Executive Summary

The Ontario Electrical Safety Report (OESR) has evolved over the past ten years to provide a comprehensive assessment of electrical fatalities and incidents that occur in Ontario. The data presented in this report have been compiled from multiple sources, investigations, and root cause analyses. This report is broadly used by safety stakeholders and business operators to gain a better understanding of potential electrical risks, high-risk areas, and to encourage the development of initiatives to improve the state of electrical safety in Ontario.

Over the past ten years there has been a steady decline in the rates of electrocutions, fire fatalities (where the ignition source was identified as electrical) and electrical injuries in Ontario. While progress is being made to reduce the number of incidents, the causes and contexts of the serious ones remain the same. Concerted efforts are needed for rates to continue to decrease.

Comparison of Electrocutions to Fire Fatalities, per million population, 2001–2010

Conclusion: The five-year rolling average fatality rate has decreased 38% over the last five years.

Source: ESA and Coroner’s records
Electrical Fatalities

In the past ten years, Ontario has reported 164 electrical fatalities. From 2001 to 2010, 83 people died by electrocution and 81 died as a result of fires where the ignition source was identified as electrical, though electricity may not have been the primary source of the fire. In comparison, for the ten-year period from 2000 to 2009, there were 207 electrical fatalities – 90 electrocutions and 117 fire deaths.

Electrocutions

The rate of electrocutions (accidental death caused by contact with electricity) continues to decline:

- From 2001 to 2005, there were 47 electrocutions, a rate of 0.77 per million population.
- From 2006 to 2010, there were 36 electrocutions, a rate of 0.56 per million population; a decrease of 38%.

Powerline electrocutions which have accounted for more than half (53%) of all electrocutions in the past ten years, are continuing to decline:

- From 2001 to 2005, 51% of all electrocutions in Ontario were from powerline contact.
- From 2006 to 2010, 39% were powerline-related.

Occupational electrocutions continue to outnumber non-occupational deaths by a ratio of 2 to 1:

- From 2001 to 2005, 34 of the 47 (72%) electrocutions were occupational.
- From 2006 to 2010, 23 of the 36 (64%) electrocutions were occupational.

Electricians accounted for 14% of electrical occupational electrocutions between 2006 and 2010, and they continue to be critically injured on the job when working on energized electrical panels.

Non-occupational electrocutions rates are also declining. The low number of incidents makes trending difficult; however, five-year rolling averages can assist in identifying trends:

- The five-year average number of non-occupational electrocutions has decreased from 4.8 to 2.6 over the last ten years.
- The rate of electrocutions per million population has decreased from 0.42 to 0.20. This is a decline of 52%.
Executive Summary (continued)

Fire Fatalities and Events

The rate of fire fatalities (where the ignition source was identified as electrical) declined from 0.77 per million population to 0.61 per million population in the 2000 to 2009 period.

The number of electrical fire incidents declined 17% between the years 2005 to 2009.

Cooking-related fires continue to be the most common type of electrical fire; although the rates are declining:

- In 2000, there were 1,554 cooking fires.
- In 2009, there were 1,002 cooking fires. This is a 36% reduction.

Electrical distribution fires, as defined by the Office of the Fire Marshal (OFM), are also declining:

- In 2000, there were 902 electrical distribution fires.
- In 2009, there were 604 electrical distribution fires. This is a 33% reduction.

Priority Issues

The Electrical Safety Authority (ESA) uses the incident data presented in the Ontario Electrical Safety Report to identify those areas that present the greatest risk to Ontarians, to track changes in incident data, and to identify emerging trends. Based on data collected over the past ten years, ESA has identified that 70% of all electrical injuries and fatalities occur in specific areas. These areas have been identified as priorities for reducing electrical fatalities, serious injuries, damage and loss in Ontario:

- **powerline contact** – Powerline contact has accounted for almost half of all electrocutions in the past ten years. ESA’s efforts to reduce these numbers include the formation of a Powerline Safety Strategy and introduction of specific and targeted initiatives for high-risk groups, such as dump truck operators, the farming community, and small contractors in siding, roofing and painting.

- **electrical workers** – Electrical worker incidents are primarily associated with unsafe work practices and procedures. Fatalities to the electrical trade accounted for 22% of all occupational fatalities between 2006 and 2010. In addition, there are at least two critical injuries to electricians each year.

- **misuse of electrical products and unapproved, or counterfeit products** – The use or misuse of electrical products have resulted in more than 1,000 fires and an average of five fatalities each year. These fires are mainly caused by the misuse of stove-top equipment where unattended cooking has resulted in fire fatalities.

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1 The OFM definition of “distribution equipment” is electrical wiring, devices or equipment, the primary function of which is to carry current from one location to another. Thus, wiring, extension cords, termination, electrical panels, cords on appliances, etc. are considered distribution equipment. This is different than Distribution Equipment as defined by Local Distribution Companies.
• **older buildings and electrical infrastructure** – Fires in older buildings account for roughly 1,000 fires, and result in five fatalities, annually. Older residential facilities with less safety protection than new ones (e.g. GFCIs) have resulted in two deaths in the past five years.

**Initiatives**

In 2009, ESA introduced a Harm Reduction Strategy to focus initiatives on addressing those harms with the highest priority based on the factual understanding of electrical harms. These harms include: Powerline Safety, Worker Safety, Product Safety, and Consumer/Home Safety. These initiatives are documented in ESA’s annual report and business plans, and are available at www.esasafe.com.

What is more significant is the work and initiatives of the many safety partners and stakeholders within the electrical safety system that ESA encourages, promotes, and supports. The electrical safety system includes all types of organizations, from those who generate and distribute electricity – such as electrical equipment manufacturers, standards organizations, safety organizations, installers of electrical equipment, educators, facility owners, injury response and treatment providers, government, researchers and injury prevention specialists, safety regulators and worker safety advocates – to those who are the end users of electricity.

Feedback from our stakeholders reinforces that the data and information compiled in the Ontario Electrical Safety Report is used by:

- government ministries and agencies
- safety stakeholders: LDCs, product sector, worker and industry associations, business owners, consumers/property owners
- universities and colleges
- hospitals and health care organizations
- the Ontario public for whom we seek to improve electrical safety

In recognition of the contribution others make to improve electrical safety, ESA launched the annual Ontario Electrical Safety Awards program in 2010. This program recognizes exemplary contributions to Powerline Safety, Worker Safety, Product Safety, and Consumer/Home Safety. More information on the Awards program is available using the following link: http://esasafe.com/Corporate/ontario_electrical_safety_awards_program.php?s=0.

Together, with others, in the electrical safety system we continue on the collective journey of “Getting to Zero”.