EB-2007-0630
ONTARIO ENERGY BOARD CONSULTATION ON
DISTRIBUTED GENERATION: RATES AND CONNECTION

COMMENTS OF THE ONTARIO ASSOCIATION OF PHYSICAL PLANT ADMINISTRATORS

INTRODUCTION

The Ontario Association of Physical Plant Administrators (OAPPA) is a not-for profit organization whose membership includes physical plant administrators for Ontario universities. The main objective of OAPPA is to promote co-operation among physical plant administrators of the publicly funded universities in the province on matters including planning, construction, and operations and maintenance of facilities.

Some members of OAPPA operate distributed generation facilities. As a result, OAPPA has a direct interest in the Ontario Energy Board's determination of an appropriate policy framework for distributed generation and a particular interest in the issue of standby rates for customers with embedded load displacement generation. Therefore, OAPPA would like to provide its comments in response to the Staff Discussion Paper on Distributed Generation: Rates and Connection dated July 13, 2007.

SUBMISSIONS

Overview

For those universities with embedded load displacement generation facilities, standby rates have a very significant impact on the economics of operating the generation facilities. Standby charges that are unduly high serve to discourage the operation of existing distributed generation and impede the construction of new distributed generation facilities that would otherwise be economic. Although OAPPA generally supports relating the standby rate to the cost of providing the service, it is also essential to recognize the benefits that distributed generation brings to the electricity system and to compensate distributed generators directly for those benefits.

The Staff Discussion Paper and especially the June 2007 discussion paper by EES Consulting tend to consider transmission and distribution together. OAPPA believes the two areas need to be considered separately and that attention to the transmission component is required.

Recognizing the Benefits of Embedded Load Displacement Generation - Gross versus Net Treatment of Transmission Network Charge

In its RP-1999-0044 Decision with Reasons dated May 26, 2000, the Ontario Energy Board (the Board) found that net load billing should apply to network transmission service. The Board stated in section 3.2.33 of this decision that this would be a "fairer, more practical and simpler system to apply" and that it "removes the arbitrariness inherent in gross load billing; it removes the uncertainty over future transmission pricing for embedded generation; and, it does not frustrate the objectives inherent in open access, particularly the opening up of the energy market to alternative generation." In the same decision it was determined that both the line connection and transformation connection determinants would be calculated on a gross load basis. The decision also stated at section 3.2.15 that "there is general agreement that net load billing for network services has been the practice under the bundled electricity regime. Customers opting for embedded generation did not pay for transmission services they did not receive. This is also a normal commercial practice in other industries."

Therefore in 2000, embedded load displacement generators expected that their transmission network charge would be calculated on a net load basis.

OAPPA's understanding is that at least since market opening on May 1, 2002, customers directly connected to the transmission system or wholesale market participants with load displacement generation have received this transmission charge treatment; that is, billed on a net basis for network and gross basis for line connection and connection transformation. With the current transmission network service rate of $ 2.83 / kW / month, each MW of gross load that can avoid the network charge each month directly realizes an annual benefit of $ 33,960.

The same has not necessarily been applied to embedded generators. In the RP-1999-0044 Decision at section 4.1.5, an "implementation link" to distribution rate-setting for the gross versus net network issue was identified. The identification of the link seems to have contemplated that distribution rate-setting issues related to the decision on the transmission network charge would have to be addressed. This appears to remain an outstanding item.

The operation of an embedded generator reduces the distributor's wholesale network service costs by an annual amount of $ 33,960 per MW, which as noted above is the annual benefit for each MW of gross load that avoids the network charge each month. However, it is OAPPA's understanding that embedded generators are charged by distributors for transmission network services on a gross load basis, not a net load basis. As a result, the embedded generator may be seeing only a portion of the reduction in the distributor's wholesale network service costs created by its operations. It is OAPPA's understanding that the benefit of this cost reduction is shared among all customers of the distributor or among the customers in the same rate class as the embedded generator, rather than the embedded generator who made the investment to create the benefit receiving the benefit directly. In OAPPA's view, the appropriate approach is to pass the benefits directly through to the embedded generator who creates them. This is key to offsetting the cost of standby services for these same generators in a fair way.

To ensure that the embedded generator receives the benefits it creates, OAPPA suggests the following approach. In the distribution rate-setting process, gross loads of embedded load displacement generators should be included for load forecasting purposes and retail transmission rates set on that basis. Then in the billing process, all loads would be billed for transmission on a gross load basis including the embedded generators. However, the embedded generators would also receive a credit for any wholesale transmission charge reduction or benefit they create.

The determination of the benefit should be a reasonably straightforward exercise. Data are available on the output of the embedded load displacement generator, so determining network costs with and without the embedded load displacement generator is possible. In this context, it is noteworthy that embedded generators who operate on-peak clearly benefit the system by creating savings as a result of the time they operate. The other input to the calculation would be the wholesale transmission service rate and not the retail transmission service rate. Load diversity causes retail transmission rates to be lower, so using them to calculate the benefit would produce a credit to the embedded generator that is less than the actual benefit it created.

OAPPA would also like to highlight the differences between the wholesale and retail methods for calculating the network charge determinant. A distributor's load shape would cause the difference in gross and net charge determinants to arise from the distributor's load coincident with the provincial peak hour, with the 85 % of non-coincident on-peak peak a moot factor. This differs from the calculation of the network charge determinant for retail services, where the peak load during peak transmission hours is the only factor considered. This difference may result in differing views of what type of embedded load displacement

operation is required to create a wholesale network charge benefit to be directed to the embedded generator.

Recognizing Other Benefits of Embedded Load Displacement Generation Running On-Peak

A further benefit is also created by embedded load displacement generators running during on-peak hours. Peak hours tend to have higher provincial loads. Along with higher energy prices, higher loads also come with higher system losses and costs for ancillary services such as operating reserve. This means that on-peak embedded load displacement operations tend to displace higher-than-average wholesale market service costs incurred by the distributor. Given that the wholesale service charge rate (versus cost) has been set at 0.52 cents / kWh or $ 5.20 / MWh (exclusive of Rural Rate Assistance) for quite some time, it seems reasonable to conclude that an embedded load displacement generator running for example, 5 x 14 or 70 hours per week might displace wholesale market services with a unit cost $ 2 / MWh (or more) higher than the average cost. The annual benefit generated would then be approximately $ 7,000 per MW (70 hours / week x 50 weeks x $ 2 / MWh). It would be more complex but still quite possible to calculate and pass through this benefit to the responsible embedded load displacement generator.

Treatment Consistent with Conservation and Demand Management

Conservation and demand management (CDM) and new generation each have their merits. However, a CDM project creates a significant retail transmission cost reduction for the party that implements it. This reduction can relate to all three transmission service rate components, depending on when a load reduction occurs and the calculation of billing determinants. In general, a CDM project automatically receives a transmission benefit similar in magnitude to the benefit that an embedded load displacing generator creates. In OAPPA's view, the treatment of benefits should be consistent.

Within the context of the approach suggested above for the treatment of transmission benefits derived from embedded load displacement generation, OAPPA's comments in response to certain of the views and questions posed in the Staff Discussion Paper are presented below.

Section 3 of Staff Discussion Paper: Standby Rates for Customers with Load Displacement Generation and Rate Classification

- *Staff's considerations for setting and designing standby rates*

OAPPA supports relating the standby rate to the cost of providing the service. It is also essential to recognize the benefits that distributed generation brings to the electricity system and to compensate distributed generators directly for those benefits. Rate structure simplicity and understandability for customers is also a key consideration but without compromising accuracy as it relates to cost causality and recognition of benefits.

- *Rate structure for standby rates*

A monthly demand charge that recovers the costs of having the transmission and distribution system available when needed should only include the level of fixed costs that exist for service to the load displacement generator.

- *What might be a reasonable billing determinant for recovering demand-related costs?*

From a transmission cost perspective, load could be forecast and rates set on a gross load basis. Customers would be charged on a gross load basis with embedded load displacement generators receiving a credit for the wholesale benefit they create.

- *How should any distribution and transmission benefits provided by load displacement generation be identified and quantified?*

Transmission benefits can be quantified by looking at wholesale transmission costs with and without the embedded load displacement generation.

- *Should a different approach to benefits be adopted depending on the size of the customer?*

The allocation of benefits by thresholds is arbitrary unless thresholds are determined by cost causality. It does not make sense that a generator with a nameplate rating just below a threshold receives beneficial treatment while a generator with a nameplate rating just above the threshold does not.

How a generator operates, and not its size, is the important factor. Again, an embedded generator who operates on-peak benefits the system as a result of the time they operate, not their size. Therefore, the benefits created by each generator should be recognized regardless of generator's size.

It should also be noted that Hydro One bills transmission line connection and connection transformation wholesale charges for renewable projects less than 2 MW and non-renewable projects less than 1 MW on essentially a net load basis. In essence, a certain allowance in these charges is made for distributed generation. This allowance should be applied equitably to the first 2 MW of output for a renewable distributed generation project and the first 1 MW of output for a non-renewable project, regardless of size. Doing so would ensure that projects are sized economically and efficiently, and that some sizes or technologies are not favoured over others in the rate-making process.

Additionally, embedded generators create line connection and connection transformation benefits for the distributor in which they are embedded. These benefits should flow to the generators who create them.

- *Should any benefit provided to customers with load displacement generation be recovered from all customers? If so, on what basis should this be done?*

The recovery from all customers of benefits provided to load displacement generation customers would seem to be consistent with the treatment on the transmission system whereby direct customers receive the benefit and the transmission rates for all customers are higher as a result.

- *Is a separate classification for load displacement generation warranted and if so, should it apply to all customers with load displacement generation, or to a subset of these customers as suggested in the EESC Report? / What would be an appropriate threshold for a generator class?*

As indicated earlier, thresholds can be arbitrary unless determined by cost causality and the comments concerning thresholds and benefits apply equally here. In OAPPA's view, the "greater than 500 kW and less than 10 % of load" threshold is problematic. Based on how a plant is sized, embedded load displacement generators, and particularly those at industrial locations, will usually generate more than 10 % of their total load. Assuming plants below these thresholds receive more favourable treatment, applying this approach would then cause most plants above 500 kW to be excluded and therefore disadvantaged.

Section 4 of Staff Discussion Paper: Revenue Losses due to Load Displacement Generation

- *Has net revenue loss due to customers with load displacement generation been material?*

From a transmission only perspective, distributors have not lost revenue due to load displacement generation. Depending on how they have forecasted load and set their retail transmission rates, distributors could derive some benefit from embedded load displacement generation.

- *How might the Board determine an appropriate method to compensate electricity distributors for such revenue loss?*

OAPPA does not have a specific method to suggest at this time but does believe it is important that the approach be consistent with revenue loss caused by customers with load displacement generation, revenue loss caused by other load customers due to factors such as economic conditions, and revenue loss resulting from CDM.