

The fixed monthly charge based on use will require an annual reclassification process for all low volume consumers which may give rise to consumer concern. The communication message to consumers for reasons and benefits of the fixed rate with sub-groups approach will be much more complex than for a single fixed monthly charge.

The calculation of what those fixed charges should be for a rate design based on use may be more complex depending on the methodology used. See Appendix C for more discussion on different methods for calculating charge.

A sample tariff for a rate based on grouping consumers by peak use might look like this.

<b>Residential Service Classification</b>	
<b>Total of Peak hourly use in June, July and August</b>	<b>Monthly Service Charge</b>
<b>Lowest 20% of users</b>	\$20
<b>Middle 70% of users</b>	\$25
<b>Highest 10% of users</b>	\$35

#### **4.3.1 Characteristics of a fixed monthly charge based on use during peak hours**

##### *Consumer understanding of costs and tools to manage the bill*

A fixed monthly charge based on peak use provides consumers stability during the rate period. It also connects the distribution charges to the consumer's use of the system. The charge would not vary from month to month, reflecting the fixed nature of the

assets. It would vary based on the consumers peak use in comparison to the rest of the consumers in the rate class and by the IRM adjustment under the price cap methodology used by the Board.

A fixed monthly charge based on peak use would provide the consumer with a price signal regarding the use of the system and the opportunity to make changes to their use to affect their bills. Customer acceptance would be enhanced if the “peak use period” were aligned with the TOU peak period as focus group feedback shows that consumers do have a good grasp of TOU pricing.<sup>32</sup>

Given the extra complexity of this proposal, it will be important that distributors help their customers manage their distribution costs through ongoing customer engagement. Messages through the bill or other means can assist the customer in creating greater awareness of the peak period, their standing relative to other customers, and actions customers can take to reduce peak consumption. As the customer’s distribution rate will depend on their use relative to other customers, the rate design also supports social benchmarking of electricity use.

#### *Link to distribution planning*

Peak hours and peak season are the link to the cost driver of peak demand for distribution systems. Basing charges on peak hours and peak season sends the price signal to the consumer that is the link to the long-term cost driver. By focusing the consumer on the distributor’s cost drivers, the new rate design would align the interests of distributors and consumers and bring the low volume consumer into the planning cycle of the distributor.

By valuing peak use and encouraging off-peak use, the new charges could encourage optimum use of the system, one of the Board’s principles for rate design

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<sup>32</sup> “Most in the groups said they had embraced [TOU] pricing habits. They were aware of whether peak pricing impacted or benefited them or how they had changed their habits to conserve.”The Gandalf Group, “Ontario Energy Board: Distribution Charge Focus Groups”, October 9, 2013, p.5.

*Support for public policy*

As discussed, the LTEP has emphasized the importance of conservation, both energy and demand. A fixed rate design that includes a peak use component will encourage consumers to consider how they use the system. If aligned with TOU peak pricing, it will encourage additional savings in generation and transmission infrastructure.

As with the other proposals, this proposal would remove any disincentive for the distributor to encourage conservation and net metering. This proposal would also particularly encourage net metering that reduced the customer's consumption during the peak period, as it could lead to a lower distribution charge.

#### **4.4 Summary and Questions**

The Board has proposed three different methodologies along a spectrum for setting fixed rates for low volume consumers: a single fixed monthly charge for the customer class or a fixed charge for subgroups based on peak use or connection current.

Stakeholders are invited to comment on these methodologies and on the following questions.

How would the different approaches affect achievement of the Board's goals of: providing stability and predictability to consumers on their bills; enhancing consumer literacy of energy rates; providing consumers with tools for managing their costs; focusing distributors on optimal use of assets and improving productivity; removing or reducing regulatory costs; and supporting public policy?

Should distributors be allowed to choose which method they will use or should it be consistent across the province?

What are the implementation issues that the Board should consider for each methodology regarding timing and consumer impacts?