

- 1 • measurement definition;
- 2 • data collection processes which impact on the consistency and accuracy of the
- 3 reported measures; and
- 4 • variations such as climate, operating environment and system infrastructure among
- 5 transmission companies that can influence the absolute performance of their
- 6 transmission systems.

7

8 A way to reduce the effect of these factors is to observe year-over-year performance
9 using consistent and precise measurement definitions. Although transmitters each have a
10 slightly different approach when measuring their own transmission system performance,
11 the Canadian Electricity Association (CEA) has had success in creating reliability
12 performance definitions with sufficient precision and consistency over the years to permit
13 some degree of multi-jurisdictional transmission system performance comparisons. The
14 data, however, is not audited and the comparisons are used only to help identify
15 opportunities for business improvement. This Exhibit presents Hydro One's transmission
16 system performance relative to a CEA composite performance where available.

17

18 **3.0 HEALTH AND SAFETY PERFORMANCE**

19

20 Health and Safety is the foundation of every action, every project, every day for all staff
21 regardless of position or level. The Company continues to develop, implement and
22 maintain progressive programs and initiatives for accident prevention with a concentrated
23 focus on the elimination of serious injuries and "near-misses". The goal is to create and
24 maintain an injury-free workplace.

25

26 Hydro One has continued with the Journey to Zero safety initiative that was started in
27 2009. This initiative compares our approach to health and safety management with world

1 class companies to identify gaps. Opportunities for improvement have been prioritized
2 and action plans implemented. Some of the new initiatives currently being developed
3 include but are not limited to:

- 4 • Develop a *work environment* whereby employees have more direct involvement into
5 suggesting ways to improve safety both on the job, and in operational plans;
- 6 • Identify a framework to instill Health and Safety in the shared beliefs and actions of
7 all employees for themselves and their co-workers. Ensure it is a way of life and a
8 condition of employment in the Hydro One culture.; and
- 9 • Identify opportunities and recommend solutions to reduce exposure to safety risks of
10 MVAs.

11
12 During 2013, there was a focus on the following areas:

- 13 • Journey to Zero initiatives (including a safety culture assessment by DuPont: a
14 survey, site assessment, leadership interviews and focus groups);
- 15 • obtaining and maintaining OHSAS 18001 registration, skills and safety training;
- 16 • field coaching/mentoring, young and new worker safety; and
- 17 • a number of employee health and wellness initiatives.

18
19 The successful OHSAS 18001 registration of the Hydro One Health, Safety and
20 Environment Management System will enhance health & safety performance through a
21 structured approach that drives continual improvement and effective risk and hazard
22 assessment and management.

23
24 The Hydro One executive and senior management continue to demonstrate visible
25 leadership to reinforce our health and safety vision through site visits and face-to-face
26 discussions with employees.

1 Since the Hydro One safety program encompasses the entire company, safety
2 performance is tracked throughout the company and performance measure results are not
3 divided between the transmission and distribution businesses. The results presented in
4 this evidence are for all of Hydro One.

5

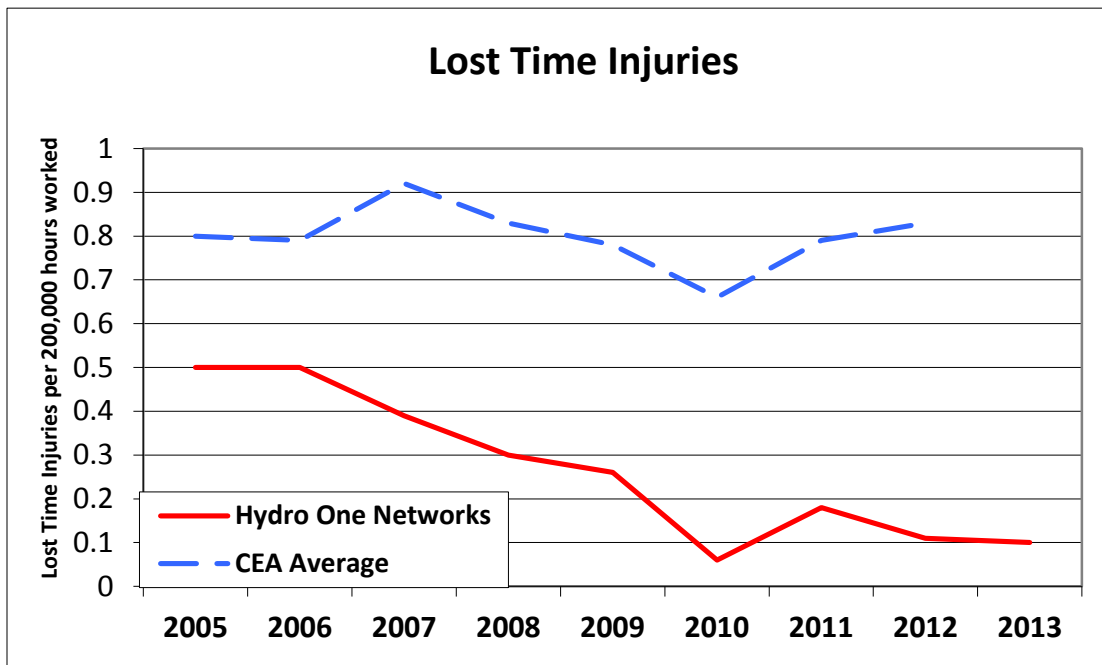
6 As part of its safety program, Hydro One tracks a number of measures. Historically, the
7 focus was on the Lost Time Injury measure. Lost Time Injuries are those injuries that
8 result in Hydro One employees having to take time off to recover before they can return
9 to work. Recent results have been included in Figure 1 to provide continuity to past
10 results reported in previous rate filings. The Lost Time Injury measure has now been
11 replaced by the Medical Attention measure as the primary measure of safety
12 performance.

13

14

15

**Figure 1:
Lost Time Injury Frequency Rate**



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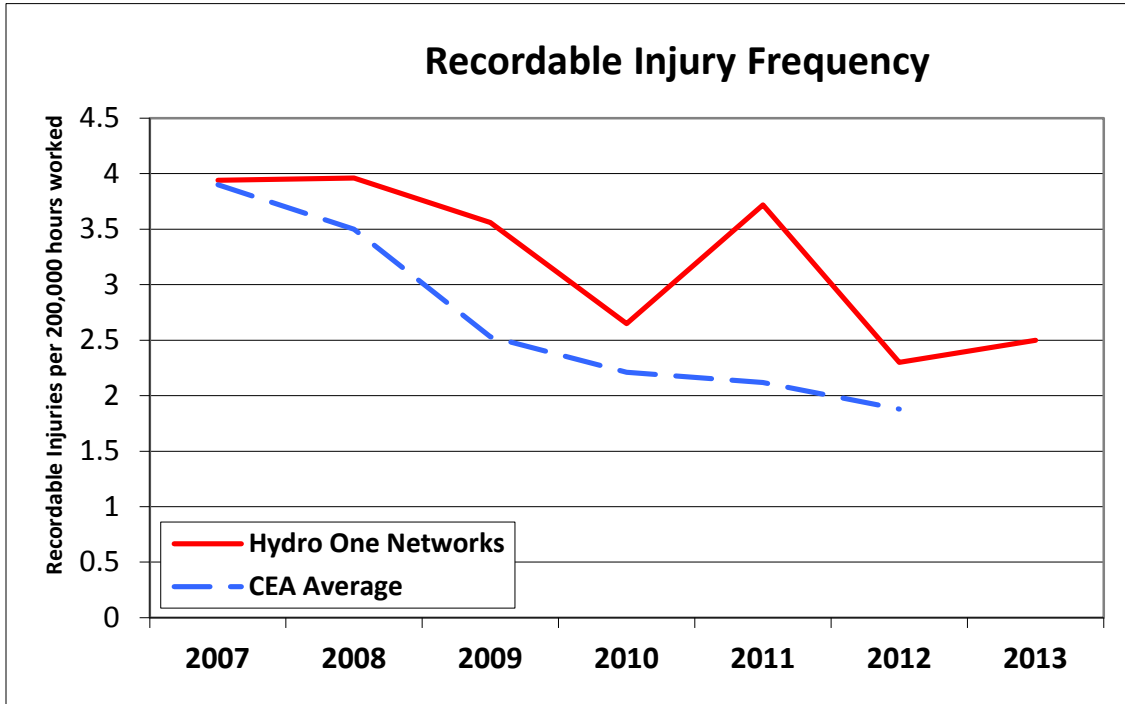
1 In recent years, Hydro One has implemented the Medical Attentions measure in favour of
2 the Lost Time Injury (LTI) metric as its primary Health and Safety performance measure.
3 The Medical Attentions metric measures the number of injuries that require treatment by
4 a medical practitioner (i.e. beyond first aid). The frequency of the LTI type measure
5 occurrences is low and does not provide the best measure upon which to base Hydro
6 One's improvement initiatives. The Medical Attentions measure captures a broader
7 number of occurrences than LTI and in so doing, provides more opportunities to identify
8 potential injury situations and their avoidance as part of the objective of having an injury-
9 free workplace. This Medical Attentions metric will measure the impact that our planned
10 improvement initiatives will have on the prevention of injuries that are more serious than
11 requiring basic first aid.

12

13 The Medical Attention metric is aligned with the Canadian Electricity Association (CEA)
14 recordable rate metric and the US Occupational Safety and Health Administration
15 (OSHA) recordable metric. Hydro One can compare its performance to other Canadian
16 utilities using the recordable injury metric as shown in Figure 2.

1
2

Figure 2:
Hydro One Recordable Injury Frequency Comparison to CEA Average



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4

Hydro One continues to build on the strength of its achievements and focus on safety through its health and safety management program and Journey to Zero initiative to achieve an injury-free workplace.

8
9

4.0 CUSTOMER SERVICE PERFORMANCE

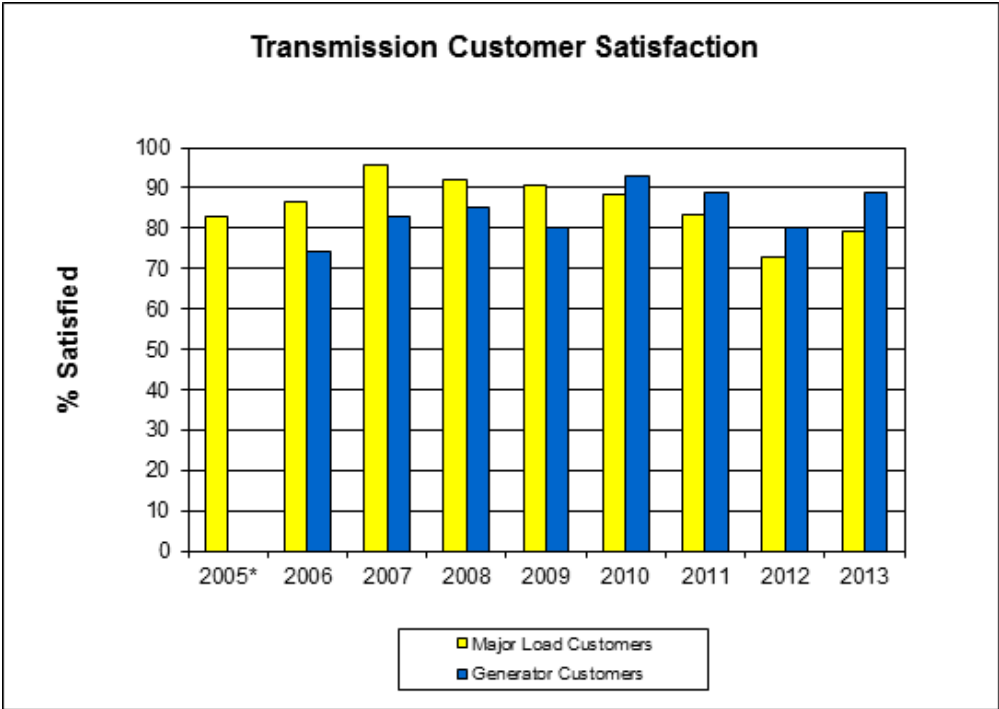
10

Hydro One is in business to serve its customers and as such, customer satisfaction is a high priority for the company. To gauge satisfaction, the company surveys customers on their satisfaction with the service that they have been receiving. Surveys are administered to both major load and generator customers, and survey questions are focused on areas of importance to customers such as reliability, communications, relationships, and responsiveness. Figure 3 illustrates the overall results from surveys that have been conducted in recent years.

17

1
2

**Figure 3:
Transmission Customer Satisfaction**



3

4 * Note: In 2005 there was no satisfaction survey carried out of the Generator Customers
5 due to the Hydro One labour disruption.

6

7 As evidenced by the results in Figure 3, Hydro One’s major load customers have
8 indicated a relatively high satisfaction during the past several years, though a gradual
9 decline in customer satisfaction in the major load customer sector since 2007 has been
10 noted. This segment trend has seen its first year of improvement in 2013. This segment
11 includes industrial customers and Local Distribution Companies (LDCs). Hydro One is
12 actively addressing these results.

13

14 Reliability and more specifically power quality has been identified as a growing concern
15 and that it is having a significant impact on the customers costs related to lost production

1 or damage to product. Initiatives regarding customer engagement for power quality
2 improvements can be found in Exhibit A, Tab, 4, Schedule 1.

3
4 Industrial customers have requested Hydro One to help them to reduce their costs through
5 more effective management of planned outages on the transmission system. Efforts to
6 bundle work programs on transformers and circuits to minimize transmission related
7 outages are incorporated in the Hydro One's business plans going forward. See Exhibit
8 A, Tab 16, Schedule 6 for more details on this effort.

9
10 LDCs are expressing concern over Hydro One's aging infrastructure and related
11 reliability and the speed at which our work programs are addressing their concerns.
12 Transformer and breaker replacement programs top the list of immediate concerns.
13 Transformer capacity constraints in southern and eastern portions of the province are
14 adding to the LDC stress, and a higher level of frustration was voiced by LDCs in the
15 south at the inability to connect renewable generation projects within their service
16 territories. Continual measurement of customer satisfaction and follow-up actions are
17 examples of Hydro One's customer focus to meet and/or exceed customer expectations.

18
19 For generator customers, overall satisfaction with Hydro One is variable year over year
20 but statistically fairly stable from the first survey conducted in 2004 through to including
21 the latest 2013 survey results. The largest point of dissatisfaction with the generators is
22 related to planned outages requiring them to reduce output or disconnect. Similar to the
23 industrial customers, the generators will be included in the work bundling efforts to
24 reduce these impacts. Hydro One staff are following up with those customers that
25 indicated that they were either neutral or dissatisfied in order to gain specific feedback
26 that will lead to ways of improving performance.

1 **5.0 RELIABILITY PERFORMANCE**

2

3 **5.1 Transmission Reliability**

4

5 Hydro One measures and actively monitors its transmission system reliability from two
6 principle perspectives, namely: equipment performance and delivery performance. The
7 equipment performance perspective enables Hydro One to assess the operational
8 performance of transmission components, ensuring that the transmission equipment is
9 functioning according to design. The delivery performance perspective establishes a
10 measure of how reliably electricity is delivered to transmission customers such as Local
11 Distribution Companies and large Industrial Customers. Being a customer focused
12 organization, Hydro One considers delivery of electricity an important measure of
13 transmission reliability and it strives to achieve a high level of performance in this area.

14

15 Transmission reliability is determined primarily using measures developed
16 collaboratively with other transmission utilities across Canada at the Canadian Electricity
17 Association (CEA). These measures have had success since they are well defined and
18 understood by the participating member utilities and the definitions are of sufficient
19 precision and consistency over years for multi-jurisdictional transmission performance
20 comparisons.

21

22 **5.2 Transmission Reliability Measures**

23

24 Hydro One's service quality includes transmission system equipment performance and
25 delivery of electricity performance measures. Four measures are listed in Table 1.
26 Delivery Points are generally the interfaces between Hydro One's transmission system
27 and its load customers. Delivery Points are either low voltage buses at Hydro One owned

1 step-down transformer stations¹, or stations owned by transmission load customers,
2 including Hydro One Distribution stations.

3

4 Delivery reliability is measured by frequency of delivery point interruptions, duration of
5 delivery point interruptions and delivery point unreliability Index which is a normalized
6 measure of unsupplied energy to customers. All interruptions caused by a forced outage
7 are included in these measures. For transmission equipment reliability performance,
8 transmission system forced unavailability is used.

¹ There are situations where a customer owns low voltage buses but these buses are still treated as Hydro One's transmission Delivery Points.

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Table 1:
Transmission Reliability Measures

Reliability Perspective	Reliability Measure	Description
Reliability of Delivery of Electricity to Customers	<i>Frequency of Delivery Point Interruptions</i>	average number of interruptions experienced at delivery points
	<i>Duration of Delivery Point Interruptions</i>	average interruption durations in minutes experienced at delivery points
	<i>Delivery Point Unreliability Index – a measure of unsupplied energy</i>	energy not supplied to customers caused by interruptions, normalized by system peak load and presented in System Minutes
Reliability of Transmission Equipment	<i>Transmission Equipment Unavailability</i>	extent to which transmission equipment is not available for use by market participants due to forced outages

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Hydro One uses these measures because:

- These are commonly used transmission reliability measures in industry to address transmission service quality perspectives important to customers and stakeholders.
- The benchmarking of these measures is meaningful as data collection and reporting practices among all CEA member utilities are consistent.
- These measures have been in place for over 10 years and it makes historical data available for assessing performance trends, setting targets and benchmarking.
- The limited number of measures keeps tracking and reporting requirements at a manageable and cost-effective level while still covering a broad transmission reliability performance spectrum.

1 A summary of delivery point performance according to the Hydro One Customer
2 Delivery Point Performance (CDPP) Standards is discussed in Section 5.5. The standard,
3 as attached in Appendix A, is described in a Hydro One exhibit previously filed with the
4 OEB: Customer Delivery Point Performance (CDPP) Standard, EB-2002-0424. Appendix
5 B provides definitions and detailed descriptions of these reliability measures. Appendix C
6 provides historical performance of the measures as listed in Table 1.

7 8 **5.3 Comparison of Hydro One Performance to Canadian Averages**

9
10 Using data collected by the CEA, Hydro One is able to compare the reliability
11 performance of its transmission system against Canadian average performance (CEA
12 Composite). The comparison of delivery point reliability performance discussed in this
13 section is at the system level that reflects the system average of all delivery points. Hydro
14 One also focuses on multi-circuit supplied delivery point performance and that can be
15 benchmarked with comparable Canadian utilities. In its efforts to achieve high
16 performance, Hydro One establishes multi-circuit supplied delivery point performance
17 targets in the first quartile ranking to comparable utilities in Canada.

18
19 Hydro One's comparative reliability performance at the system level is illustrated in the
20 following Figures 4, 5, 6 and 7 for frequency of momentary interruptions, frequency of
21 sustained interruptions, duration of sustained interruptions and delivery point unreliability
22 index respectively. The CEA composite data is only available up to 2012. Hydro One
23 2013 data is provided in graphs where available.

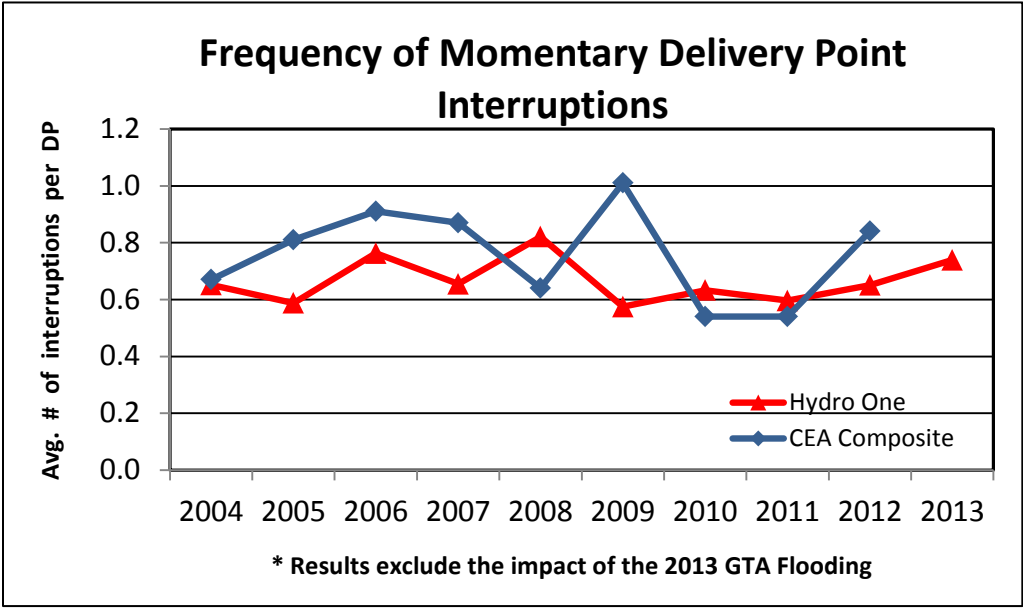
24 25 **Special notes for July 8th, 2013 Greater Toronto Area (GTA) Flooding Event:**

26 Following the new CEA reporting criteria, the July 8th GTA rain flooding event is
27 classified as a "Degree 4 Severity" event due to the significant customer impact. The

1 criteria dictates that a local disturbance event will be treated separately when the total
2 unsupplied energy caused by the event is more than 1 million MW-minutes. There was
3 1,406,218 MW-minutes unsupplied energy for July 8th event. The CEA generates two
4 sets of numbers, with and without the event for load interruption related reliability
5 measures. Such separation makes the performance comparison more meaningful among
6 member utilities. The only two other events in the same category in the CEA
7 transmission reliability reporting history were 1998 Eastern Ice Storm and 2003
8 Blackout. In order to have a meaningful comparison, all interruptions due to the July 8th
9 event are excluded in this report.

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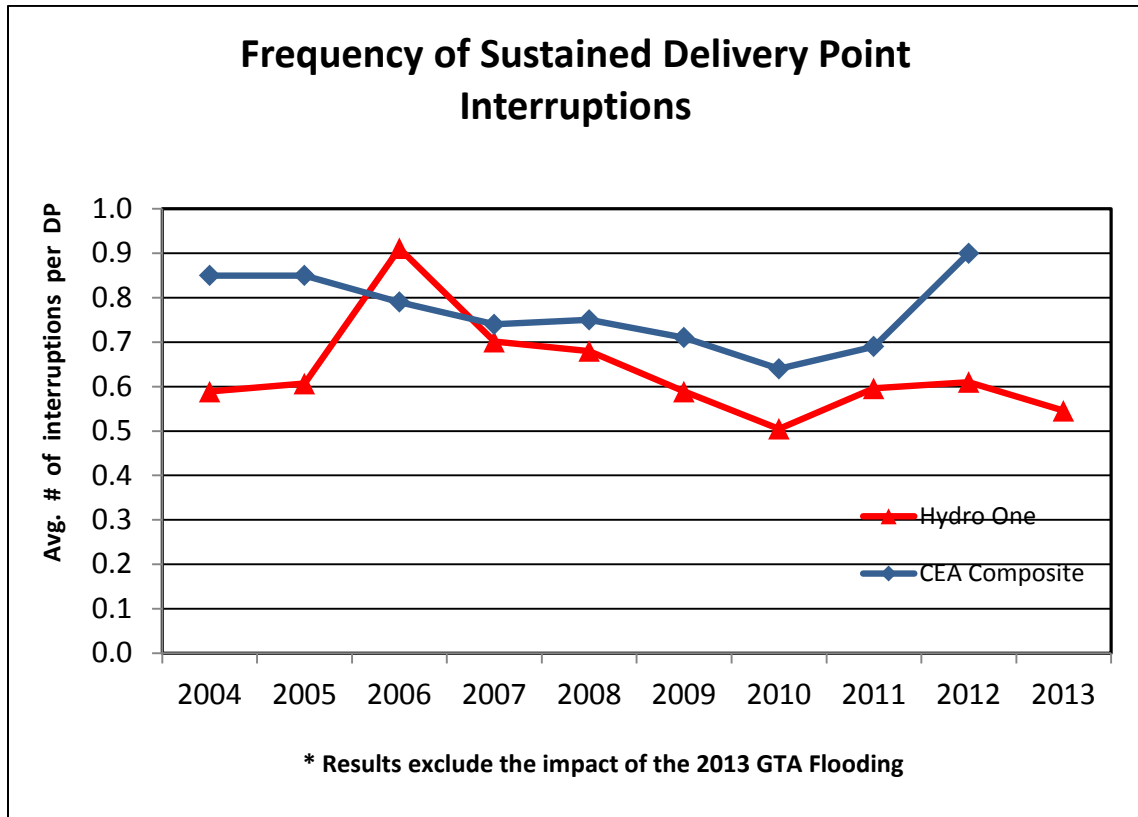
Figure 4:
Comparison of Hydro One Frequency of Momentary Interruptions to CEA Composite



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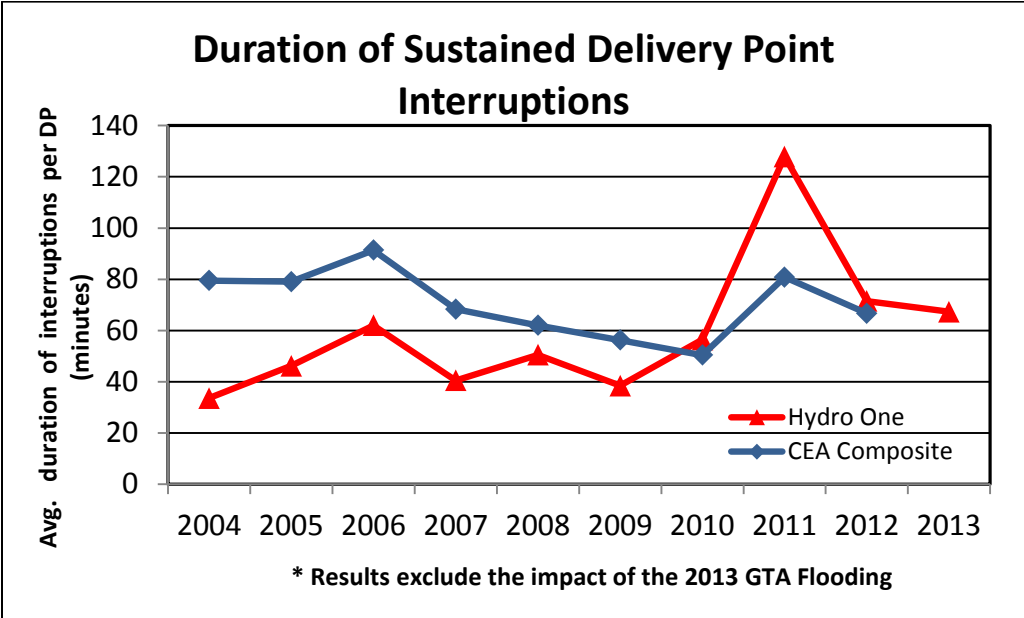
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**Figure 5:
Comparison of Hydro One Frequency of Sustained Interruptions to CEA
Composite**

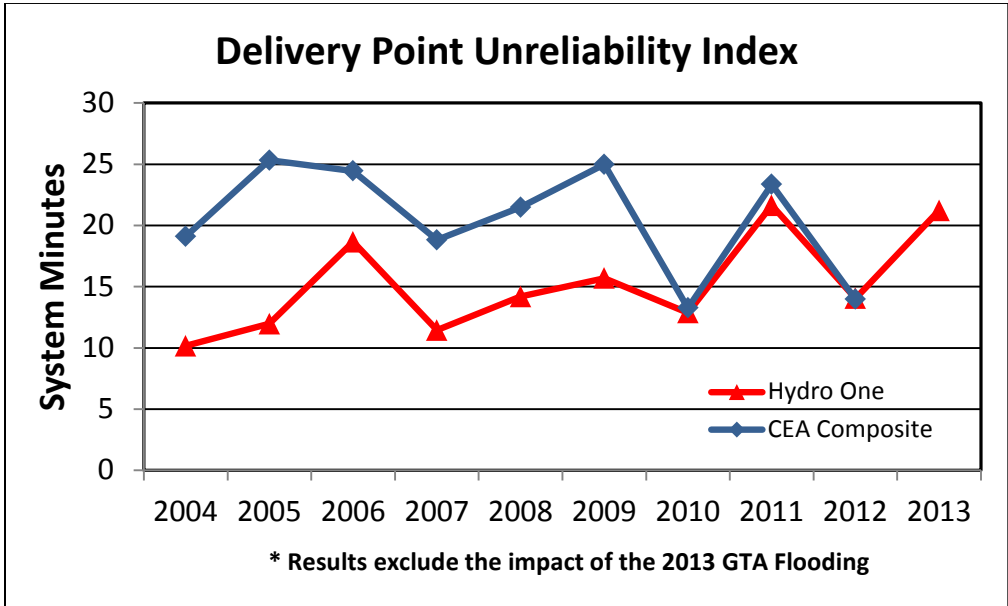


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1 **Figure 6:**
2 **Comparison of Hydro One Duration of Sustained Interruptions to CEA Composite**



3
4
5 **Figure 7:**
6 **Comparison of Hydro One Delivery Point Unreliability Index to CEA Composite**



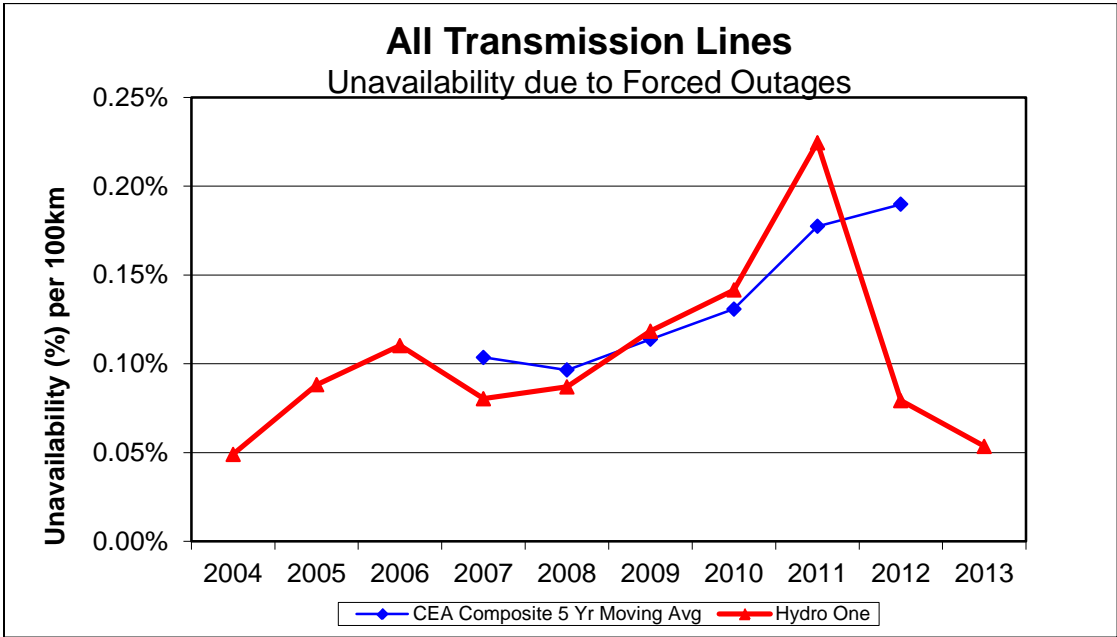
1 Delivery point interruption duration is the most critical index of measuring delivery
2 reliability. A list of major events that significantly contributed to this measure are
3 provided:

- 4
- 5 • In July 2013, an intense summer storm with high winds, lightning and torrential
6 downpours in southern central Ontario contributed 7.9 minutes of 2013 duration of
7 delivery point interruption measure.
 - 8 • In December 2013, just before Christmas, an icy winter weather condition in most of
9 southern Ontario contributed 5.0 minutes to 2013 duration of delivery point
10 interruption measure.
 - 11 • In November 2013, Armitage Transmission Station had a switch failure that contacted
12 two 230 kV circuits. As a result, 7 delivery points normally supplied by these two
13 circuits were interrupted. The event contributed 3.5 minutes to 2013 duration of
14 delivery point interruption measure.
 - 15 • In 2012, a forest fire in Dymond area, Northern Ontario significantly impacted the
16 performance of the Hydro One grid. The event contributed 40.4 minutes to 2012
17 duration of delivery point interruption measure.
 - 18 • In 2011, a forest fire in Northwestern Ontario damaged several wood pole structures
19 and significantly impacted the performance of the Hydro One grid. The duration of
20 delivery point interruptions was increased from 58.5 to 127.9 minutes per delivery
21 point.
 - 22 • In 2006, the Caledonia Event contributed 8.5 minutes to the Duration of Delivery
23 Point Interruption measure as shown.
 - 24 • In 2006, ice storms and electric storms significantly impacted the performance of the
25 Hydro One grid. The frequency of sustained delivery point interruptions was
26 increased from 0.78 to 0.91 interruptions per delivery point (Figure 5) and the
27 duration of delivery point interruptions was increased from 54.6 to 62.0 minutes per
28 delivery point.

1 Transmission system forced unavailability is split into Unavailability of Transmission
2 Lines and Unavailability of Transmission Station Equipment. Station equipment includes
3 power transformers, circuit breakers and capacitor banks. The Unavailability measure
4 represents the extent to which the major transmission equipment is not available for use
5 within the system. The detailed description of this measure is provided in Appendix B
6 for both categories. Figures 8 and 9 illustrate historical performance of Hydro One lines
7 and station equipment as compared to the CEA Composite which is a 5-year moving
8 average performance of all the CEA member utilities. Figure 8 shows an increase in
9 Transmission Line Unavailability from 2009 to 2011. The Hydro One measure indicates
10 significant improvement in 2012 and 2013. The CEA All Canada numbers show a
11 decrease in performance in 2012. Figure 9 shows similar trend for major Station
12 Equipment and relatively better performance in 2013.

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15

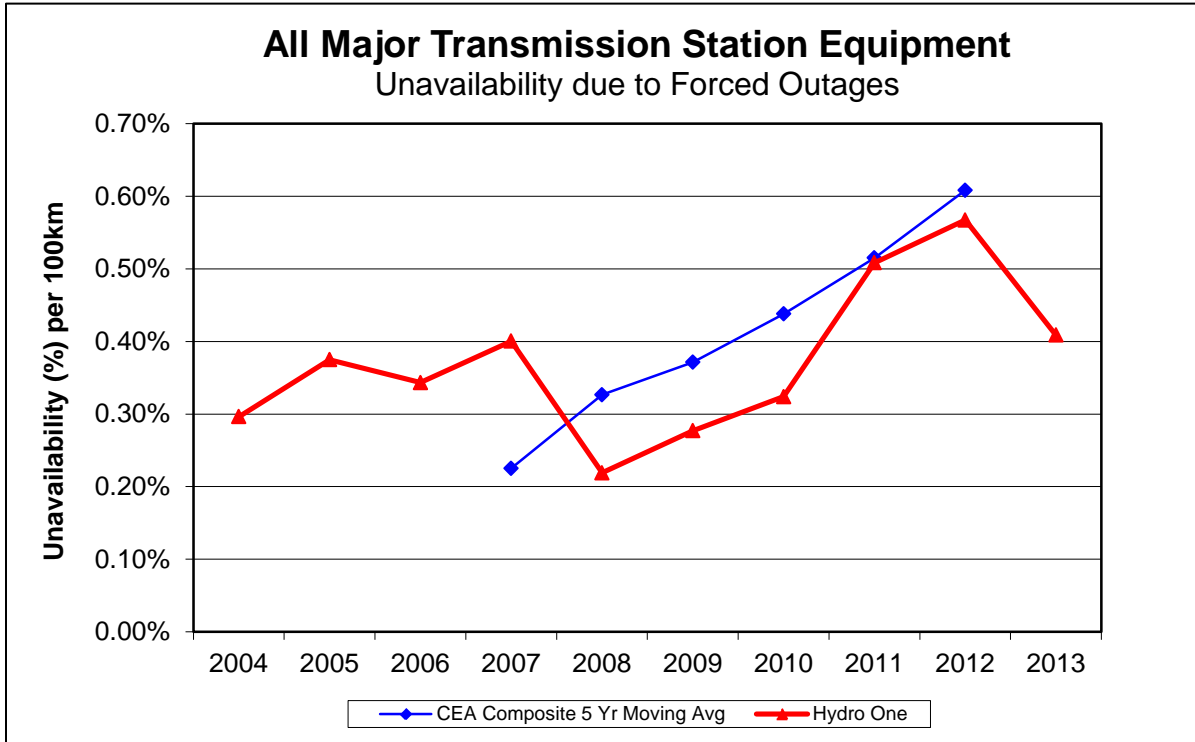
**Figure 8:
Unavailability of Transmission Lines**



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Figure 9:
Unavailability of Major Transmission Station Equipment



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5 Performance of equipment is a leading indicator of system performance. Sustainment
6 investments are made to preserve performance of critical asset groups by investing at the
7 individual asset level and thereby preserving overall system performance.

8

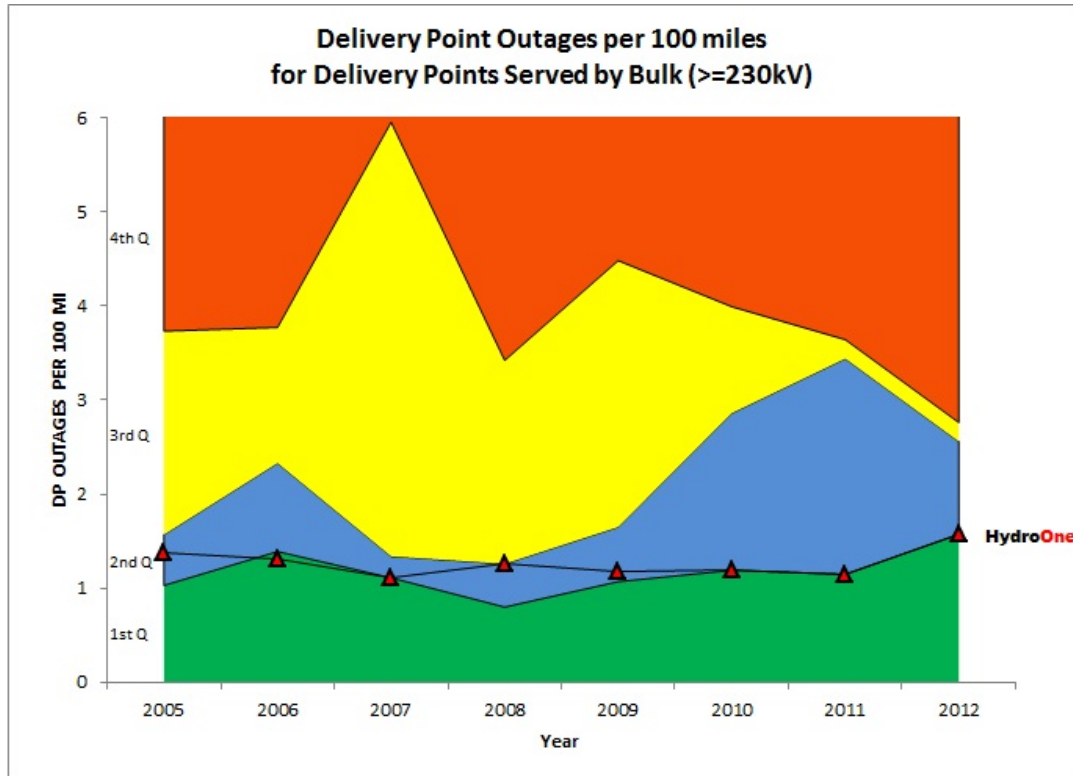
9 Transmission system performance is one factor considered in the Hydro One Investment
10 Plan Development (Exhibit A, Tab, 16, Schedule 3) and in the Investment Prioritization
11 Process (Exhibit A, Tab 16, Schedule 4).

1 **5.4 Performance Relative to Utilities in the USA**

2
3 In order to provide additional reliability comparisons, Hydro One also participates in a
4 transmission line reliability benchmarking study in the U.S., administered by SGS, a
5 utility consultancy. Hydro One's delivery performance associated with transmission line
6 outages are illustrated in Figures 10 and 11 below. The graphs show Hydro One's relative
7 quartile performance compared to other transmission companies in the SGS study.
8 Although there are some inconsistencies in both definitions and reporting practices within
9 the study utilities, the results are considered accurate enough for broad, system
10 performance comparisons. The measures are system averages for frequency and duration
11 of forced interruptions to transmission delivery points. Results are normalized by line
12 length to facilitate the measurement comparison. The results indicate that for 230kV and
13 above systems, Hydro One is generally performing in the second quartile within this
14 study group.

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Figure 10:
Delivery Point Outages per 100 miles for Delivery Points Served by ≥ 230 kV



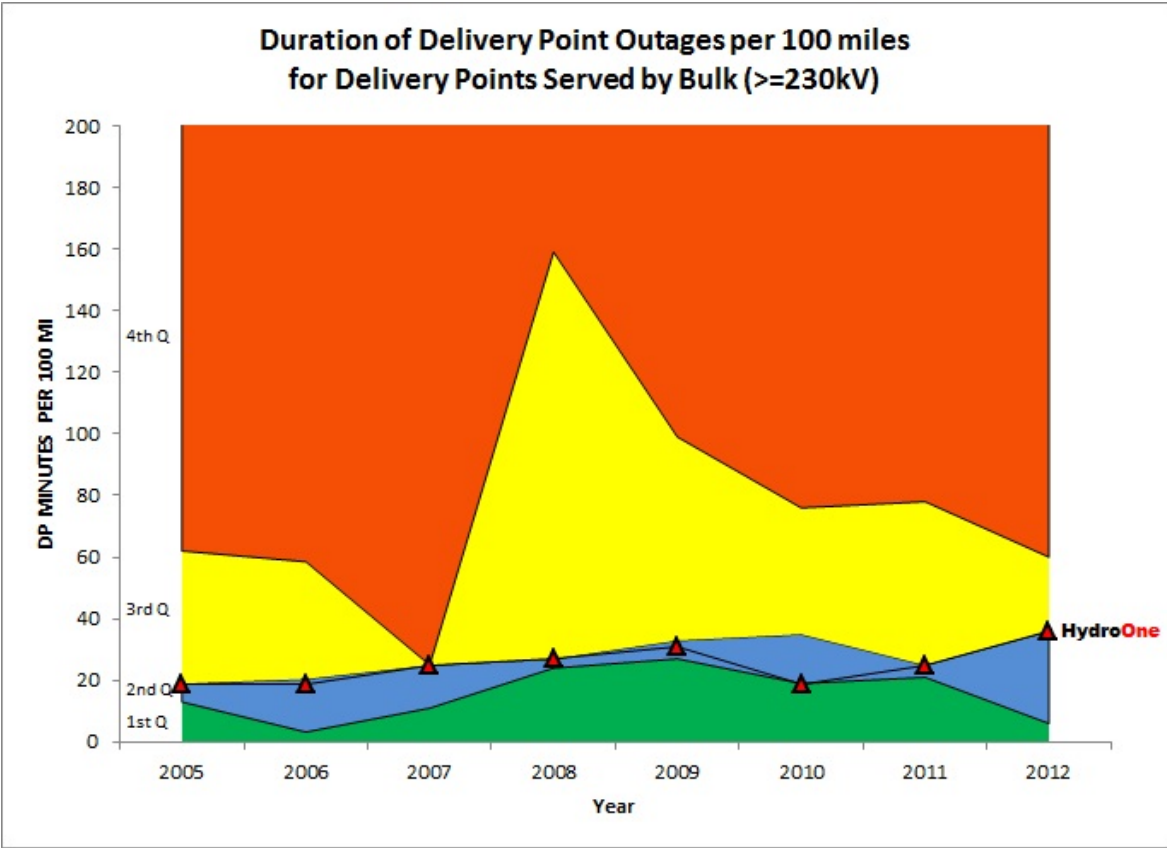
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Notes:

- (1) The quartile values are reported as part of the study results.
- (2) Measures are system averages for frequency and include non-planned interruptions to transmission delivery points due to transmission line outages only.

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Figure 11:
Delivery Point Outage Duration per 100 miles for Delivery Points Served by \geq 230kV



4

Notes:

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- (1) The quartile values are reported as part of the study results.
- (2) Measures are system averages for duration and include non-planned interruptions to transmission delivery points due to transmission outages only.

1 **5.5 Delivery Point Performance Outliers**

2
3 Delivery point performance is evaluated in accordance with the standard that Hydro One
4 developed and filed with the OEB.² The performance standard is used as a trigger by
5 Hydro One to initiate assessment and follow up with affected customers in order to:

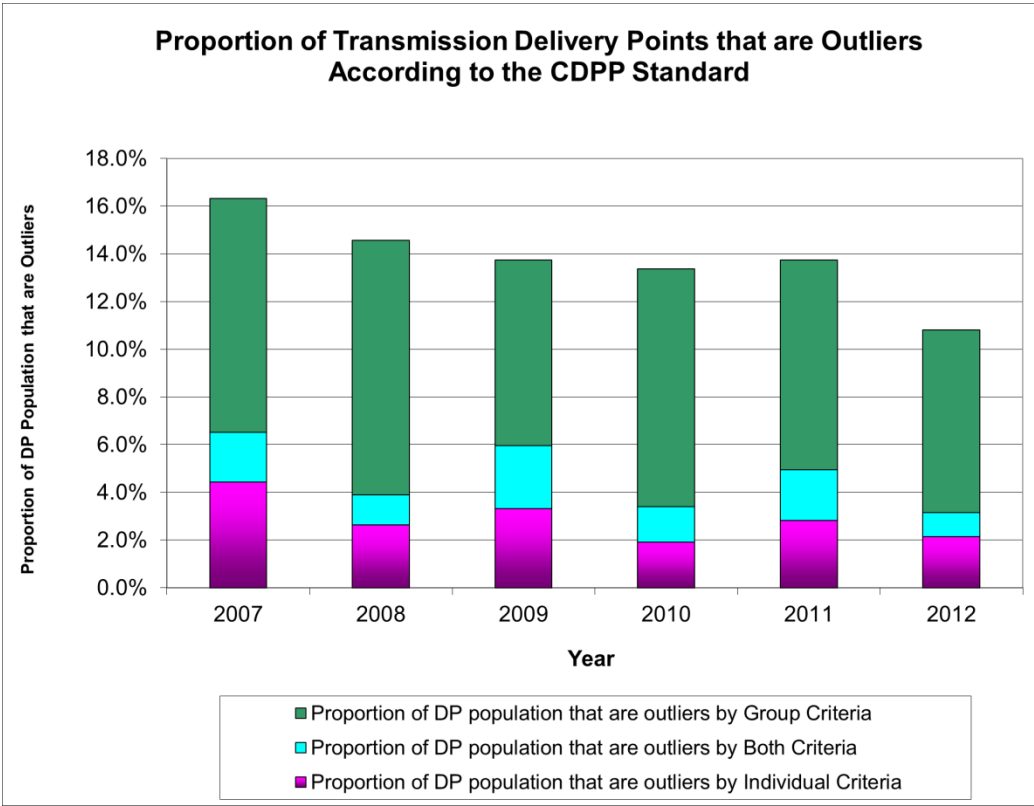
- 6
7 • Determine the root cause of unreliability;
8 • Perform technical and financial evaluations; and
9 • Decide on remedial action to improve reliability.

10
11 Figure 12 provides a summary of the transmission load delivery point performance
12 outliers for the Group and Individual Customer Delivery Point Performance (CDPP)
13 Standard criteria. Outliers due to Group and Individual CDPP Standard criteria are not
14 mutually exclusive. This means that a delivery point can be both a group outlier and an
15 individual outlier in same year.

² Customer Delivery Point Performance (CDPP) Standard, EB-2002-0424

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Figure 12:
Transmission Load Delivery Point Performance Outliers



3
4

5 The delivery points found to continually be outliers according to the standard are
6 incorporated into future investment programs. Hydro One endeavours to keep the number
7 of outliers at 10% or less of the total population of delivery points. This will not always
8 be the case as some delivery points are flagged as individual outliers even though they
9 would normally experience better reliability performance than standard. One or two
10 interruptions caused by isolated events may drive a specific delivery point as an
11 individual outlier in a particular year. These delivery points would typically become a
12 non-outlier in the following year with no incremental investment. Hydro One takes this
13 into consideration in its assessments.

1 **6.0 SHAREHOLDER PERFORMANCE**

2

3 Delivering shareholder value is a key objective of any business and as such, Hydro One
4 monitors related measures. A key measure in this area is the company's credit rating.
5 Currently the company has a credit rating in the "A" category, which is in line with other
6 large transmission companies in Canada. The goal is to maintain this credit rating in
7 order to ensure ready access to long-term financing at reasonable rates, as Hydro One
8 does not have access to equity markets and must use debt to fund capital requirements
9 and investments. Table 1 of Exhibit B1, Tab 2, Schedule 1 provides credit ratings of
10 Hydro One Inc.

11

12 Maintaining a good credit rating allows Hydro One to borrow at attractive interest rates,
13 which benefits customers by minimizing the cost of capital.