# Rate Design for Electricity Distributors

**EB-2007-0031**

## *October 17, 2007 Consultation Meeting Notes*

These meeting notes are intended to provide people who did not attend the session with some of the information that resulted from participant discussions. The headings follow the agenda items. Not all discussion is reflected. They are not formal minutes.

## *Introduction and Project Overview*

The Board made changes to the project scope as a result of the stakeholder submissions on the Staff Discussion paper. A number of questions from the participants sought clarification on the scope. Staff confirmed for Veridian that an input assumption of the project is that smart meters will be implemented on a widespread basis. The Federation of Ontario Cottagers' Association (FOCA) reminded the group that when rates were originally unbundled a discontinuity was identified at the boundary of the under and over 50 kW of demand rate classes. The Board promised to revisit the issue and this project is the first process to do that. Staff confirmed that, in addition to the Board's specific consultation on distributed generation rates, the long term approach to the issue will also be addressed in this project. Staff confirmed to Energy Probe that the Board has given direction that distribution rates are to be based on distribution costs rather than the entire electricity supply-delivery chain. Staff confirmed to Pollution Probe that the Board had rejected a strict, economic approach to rates based on marginal cost in favour of using information on the causes and amounts of incremental costs in establishing the rate model.

## *Context of the Rate Design Review*

In discussing drivers for the rate design project, FOCA stated that further consolidation of the sector could be expected and that fewer distributors would affect some of the practicality issues. Veridian noted that, when considering the interpretation of public interest, consumers and public officials are interested in prices. The Bonbright principle of acceptance of rates implies sensitivity to public perceptions on fairness.

Waterloo North Hydro noted that the basis of rate classes should be considered very carefully to avoid the kind of boundary issues that arose under the initial

unbundling. FOCA suggested that the option of declining block rates rather than a fixed/variable structure would avoid boundary issues.

VECC reiterated that the scope of the project is that distribution rates should be based on distribution costs.

In discussing the emphasis on a culture of conservation and the role of the distributor in providing conservation and demand management programs, EDA noted that revenue stability for the distributor is important. Distributors' revenues are eroded when use of the variable rate component falls. i.e. when residential kWh use declines or GS peak demand falls. Veridian noted that the Board's definitions of efficiency should be about efficient use of the system, not just a lowering of use of the system. Load shifting may be as important or more important than overall conservation. CCC noted that an objective is a distribution rate that encourages or at least doesn't discourage conservation.

Elenchus noted that the widespread use of smart meters provides benefits for rate design. Load research is much improved because of the availability of hourly data from many more consumers than has ever been possible before. This means that definitions of customer classes can be much more tailored; and assignment of customers to those rate classes can be based on much better data. The rate model that is being developed by Elenchus can be used to try to identify boundary issues in potential rate designs if we can get specific customer data to back it up.

Veridian warned that we must take care not to make too many assumptions about the technology that will be available to customers. Rates should not be in advance of the spread of technology or customers' ability to respond. Elenchus agreed that customer response rates may have to be studied but pointed out that potential rate impacts in the short term may be mitigated in the long term through customer response. There is a link between rate complexity and consumer education. Customers may be helped to understand rates that seem initially to be complicated. AMPCO stated that customers may be able to understand more complex rate structures than we expect. For example, the project must consider demand charges where costs are demand driven.

Energy Probe noted that smart meters will allow service interruptions to be quantified for number and duration. For example, load research may give new information on quality of service and distribution responses. A distributor could have a designer rate based on reliability and the measure will be available on a per customer basis. Waterloo North Hydro noted that encouraging reliability is not within scope of the rate design but is part of incentive rate-making and the service quality standards established as part of setting the revenue requirement.

FOCA suggested that smart meter costs may not be properly allocated in that they have been allocated to fixed charges. Elenchus noted that allocating meter costs to the fixed charge is common in cost allocation methodology.

## Distributed Generation

Waterloo North Hydro noted that costs for distributed generation depend on the services provided. Some distributed generators have poor power factor control and are not staying within contractual limits. Power factor must then be corrected to protect the other customers on the system. Other participants pointed out that some distributed generation sites seem to increase losses on the distribution system. Distributed generation is generally considered to reduce losses because of a reduced need for transmission and introduction of counter flow. Distributed generation customers may need to have specialized loss charges for the different losses caused. Veridian suggested that where distributed generation provides reliability benefits to the distribution system, locational charges or credits should be considered. VECC raised the question as to whether those locational considerations would be better addressed through ongoing rates or one-time connection charges. Waterloo North Hydro also raised the issue of how to encourage distributed generation to locate where it would defer distribution capital investments.

Energy Probe questioned whether smart meters would mean that power factor rates for smaller customers would be possible. Many participants replied that smart meters do not provide power factor readings. Using power factor as a billing determinant is still technically possible only for larger customers with appropriate metering.

## Efficient price signals

Elenchus explained what was meant in the slides by “Efficient billing determinants in aggregate”. i.e. trying to use distribution rates to correct or offset pricing errors in other parts of the supply chain.

VECC pointed out that distribution companies around Ontario are in very different situations: some are growing, some are shrinking and some are relatively stable.

Canadian Niagara Power suggested load factor as a billing determinant.

Many participants noted the tension between incentive (price signal) and cost drivers. The cost drivers for distribution systems and companies are not necessarily aligned with conservation objectives. FOCA pointed out that the transmission rates do not include a fixed portion and stated that fixed charges encourage wasteful consumption and discourage energy conservation. In FOCA’s opinion, conservation price signals are more important than the need for revenue stability for LDCs. AMPCO stated that the measure of efficiency

depends on the definition of what is being made efficient. Policy goals may influence the view of efficiency as well as measures of cost. FOCA felt that the RPP tiered pricing methodology is an example of policy trumping cost since the incremental unit costs less to provide. However, the EDA pointed out that RPP is strictly commodity pricing and the higher priced tier represents the assumption that the customer who is consuming more is doing so at peak or higher priced times.

## *Review of Rate Design Issues and Options*

The participants discussed and prioritized the options for the issues from the staff paper. Each section represents the views of a particular breakout group.

### Rate Design principles

The context is the unbundled industry sector and distribution only. Some participants questioned the low priority rank given revenue stability by the Board. The group noted the conflict between revenue stability and initiatives to promote CDM. Relieving distributor conflict regarding revenue decline would encourage distributor promotion of CDM.

### Billing determinants

The new technology is an enabler. Smart Meter regulation limits where they can be installed (i.e. not over 50 kW demand customers). A capacity demand determinant would add value for small customers but not for large customers. Others noted that the Electrical Safety Authority prescribes what residential connection is allowed and customers have little choice.
Currently some customers are billed on kW and some on kVA. Technology could allow kW billing but we don't understand what that it would mean for residential customers. The model may help identify impacts and materiality.
A ratchet mechanism can increase revenue stability on a month to month basis. Costs are largely fixed and don't vary much.

### Rate hamonization

Implementation is problematic. There is some interest in small scale pooling for controlling regulatory burden among smaller utilities. It could provide risk mitigation for one-industry towns by sharing burden or risk over the pool. There would have to be ways to manage the risk of distributors gaming in the forming and maintaining (opt-in/opt-out) of the pool. On formation, the homogeneity of the group would be important to avoid rate shock for customers.

### Customer classification

Options:

Status Quo

Load characteristics including: coincident peak demand; power quality; customer peak demand; or energy, (High priority)
Distance and/or density
Special needs (Low priority)
Metering: unmetered load and bulk metering are realities that have to be dealt with when considering this option.
Service voltage (High priority)

Watch for consistency across distributors.

## Interruptible sub-classes

Options:

There are some distribution benefits (avoided costs) in some areas
Customer class discount at the option of the LDC
Targeted where there are benefits
Make it an efficient mechanism for avoiding distribution costs
Interruptible rate for distribution. Is it appropriate to integrate with supply and transmission programs?

Are there issues with the LDC deciding on system benefits regarding offer to the customer?

## Charging for losses

Options:

TOU (High priority)
Distance and/or density by class
    Look at different losses for different rate classes
Voltage
Look at true losses rather than average
Losses not attributable to the distribution system could be treated differently than upstream distribution losses
Status quo

## Consistency of rate design

Rate design will drive the customer classifications.
The principle of consistency is good.
Consistency in terms of determinants and bill structure
Consistency in design of rate structure but not the actual rate
Consistency in rate structure helps customer acceptance especially for those that move from one system to another.
Establish a consistent framework and handle regional differences through rate riders
Variable usage based on last year's usage.

## Fixed/variable split

Options:

Demand ratchets
Capacity charges that are 100% fixed could still drive conservation
Demand charge
TOU energy rates instead of demand
Fixed/variable percentage could differ by rate class
Capacity is problematic for small customers

Getting to ultimate goal may take several years in order to mitigate rate shock.

## Generator Use of System Rates

Options:

Distributor encourage siting where there are benefits.
Revenue/cost revenue of 1.0 but factor in future expected diversity.

- Current subsidization for future benefit.
- Or extra charge until benefits materialize.

Socializing connection costs through uplift by OPA.
Rates that reinforce contractual requirements to maintain power factor and power quality: incentive and/or penalty.

Generally distributed generation issues will require intensive discussion and investigation.