Ontario Energy Board Draft Report – Rate Design for Electricity Distributors (EB-2012-0410)

APPrO submission on rate design and revenue decoupling for distributors
June 10, 2014

Relationship to parallel submissions

This submission focuses on the function of standby charges that could be applied to customers of electricity distributors in Ontario, depending on the regulatory policies and rate designs that are in force. This submission covers a relatively limited set of issues, and is intended to supplement the associated master submission, prepared jointly by APPrO and CanSIA, which covers rate design and revenue decoupling points more generally.

Background

Standby rates are charged to customers of Ontario distributors hosting generation in some cases. Because there is such great diversity amongst distributors as to when standby rates are applied and how the rates are structured, the Board has sought to clarify the issue and establish principles. In addition to the present proceeding on revenue decoupling, APPrO was active in two proceedings on the subject in recent years:

- OEB Proceeding on Standby Rates (LDGWG) EB-2013-0004; and
- Distributed Generation: Rates and Connection Board File No.: EB-2007-0630.

Standby rates may be applied to any kind of generation supplying power and/or displacing load used by any kind of customer connected to an electricity distributor. However, the most common examples in Ontario fall into two main categories:

1. Gas fired on-site generation, with or without heat recovery; and
2. Solar PV (photovoltaic) installations.

Both of the above technologies are likely to assist with the achievement of Ontario's policy objectives and have the potential to reach significant scale and numbers even when installed exclusively behind the customer's meter.

Why Standby Rates are an Issue of Critical Importance

There is a growing consensus that, for reasons of technology change and economic efficiency, the power system is likely to evolve into one with many more points of supply and intelligent controls. Therefore, distributors will need to adapt their systems in order

to accommodate greatly increased capabilities for power management by their customers and increased amounts of two-way power flows.

The evolution of power systems at the distribution level will more increasingly involve integrated solutions incorporating combinations of CDM, generation, emerging technologies (e.g., storage, etc.), electric vehicles, power quality services, and intelligent interface and control technology, often in a micro-grid configuration of some kind. Further, aging electrical infrastructure will need to be replaced and other drivers such as urbanization and climate change will also drive changes to power system.

Even though generation is relatively capital intensive when compared to other power system resources, distributed generation is becoming more economical. Therefore, the benefits of distributed generation need to be properly assessed versus all other resource options. For example, distributed generation that is developed in effective locations on respective distribution systems will reduce the energy draw from the transmission system, particularly at times of peak demand and system constraints. Having methods and tools appropriate for assessing these and other benefits will therefore be increasingly important for distributors in making decisions about distribution asset maintenance and new investments, especially considering the new requirement for distributors to prepare five-year capital plans.

In order to facilitate the full range of resource development options and opportunities to effectively serve electricity customers, it is important that the development of economical distributed generation not be impeded by uncertainty over the applicability or calculation of standby rates.

Clarification on standby rates

The Board's draft report on rate design regarding revenue decoupling as applicable to low volume electricity customers is silent on the issue of standby rates for distribution customers hosting generation. Because the report says that "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," it appears that the Board believes that standby rates will be unnecessary once fixed charges are implemented in Ontario. APPrO would appreciate receiving clarification of the Board's view on whether this interpretation is correct.

To the extent that customers hosting new generation cause distributors to make investments which benefit generators, and which are not covered by generators' connection costs, there may be a basis for a very limited type of charge that resembles a standby rate in a fixed charge context – if and when there is a robust system established for assessing the other side of the coin – the benefits of those investments, in a comprehensive and balanced way.

The implications of using a fixed rate design during a period of potential transition

The move to a fixed charge design has generation-related implications for the system as a whole for three kinds of reasons:

1. Fixed charges can be designed in ways that are beneficial, neutral or negative for customers hosting distributed generation. The detailed design of fixed charges may directly facilitate or impede customer-driven investments in generation, efficiency and/or power quality.

2. The application of fixed charge solutions will likely cause some distributors to adjust their capital plans and associated rate applications because they won't be have the same kind of concerns about volumetric energy consumption risk. This can impact generators because it may mean adjustments to standby rates, rate-basing or cost-sharing of certain generation-enabling infrastructure investments, and possibly because it could lead to later adjustments in cost allocation.

3. As a result of the move to fixed charges, the competitive affiliates of distributors may become interested in partnering with, or facilitating investments by, its customers on projects that have a generation component. The use of fixed charges makes it possible for distributors to transition from a business model focused on distributing energy at least cost, to one of maximizing value for customers, often through network enhancements that would not be justified under a straight distribution-at-least-cost business model.

It is possible that significant amounts of distributed generation, CDM, storage and intelligent system controls will increasingly penetrate distribution systems. As a matter of prudency, it is important to ensure that distributors are prepared for any applicable implications.

Because distributors will likely need to plan to replace aging assets, upgrade infrastructure, and enhance their systems to recognize their customers' needs for greater use of intelligent communication and two-way power flows, they will need the ability to systematically assess alternative upgrade proposals and different resource options (e.g., distribution equipment, generation, CDM, etc.) with proper consideration to their differing benefits and not just their costs.

The determination of which investments are appropriate for a given distributor will in many cases receive its most complete assessment during a rate application proceeding. At the same time, if there is any form of standby rate remaining in a fixed charge environment, it will also be considered during the same rate application proceeding. Considering that the pressures for bypass in the future may become substantial, it will

be more important than ever for distributors to effectively calculate the costs and benefits of all resource options to meet their customers' needs.

The combined effect of these developments, in APPrO's view, leads to the conclusion that distributors will almost certainly require new tools and techniques to ensure they meet rising expectations associated with the fixed rate charge design and the assessment of benefits related to network enhancements, in the context of growing capital pressures, and a period of structural change in the industry. One of the key components of these analytical capabilities will be the ability to assess upstream benefits on a societal basis.

In 2012, as part of APPO's joint submission with other generator organizations on the RRFE Phase 1, the Generator Co-ordination Group proposed that the OEB establish a method for assessing benefits of distributed generation. Please see Appendix 2 for further information on the proposed method.

In summary, the traditional purposes of rate design take on added importance and new challenges when facing a period of potential industry change. With an increased risk of bypass, it will be important for distributors to have robust and consistent cost-benefit analysis capabilities that effectively optimize selection of resources to be maintained and/or developed in conjunction with the move to fixed charges.

Consistency in the Purpose of Standby Rates, Considering the Diversity of Distributors

Stakeholders working with the Board during the Load Displacement Generation Working Group (LDGWG) proceeding in 2013 learned about the many different types of standby charges currently used by distributors in Ontario. The rates were highly diverse reflecting the very different circumstances that exist. It became apparent to generators as a whole, and to many in the LDGWG, that no single rate structure would be effective at meeting the needs of all the distributors and their customers hosting generation. However, there is a need for consistency and predictability.

It was for this reason that APPrO proposed at the time the need for a set of framework principles, starting with clarifying the purpose of standby charges. The primary and perhaps only purpose of standby charges is to recover the costs that are directly attributable to distributors providing standby service to the relevant LDG customer, net of benefits. APPrO believes that consistency in this regard is important, while strict uniformity in the design of such rates is likely to be counterproductive, considering the great differences amongst distributors in their physical circumstances when accommodating customer initiatives like distributed generation.

For further information, we would reference one of APPrO's submissions to the OEB Working Group on Load Displacement Generation, "Proposed principles for Load

Displacement Generation standby charges in Ontario," June 21, 2014, a copy of which is included as Appendix 1.

In a system with full revenue decoupling, not only would distributors be largely unaffected by load reduction due to CDM, but they would be similarly unaffected by load reduction related to self-generation. Therefore, with full revenue decoupling there should be no need for standby charges related to generation. That is, distribution costs for serving customers will be covered through fixed charges under the Board's fixed charge proposals applicable to low volume electricity customers, in combination with the other rates and charges applicable to higher volume customers.

Detailed implementation concerns in the design of a fixed charge

The benefits to customers of having distributed generation, CDM, storage and micro-grids on their distribution network will vary widely depending on a number of factors. In a situation where there is a large number of distributed generators connected, the net benefits will be higher because of technical and locational diversity. It will therefore be important for distributors to have the ability to assess net benefits based on the degree of diversity. As mentioned above, such assessments of benefits will affect what is included in the distributors' rate base, whether standby charges are considered necessary, and ultimately the level and design of fixed charges.

As the number and diversity of generation sites increases on a distribution network, the adverse consequences related to an outage at any one generator decrease. In this context, it is important to stress that the ultimate design of a distributor's rates and charges should systematically consider the full range of costs and benefits to the system. In this regard it will be important to ensure that the system of rates and charges:

a) Does not unduly penalize a customer for a year or more as a result of a single outage when a generation facility was off-line for planned or unplanned maintenance. The diversity of generation and load on a system, along with the benefits of having customer-driven initiatives in operation, make it unnecessary to treat such incidents, for the purposes of customer billing, as equivalent to achieving new peak levels of demand.

b) Does not impose costs on customers with generation in a way that effectively amounts to gross load billing.

APPrO would also recommend that a mechanism be defined for managing and resolving disputes between distributors and customers with generation. This would help to deal with the potential for differences of opinion with respect to costs that are included in rates or charges applicable to customers hosting generation.

The Potential for Fixed Charge Mechanisms Achieving Multiple Objectives

Revenue decoupling, through fixed charge mechanisms as proposed by the Board in their draft report, stands to address multiple objectives:

1. Assuring full revenue recovery for distributors;

2. Achieving more efficient use of resources through more accurate price signals related to the cost of infrastructure and energy services;

3. Enabling distributors to initiate their own projects in load reduction and generation, or to collaborate with partners in doing so, without concern about detracting from the financial viability of the wires company; and

4. Facilitating public policy objectives related to increasing penetration of CDM, self-generation and emerging technologies (e.g., storage, etc.).

For these reasons APPrO is generally supportive of the move to fixed charge solutions, assuming appropriate safeguards are in place to ensure no adverse impacts on customers hosting generation, and as mentioned in the joint submission with CanSIA, appropriate forms of Proposal 3 for structuring such charges is preferred.

APPrO appreciates the opportunity to share its perspective on these questions and looks forward to further discussion with the Board and other stakeholders.

Appendix 1

APPrO submission from the OEB LDGWG (Load Displacement Generation Working Group) consultation of June 2013

Proposed principles for Load Displacement Generation standby charges in Ontario

June 21, 2013

The following principles are intended to summarize a number of recent discussions hosted by APPrO with selected stakeholders concerned with Load Displacement Generation (LDG) in Ontario.

Distributors are to be kept whole

First of all, there is general agreement amongst generators that rates and charges should keep distributors whole as a result of changes made to accommodate customers with generation. Local Distribution Companies (LDCs) are pass-through agencies that should be able to recover all their costs, net of the benefits that Load Displacement Generation (LDG) provides. Electricity distributors should also have incentives to operate as economically as possible and to build assets as economically as possible, which includes systematic consideration of the potential economies available through prudent connection of generation.

Consistent principles and standardized methods are preferred over a standard rate design

There is a need for province-wide consistency in the principles used for the design of standby rates and charges. There is also a need for standardization of methodology in key areas such as techniques for estimating major costs and benefits that can't be precisely calculated. And finally there is a need for a well-defined regulatory approach within which standby rates and charges are applied. However, there is no need for standardized design of the actual standby rates or charges that are used across the province.

In many cases the application of standard rates for standby service will be unusually sub-optimal, either because of a lack of homogeneity between members of the sub-class or because of highly site-specific circumstances. (For example, two generators with highly different impacts on the system being charged the same rate would lead to significantly distorted incentives in both cases.)

Principles

The following key "framework principles" should be part of the regulatory framework for the design of standby charges and rates:

a) The purpose of standby charges is to recover the costs that are directly attributable to the LDC providing standby service to the relevant LDG customer, net of benefits. The purpose of standby charges

does not include the prevention or discouragement of load reduction. Other mechanisms are or should be available for distributors to manage the risk of load reduction.

b) Regulatory arrangements should ensure that distributors are in a position where they are able to facilitate and/or embrace new technology, and not be in any way threatened financially because of customer initiatives, even if the initiatives are likely to result in long term load reduction.

c) Standby charges or rates should not be mandated across all distributors in Ontario. It should be up to the LDC, in the context of its particular circumstances, to decide if standby rates or charges are necessary, and to determine the most appropriate rate or charge design for its circumstances (as long as the design reflects Board-approved principles) and to include the rates or charges in its regulatory applications.

d) The actual costs of specific equipment related to serving an LDG customer must be clearly disclosed by the distributor before preparing a standby charge or rate. If precise figures are not available, then an approved estimation method should be provided with full supporting details. Any cost calculations should also account for diversity of LD Generators and contingency built-in to distribution system assets.

e) The full range of benefits resulting from an LDG project must be comprehensively assessed and disclosed before the actual cost of common assets charged to generators can be properly quantified. If precise assessment is not possible then an approved standardized estimation method is necessary.

f) There is no need to predetermine in all cases whether LDCs should use site-specific cost allocation for standby charges or standard rates with class averaging for costs. LDCs should have the freedom to design their own rate structures and/or charges for providing standby service to LDG customers, as long as the charges respect the following "rate design" principles:

1. Ensure that the LDG project isn't unreasonably subsidized by other ratepayers or the utility, considering all costs and benefits. (Conversely, ensure that the LDG project isn't unreasonably subsidizing other rate-payers or the utility, considering all costs and benefits.)

2. In no instance should an LDC's LDG standby charges in total exceed the charge that the LDC would impose on a standard load customer (i.e. gross load billing at the distribution level).

3. Standby charges should not have the general effect of operating as a barrier to self-supply that is otherwise economically attractive as judged by the LDG customer. (This statement is not meant to suggest that there should be no standby charge in marginal cases where the application of a standby charge would by itself make a project non-viable.)

4. The variable (i.e. operation and admin) components of standby rates or charges should be reasonable and proportionate to operating and admin costs for other kinds of connections.

5. Once set, standby rates should not be subject to material changes in cost to the LDG (other than, for example, CPI adjustments) during the term of financing a project, usually 15-20 years.

6. LDCs should ensure that one of the options available to an LDG customer is to contract for a maximum load, and be charged a standby rate or charge on the basis of that contracted maximum

level, rather than on the full gross load. Financial penalties and load limiters can be deployed to ensure there is no "cheating" i.e. going over the contracted level.

7. No standby charges or rates should be applicable to small LD generators below a minimum breakpoint of approximately 1 MW. Although the design of standby charges or rates applicable to larger LDG projects (5 MW and over) where such charges are deemed necessary at all by the LDC, do not require any form of standardization and should be flexible enough to reflect site-specific circumstances, the standby charges or rates applicable to smaller projects (under 5 MW but greater than 1 MW) may appropriately be standardized using rules of thumb, to reduce complexity. Such charges or rates should be proportionate to the charges or rates applicable to an average of larger LDGs in similar circumstances.

8. A further principle can be used to ensure that standby charges continually encourage efficient operational decisions. Without compromising the above principles for setting the basic amounts of standby charges and rates, LDCs should also implement any standby charges in such a way that generators are motivated to operate more during peak hours, and to curtail production, if they choose to do so, during off-peak hours. This benefits the entire electrical system, reducing both capital and operating costs.

The above statement was prepared by APPrO as a summary of views expressed by stakeholders consulted in April and May 2013. Although it is a fair reflection of the general viewpoints, individual members of APPrO set their own policies independently and may differ on points of detail.

For more information, please contact APPrO at:
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Appendix 2

A Proposed System/Societal Cost-Benefit methodology (SSCBM)

As submitted by the Generation Co-ordination Group to the OEB proceeding on the Renewed Regulatory Framework for Electricity, May 4, 2012.

1. GCG suggest a system and societal cost-benefit analysis methodology that addresses the following concerns and achieves the following objectives.

2. The planning processes affecting the development of electrical infrastructure in Ontario are likely to be extremely varied and subject to change. In some cases a distributor's capital plan may be the driving force, whereas in other cases co-ordinated efforts amongst neighbouring distributors may determine the course of major investments. In certain locations a regional plan may set key parameters, while other locales may rely on the guidance of a provincial plan combined with specific regulatory approvals. The entity championing major new infrastructure could be a municipality concerned with economic development, a distributor, a transmitter, major consumers, private developers or a consortium of any of the above. It appears that there is no one model of development that will suit all situations.

3. Under such circumstances it is difficult to design rules and regulations that can be universally applied to all electrical network planning processes. For this reason, it is particularly important for responsible parties in any of the concerned agencies to be able to access consistent and reliable data on which to base decisions. The area in which consistent data has been most lacking is in the assessment of upstream benefits of network investments. While costs are reasonably transparent, and characterizing the downstream consumer volumes is reasonably straightforward, the assessment of upstream benefits is more complicated. While enhancing infrastructure to accommodate generation usually has a variety of impacts on the local grid, the benefits are characterized and measured in different ways, depending on the circumstances of the distributor.

4. In order to ensure that distributors have high quality information on the value and benefits of a network investment under consideration, they will need access to a consistent set of metrics that have been reviewed and tested in a regulatory context and which make use of common terminology. This will facilitate comparisons between distributors and improve transparency of planning processes at whatever level they occur (within the distributor, regionally or provincially).

5. The Generator Co-ordination Group envisions a set of metrics that will assess the following network benefits (without limitation) on a consistent basis: loss reduction, avoided or deferred upstream costs, local reliability (including contributing to the kind of regional reliability reinforcements sought by Hydro One), ability to serve more load customers, voltage support,
reactive power, VARs, improved power factor, other ancillary benefits, black start, storage,
statistical probability of using lower cost local resources more frequently, and ability to respond to local needs and provincial policy directions.

6. The Ontario Energy Board received useful evidence on a proposed SSCBM in the EB-2007-0630 proceeding: Development of a Standard Methodology for the Quantification of DG Benefits, July 31 2008. We strongly urge the Board to facilitate the detailed development of a broad SSCBM for distribution and transmission infrastructure investments starting with the proposed approach outlined therein.

7. Performance measures for distributors in Ontario have generally been developed with load customers rather than generation customers in mind. Although it is reasonable to expect that most performance

measures will continue to be load-focused, in order to have an efficient and balanced system some performance measures should also be applied on the generation side. The GCG recommends that performance measures be developed to create appropriate incentives in the following areas: ensuring a prudent and proactive approach to enabling and enhancing generation connection capacity in appropriate parts of the local grid; designing with input from the generation applicant and other relevant parties the lower cost connection options for any given application; ensuring the accuracy of cost estimates; and facilitating the timeliness of cost estimates and construction.

8. Attention should also be paid to the potential for utilities to facilitate the installation of renewable and non-renewable generation in a way that backstops and reinforces renewable generation. This approach, which has been developed in northern Europe, can improve reliability on the network and raise the utilization factor of network investments. In doing so, we note that water-power storage may be used to backstop other renewable generation.

- The above text is excerpted from comments provided on behalf of several electricity generation associations acting collectively as the Generation Coordination Group (GCG), as part of the Renewed Regulatory Framework for Electricity proceeding in May 2012.

The full text of this submission is available on the OEB website at this location:

http://www.ontarioenergyboard.ca/oeb/_Documents/EB-2010-0377/APPro_Comments_20120504.pdf