

# **Rate Design for Recovery of Distribution Costs: Staff Discussion Paper**

## ***Executive Summary***

One of the rate-setting initiatives set out in the Ontario Energy Board's 2007-2010 Business Plan is a comprehensive electricity distribution rate design review. This review is intended to consider the need for, and approaches to, changes to distribution rate design in light of industry changes and emerging issues. These rates are concerned solely with recovery of distribution delivery costs and not related to commodity costs or transmission delivery costs.

The purpose of this staff Discussion Paper is to elicit stakeholder comment for input into staff's further work in formulating policy proposals for the Board members to subsequently consider.

The Board has articulated the principles by which it will judge potential rate designs. Within its legislated mandate, the Board considers it important to address three areas:

- full cost recovery for the distributor;
- fairness to customers; and
- efficiency for static and dynamic use of the system.

The Board considers that these three embody all the principles commonly referenced in rate design.

This project has been undertaken primarily because the widespread implementation of smart meters in Ontario will mean that some of the assumptions and proxies used in the current rate design are no longer

necessary. This affects all areas of the rate design including the rate classifications and the potential use of billing determinants for variable rates.

Throughout the paper, Board staff discusses options without making recommendations and requests stakeholder comments. In particular, while acknowledging that long-run costs of a distribution system are variable, Board staff questions the connection to a variable rate within the rate setting context. This leads to a discussion of the pros and cons of high fixed charges and high variable rates for all rate classes.

Based on an examination of smart metered data from customers of an Ontario distributor, Board staff discusses, as an alternative to the status quo, rate classifications based primarily on costs as driven by assets used. Within each class, Board staff discusses options for rate design. Included for discussion are several additional classes that may or may not be cost justified.

From a technical standpoint, a distribution system can be divided into several levels based on functionality. In taking power from the transmission system, the distributor may choose either to have a 3-wire (i.e. without an integrated neutral) sub-transmission system or to step down from the transmission system directly to a higher voltage 4-wire primary distribution system that can be used to supply all classes of customer. Based on historical development of the distribution system, the primary distribution system may have several different voltages.

For residential and many small volume customers, distributors supply power to the customer at the customer's utilization voltage level (< 750 V). Customers served from the sub-transmission or primary distribution systems typically take power at three-phase. Customers that are served from the secondary system can be either single-phase or three-phase.

**Secondary one-phase class** customers would be those served through the secondary low-voltage system. Although a residential class must be maintained because of legislated distinctions, it could have the same design and rates as the equivalent general service customers. Options include a fully fixed rate or a fixed customer charge with a variable rate based on capacity, demand or time-of-use energy consumption.

**Secondary three-phase class** customers are those served through the secondary system but at three phases and at a higher voltage. Options include a fully fixed rate or a fixed customer charge with a variable rate based on monthly peak demand or an annual peak demand as a proxy for capacity.

**Primary class** customers are not served by secondary system assets. Options include a fully fixed rate or a contract capacity and demand based variable rate.

Not all distributors would have a **sub-transmission class** where customers are served directly from three-wire lines, however staff feels that the cost differences involved justify a separate class where applicable. The rate design would likely be the same as the primary class.

There are several other customer groups whose unique cost-to-serve may also justify a distinct class or a sub-class of one of those already identified.

**Embedded distributors** currently have a fully variable demand rate. It may be more appropriate for them to cease to be a distinct class and be considered members of whatever class is associated with their connection and usage.

**Load displacement generators** are considered in light of their position as highly variable loads within the distribution system. Broader issues concerning distributed generation are being examined in other processes or later in this one. Staff discusses several alternatives for recouping the cost of service for load

displacement generation including fully fixed rates; a capacity based charge; and time-of-use based rates.

**Unmetered scattered loads** are those that are uneconomic to meter, are geographically diverse and often have a highly predictable load profile. Options for rates include a fully fixed charge per connection or per account or a fixed monthly charge per connection or per account with a variable rate based on demand.

In consultation, stakeholders introduced the concept of **metered scattered loads** where the load is metered but there is a single account holder with a single bill. There may be a justification for considering them to be one account depending on the costs of services rendered.

Revenue recovery associated with distribution system losses was added to the scope of the project after the initial staff discussion paper. The link between technical losses and system loading is well understood and with the implementation of smart meters will be more easily measured. Currently, averaged losses are charged through a set adjustment to commodity charges. It may be possible with new metering data to put the costs of losses more closely on customers causing them.

The next steps in this process are to receive comments from stakeholders on this discussion paper. Board staff will review all of the information provided and a subsequent paper will be issued which will review the design of electricity distribution rates, including standby and distributed generation rates. At a point in the future, the Board will approve, on a selective basis, rates to reflect the conclusions set out in the Board policy paper. Widespread implementation for the new distribution delivery rates is not expected until after the full roll-out of smart meters in the province after 2010.