

SERVICE QUALITY INDICATORS

1.0 INTRODUCTION

Hydro One Distribution monitors and reports service quality indicators as required in Chapter 15 of the Ontario Energy Board 2006 Electricity Distribution Rate Handbook. The six customer service indicators and three service reliability indices are tracked monthly. Results are reported internally on a monthly basis. Reports are provided to the OEB annually in accordance with the 2006 Electricity Distribution Rate Handbook.

Hydro One Customer Service and Service Reliability results and targets from 2004 to 2008 are shown in Tables 1 and 2. Over the historical period, Hydro One Distribution met all OEB targets with the exception of one reliability measure in 2004 excluding *force majeure*¹ impacts.

1.1 Customer Service Indicators

Hydro One consistently tracks, analyzes and reports the six customer service indicators on a monthly basis as part of our internal performance scorecard process. This process identifies areas of concern so that they can be immediately addressed and brought back in line with OEB requirements.

Analysis of monthly and annual result trends provides valuable information for corporate planning, program planning and services management of resources.

The definitions of these indicators are provided in Section 2.1.

¹Hydro One deems a *force majeure* to have occurred when 10% or more of Hydro One customers have been interrupted by an event. See Page 4 for further information about *force majeure*.

1 **1.2 Service Reliability Indicators**

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3 Customer interruptions are analyzed and reported internally throughout the year.

4
5 Interruption data is collected and recorded in the Distribution Operations & Maintenance
6 Centre (part of Ontario Grid Control Centre), through communications with field staff
7 involved in the interruption restoration. It is input into a database system called Outage
8 Response Management System which provides data for in-depth performance analysis to
9 drive strategy and business investment decisions.

10
11 Interruption data is used to calculate OEB reliability indices (see Section 2.2 for
12 definitions) monthly which are reported internally.

13
14 There is ongoing analysis of approximately 40,000 annual interruptions. Trends of
15 frequency, duration, cause of interruptions, feeders, location, etc. are analyzed to allow
16 prioritization of maintenance, sustainment and capital programs on the distribution
17 system.

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19 **2.0 DEFINITIONS**

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21 **2.1 Customer Service Indicators**

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23 The six Customer service indicators are as follows:

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25 2.1.1 Appointments:

26
27 The percentage of appointments met (as requested in the morning or afternoon of a
28 particular date) includes appointments for high bill investigations, engineering
29 investigations, change service only and meter readings.

1 2.1.2 Connection of New Services:

2
3 The percentage of customer connections of new services completed within 5 working
4 days from the day on which all conditions of service are satisfied.

5
6 2.1.3 Emergency Response:

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8 The percentage of responses to emergency trouble calls (including fire, ambulance,
9 police) met within 120 minutes for Rural utilities, and 60 minutes for urban utilities. Due
10 to the predominantly rural nature of its distribution system, Hydro One Distribution is
11 required to meet the 120 minutes response time. The elapsed time is measured from the
12 call to the arrival of Hydro One qualified service personnel.

13
14 2.1.4 Telephone Accessibility:

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16 The percentage of calls answered by the call center within 30 seconds.

17
18 2.1.5 Underground Locates:

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20 The percentage of underground cable locates completed within 5 days. The days elapsed
21 is measured from the customer service request until the completion of the underground
22 cable locate.

23
24 2.1.6 Written Response to Inquiries:

25
26 The percentage of responses to customers' (or an agent of the customer) requests for
27 written information regarding their accounts that are met within 10 days of the request.

1 **2.2 Service Reliability Indicators**

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3 The three Service Reliability Indicators are:

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5 2.2.1 Frequency of Interruptions (SAIFI):

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7 The average number of times that Distribution customers served by Hydro One were
8 interrupted in the year.

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10 2.2.2 Duration of Interruptions (SAIDI):

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12 The average numbers of hours that Distribution customers served by Hydro One were
13 without power in the year.

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15 2.2.3 Average Interruption Time (CAIDI):

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17 The average interruption duration (in hours) of Distribution customers who were
18 interrupted.

19

20 The above reliability indices measure all interruptions caused by planned and unplanned
21 interruptions of 1 minute or more.

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23 **2.3 Force Majeure**

24

25 Hydro One deems a *force majeure* to have occurred when 10% or more of Hydro One
26 customers have been interrupted by an event.

27

1 An event may be a storm (usually the case), the Aug 14 blackout or any other problems
2 that interrupt 10% or more customers and cause a change in the normal restoration
3 business processes.

4

5 All Hydro One customers interrupted throughout the duration of the event while normal
6 restoration business processes are suspended are counted in the determination of the
7 numerator of the percent interrupted. The denominator is the total number of customers
8 served at the end of the month when the force majeure occurred. Details of all *force*
9 *majeure* events that have occurred from 2004 to 2006 are provided in Section 3.2.

10

11 **3.0 RESULTS**

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13 The results of the six Customer Service Indicators and the three Service Reliability
14 Indicators are attached in Tables 1 and 2 respectively.

15

16 **3.1 Customer Service Indicators**

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18 Table 1 indicates customer service results, overall, remain consistent over the historical
19 period and are better than the minimum OEB targets.

20

Table 1
Customer Service Indicators

<i>Performance Measure</i>	OEB Target	2004 Actual	2005 Actual	2006 Actual	2007 OEB Target	2008 OEB Target
Appointments (% met as agreed with customer)	≥ 90	93	90	92	≥ 90	≥ 90
Connection of New Services (% completed in ≤ 5 days)	≥ 90	94	93	91	≥ 90	≥ 90
Emergency Response (% responded to in ≤ 120 min)	≥ 80	91 90*	86 73*	92 65*	≥ 80	≥ 80
Telephone Accessibility (% answered in ≤ 30 seconds)	≥ 65	74	72	77	≥ 65	≥ 65
Underground Cable Locates (% completed in ≤ 5 days)	≥ 90	93	93	92	≥ 90	≥ 90
Written Response to Inquiries (% responded to in ≤ 10 days)	≥ 80	100	100	100	≥ 80	≥ 80

*Emergency Response results including the impact of Force Majeure. The values without the * are the values with *force majeure* removed.

3.2 Service Reliability Indicators

Table 2 shows that through the period 2004 to 2006, SAIFI remained relatively constant at or better than the minimum OEB target, excluding *force majeure* impacts with one exception. However, in 2004, SAIFI missed the OEB target due to exceptional weather. During December 2004, six large impact weather systems passed through the province over 14 days. In total, these weather systems impacted 26% of customers and added 0.3 to our SAIFI, however no single weather system met the *force majeure* criteria. The worst storm impacted 7% of our customers. Our December SAIFI result of 0.4 is significantly higher than our seven-year historical December average of 0.2.

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 2
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Table 2
Service Reliability Indicators

Performance Measure	2004 OEB Tgt	2004 Act	2005 OEB Tgt	2005 Act	2006 OEB Tgt	2006 Act	2007 OEB Tgt	2008 OEB Tgt
SAIFI Frequency of Interruptions (#of interruptions per customer)	≤ 3.0	3.1	≤ 3.1	2.9	≤ 3.1	2.9	≤ 3.1	≤ 3.1
SAIFI including Force Majeure		3.2**		3.9†		5.2††		
SAIDI Duration of Interruptions (hrs of interruption per customer)	≤ 9.4	6.5	≤ 9.4	8.0	≤ 8.0	7.1	≤ 8.0	≤ 8.0
SAIDI including Force Majeure		6.9**		14.5†		28.4††		
CAIDI Average Interruption Time (#of hrs per interruption)	≤ 3.1	2.1	≤ 3.0	2.8	≤ 2.6	2.4	≤ 2.6	≤ 2.6
CAIDI including Force Majeure		2.2**		3.7†		5.5††		

4 **See explanation in section "2004 Force Majeure Events"
 5 † See explanation in section "2005 Force Majeure Events"
 6 †† See explanation in section "2006 Force Majeure Events"
 7

8 Over the same historical period SAIDI has varied from 6.5 to 9.4 hours. The 2004 results
 9 represent a significant improvement over OEB targets for duration of outages. The good
 10 performance was a result of fewer significant events lasting longer than 4 hours resulting
 11 in a 50% improvement in the duration values for these types of interruptions, as well as
 12 our operational focus on reliability.

13
 14 The SAIDI performance over the 2004-2006 period drove a similar performance in
 15 CAIDI. Since CAIDI is dependent on both SAIDI and SAIFI (mathematically CAIDI =
 16 SAIDI / SAIFI), the reduction in SAIDI (i.e. the duration of interruptions) and the

1 consistency of SAIFI (i.e. the number of interruptions) resulted in a reduction in CAIDI
2 (i.e. the average interruption duration).

3

4 The consistencies in reliability (i.e. SAIDI, SAIFI and CAIDI) are credited to the focus
5 that was placed on distribution reliability and the number of improvement initiatives that
6 continue to be undertaken such as:

7

- 8 • Detailed feeder analysis to assess feeder reliability and customer impact and develop
9 the appropriate investment recommendations,
- 10 • Assigning of crews to summer peaking storm locations to improve storm response
11 time, and
- 12 • Scheduled work in high probability storm locations to improve restoration time.

13

14 **3.3 2004 Force Majeure Events**

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16 In 2004 there was only 1 *force majeure* event that met the 10% of customers affected
17 definition. This was the result of a storm on April 18 & 19, 2004 that interrupted 10.4 %
18 of our customers. A violent spring storm brought high winds gusting up to 85 km/h and
19 thunderstorms to Central and Southern Ontario. Winds were strong enough to uproot
20 trees and ruin barns.

21

22 The effect of this storm resulted in a contribution to the annual SAIDI of 0.4 hours and
23 annual SAIFI of 0.1 interruptions per customer, with a CAIDI of about 4.0 hours.

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25 **3.4 2005 Force Majeure Events**

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27 In 2005 there were four *force majeure* events that met the 10% of customers affected
28 definition. The storms occurred on April 2nd, September 29th, November 10th and

1 November 13th. Each of those days, respectively they interrupted the following
2 percentages of customers: 23%, 15%, 35% and 23%.

3
4 On April 2nd to 4th, 2005 a storm consisting of wet snow, freezing rain and high winds
5 caused widespread damage in Southern Ontario, 23% or about 265,000 customers were
6 affected.

7
8 On September 29th to 30th a fast moving storm front crossed Southern Ontario with high
9 winds and rain/thunderstorms affecting 15% or about 172,000 customers.

10
11 In November there were two back to back fast moving storm fronts. On November 6th to
12 10th the first storm crossed Southern Ontario with high powerful winds and rain/
13 thunderstorms that affected 35% or about 409,000 customers.

14
15 The second front crossed from Georgian Bay to the Quebec border on November 13th to
16 17th again with high winds and snow, rain/thunderstorms affecting 23% or about 266,000
17 customers.

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19 The effect of these storms resulted in a contribution to the annual SAIDI of 6.5 hours and
20 annual SAIFI of 1.0 interruption per customer, with a CAIDI of about 6.5 hours.

21 22 **3.5 2006 Force Majeure Events**

23
24 In 2006 there were eight *force majeure* events that met the 10% of customers affected
25 definition. The storms occurred on February 4th, February 16th, March 13th, July 17th,
26 August 2nd, September 24th, October 28th and December 1st Each of those days,
27 respectively they interrupted the following percentages of customers: 44%, 13%, 10%,
28 42%, 47%, 29%, 14% and 23%.

1 On February 4th to 8th, 2006 a storm consisting of heavy wet snow and wind (up to 60
2 km/hr) spread across the province from Lake Huron to Sudbury to Ottawa causing
3 widespread damage in Southern Ontario affecting 44% or about 505,000 customers.

4

5 This was followed on February 16th to 17th with rain, freezing rain, snow and winds up
6 to 75 km/hr affecting 13% or about 155,000 customers in an area from Windsor to
7 Ottawa.

8

9 On March 13th to 15th a storm throughout Southern Ontario had winds gusting up to 80
10 km/hr, torrential rains, diving temperatures and snow squalls affecting 10% or about
11 120,000 customers.

12

13 The storm starting on July 17th with restoration efforts to the 22nd, was labeled by
14 Environment Canada as the third worst storm in Canada in 2006. This southern Ontario
15 storm of high winds (up to 80 km/hr), rain and thunderstorms that left a swath of damage
16 about 400 km long affecting 42% or about 483,000 customers.

17

18 August 2nd to 9th, 2006 was also included in Environment Canada's third worst storm
19 list. This storm system triggered 10 tornadoes as it hop scotched through cottage country
20 and into Quebec affecting 47% or about 545,000 customers.

21

22 On September 24th to 30th, severe winds gusting up to 90 km/hr, started at Georgian
23 Bay and moved east across the province affecting 29% or about 334,000 customers

24

25 October 28th to 29th saw an early winter storm consisting of snow and winds gusting up
26 to 100 km/hr move from Georgian Bay and North Eastern Ontario to Ottawa affecting
27 14% or about 164,000 customers

28

1 December 1st to 3rd had snow, freezing rain and winds gusting up to 50 km/hr affecting
2 23% or about 264,000 customers throughout Southern Ontario.

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4 The effect of these storms resulted in a contribution to the annual SAIDI of 21.3 hours
5 and annual SAIFI of 2.3 interruptions per customer, with a CAIDI of about 9.3 hours.

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