K1.5

CUSTOMER DELIVERY POINT PERFORMANCE STANDARDS

1.0 INTRODUCTION

The Transmission System Code (TSC) requires transmitters to develop performance standards at the customer delivery point ("CDPP")[1] level, consistent with system wide standards, that:

- reflect typical transmission system configurations that take into account the historical development of the transmission system at the customer delivery point level;
- reflect historical performance at the customer delivery point level;
- establish acceptable bands of performance at the customer delivery point level for the transmission system configurations, geographic area, load, and capacity levels;
- establish triggers that would initiate technical and financial evaluations by the transmitter and its customers regarding performance standards at the customer delivery point level, as well as the circumstances in which any such triggering event will not require the initiation of a technical or economic evaluation;
- establish the steps to be taken based on the results of any evaluation that has been so triggered, as well as the circumstances in which such steps need not be taken;
- establish any circumstances in which the performance standards will not apply.

On May 3, 2002, Hydro One filed proposed Customer Delivery Point Performance Standards to meet the requirements of the TSC with the OEB for review and approval. Subsequently, on September 8, 2004, as a result of stakeholder comments received, Hydro One filed amendments to its original CDPP Standards submission. On July 25, 2005, the OEB issued its Decision and Order (RP-1999-0057/EB-2002-0424) which approved Hydro One's proposed CDPP Standards subject to a number of changes directed by the Board.

[1] A Delivery Point is defined as a point of connection between a transmitter's transmission facilities and a customer's facilities.

The approved CDPP Standards apply to all existing transmission load customers (including customers that have signed a connection cost recovery agreement prior to market opening). For new or expanding customer loads, the delivery point performance requirements will be specified and paid for by the customer based on their connection needs and negotiated as part of the connection cost recovery agreement.

2.0 DELIVERY POINT RELIABILITY STANDARDS

The approved CDPP Standards consist of two components (1) Group CDPP Standards that relate the reliability of supply to the size of load being served at the delivery point; and (2) Individual CDPP Standards that maintain a customer's individual historical delivery point performance. Triggers for each component are used to identify performance "outliers" to initiate technical and financial evaluations to determine the root cause of unreliability and remedial action required to improve reliability. The CDPP Standards and triggers for each component are summarized below.

2.1 Performance Standards Based on Size of Load Being Served: Group CDPP Standards

In this component, the CDPP Standards and the associated triggers are based on the size of load being served. For this purpose, the load is the delivery point's total average station gross load[2] as measured in megawatts. The CDPP Standards vary with the size of the load in groups or bands of 0 to 15 MW, greater than 15 up to 40 MW, greater than 40 up to 80 MW and greater than 80 MW, as shown in Table 1 below.

[2] Total Average Station Gross Load (MW) = (Total Energy Delivered to the Station (MWh) + Total Energy Generated at the Station Site (MWh)) / 8760 hours.

Table 1

Customer Delivery Point Performance Standards Based on Load Size

Performance Measure	Customer Delivery Point Performance Standards *(Based on a Delivery Point's Total Average Station Load)*							
	0-15 MW		>15 - 40 MW		>40 - 80 MW		>80 MW	
	Standard (Average Performance)	Minimum Standard of Performance	Standard (Average Performance)	Minimum Standard of Performance	Standard (Average Performance)	Minimum Standard of Performance	Standard (Average Performance)	Minimum Standard of Performance
DP Frequency of Interruptions (Outages/yr)	4.1	9.0	1.1	3.5	0.5	1.5	0.3	1.0
DP Interruption Duration (min/yr)	89	360	22	140	11	55	5	25

These CDPP Standards are based on historical 1991-2000 performance, as measured by the frequency and duration of all momentary and sustained interruptions[3] caused by forced outages, excluding outages resulting from extraordinary events that have had "excessive" impact on the transmission system and that, in Hydro One's assessment, strongly skew the historical performance. Included in this category of excluded events are the 1998 ice storm and the 2003 blackout.

[3] Momentary interruption is any forced interruption to a delivery point lasting less than 1 minute and a sustained interruption is any interruption to a delivery point lasting 1 minute or longer. A delivery point is interrupted whenever its requisite supply is interrupted as a result of a forced outage of one or more Hydro One components causing load loss. Interruptions caused by Hydro One's customers are recorded but not charged against Hydro One's reliability performance for the customer initiating the interruption, but are charged against Hydro One's reliability performance for other interrupted customers.

2.1.1 Criteria for Minimum Standard Performance to Identify Performance Outliers for Group CDPP Standards

The minimum CDPP standards of performance, for each of the four load groups or bands, are to be used as triggers by Hydro One. The trigger occurs when the three-year rolling average of the delivery point performance falls below the minimum CDPP Standard for the delivery point of the load size group or band (referred to as a performance outlier or outlier) or when a delivery point customer indicates that analysis is required. When an outlier is identified, it is considered a candidate for remedial action. In such cases, Hydro One will initiate technical and financial evaluations with affected customers to determine the root cause of the unreliability and any remedial action required to improve the reliability.

2.2 Performance Standards to Maintain Historical Delivery Point Performance: Individual CDPP Standards

In this component, the CDPP Standards are intended to maintain the historical reliability performance levels at each customer delivery point. This is done by identifying customer delivery points with deteriorating trends in reliability performance, irrespective of whether they are satisfactory performers under the Group CDPP Standards (Section 2.1 above). In order to identify customer delivery points with deteriorating trends in reliability performance, a performance baseline trigger for the frequency and duration of forced (momentary and sustained) interruptions is established for each delivery point based on that delivery point's historical 1991-2000 average performance, plus one standard deviation (the "historical baseline"). The historical baselines exclude outages resulting from extraordinary events that have had "excessive" impact on the transmission system and that, in Hydro One's assessment, strongly skew the historical trend of the measure (such as the 1998 ice storm and the 2003 blackout). Also, for delivery points that came into service after 1991, the in-service year is to be the first year of the 10-year period used to determine the performance baseline.

2.2.1 Criteria for Minimum Standard Performance to Identify Performance Outliers for Individual CDPP Standards

Delivery point performance that is worse than the historical baseline (for either frequency or duration) in two consecutive years is considered a performance outlier and a candidate for remedial action. In such cases, Hydro One will initiate technical and financial evaluations with affected customers to determine the root cause of the unreliability and the remedial measures required to restore the historical reliability of the delivery point's performance.

2.3 Remedial Costs to Address Group and Individual Performance Outliers

For Group and Individual Performance outliers, Hydro One will cover the remedial costs of restoring and sustaining the inherent reliability performance of the existing assets to what was designed originally. These costs include appropriate asset sustainment costs, on-going maintenance costs and costs associated with asset refurbishment or replacement. Historically, Hydro One has spent approximately $700 million per year on OM&A and Capital expenditures on the transmission system. About half of these expenditures are related to sustainment work to ensure that transmission assets are in "good" working order and able to perform as intended. These expenditures are made on an ongoing basis consistent with "good utility practices," irrespective of actual delivery point performance or of whether a delivery point is a performance outlier. No customer contribution formula is required for these normal sustainment expenditures.

For Individual Performance outliers, Hydro One will restore the delivery point to the historical level of performance. Hydro One's remedial work will not include capital reliability improvements that significantly enhance the reliability of supply relative to the reliability that was inherent in the original system design or configuration of supply.

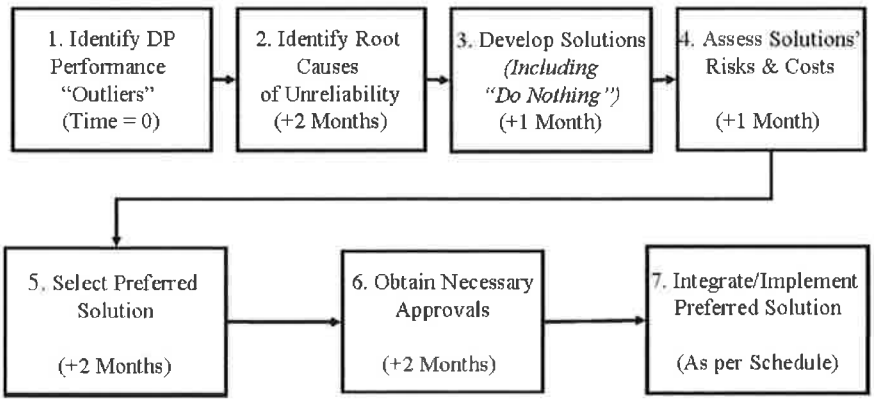
For Group Performance outliers, Hydro One's level of incremental investment for improving the performance of an outlier beyond what was designed originally will be limited to the present value of three years' worth of transformation and/or transmission line connection revenue[4] associated with the delivery point. Any funding shortfalls for improving delivery point reliability performance will be made up by affected delivery point customers. In cases where specific transmission facilities are serving two or more customers in common with outlier performance, Hydro One will approach all affected customers to determine their willingness to contribute jointly to the reliability improvements.

Cost responsibility for these investments is to be consistent with the TSC, specifically: (i) Hydro One will not attribute the costs associated with network investment to any customer and any variance from this approach requires a determination by the Board; (ii) the costs of preparing the final estimate for reliability improvements required to address performance outliers is the only portion of the technical and financial evaluation that is to be included as part of the cost of the remedial work; and (iii) where a customer contribution is required to improve or expand the transmission system to correct outlier performance, the customer will be given contracting privileges consistent with those applicable to contestability for new customer connections. In addition, affected delivery point customers are responsible for all of the costs associated with any new or modified facilities required on lines and stations they own to improve reliability. These financial and cost sharing arrangements are to be detailed in a connection and cost recovery agreement with the affected customers.

[4] In the special case where a delivery point pays only network tariffs, transmission line connection tariffs are to be used as a proxy in the revenue calculation.

2.4 Process Timelines to Address Performance Outliers

The process and associated timelines that will be followed to address performance outliers – both for Group and Individual outliers - and determine the preferred course of action are provided below.



1. Time = 0: Hydro One identifies, annually, delivery point performance "outliers" for both Group and Individual standards. Hydro One will notify customers that are supplied from these performance outlier delivery points and solicit their feedback/issues/concerns on their reliability of supply.

2. Within 2 months: Hydro One will determine the root causes of unreliability associated with each performance outlier identified in (1).

3. Within 1 month: Hydro One will develop solutions to address performance outliers, including, (i) the work to restore and sustain the inherent reliability performance of the existing assets to what was designed originally; and (ii) for Group Performance outliers, the additional capital improvements required to improve the performance of an outlier to within standard and beyond what was designed originally. Hydro One will discuss the proposed solutions with affected customers.

4. Within 1 month: Hydro One will determine the costs and assess the risks of the solutions, including any customer capital contributions required for option (ii) above. Hydro One will present these costs to customers for their review and assessment.

5. Within 2 months: Hydro One and customers select the preferred option and where appropriate customers state their intention on whether to proceed with capital improvements that involve customer contributions identified in option (ii) above.

6. Within 2 months: Hydro One and customers obtain the necessary approvals to proceed with the preferred solutions to address performance outliers.

7. Hydro One will integrate the solutions into its work programs and implement them according to a mutually agreed schedule.

When Hydro One completes work to restore delivery point performance to standard, it continues to monitor the delivery point the year after the work is completed. If future performance suggests that the standard has not been met, then Hydro One will review the work that has taken place and will identify corrective action. Hydro One will not as a practice wait another 3 years and start a new technical and financial evaluation. Hydro One reviews and identifies customer delivery point performance annually, regardless of the investment history.