

**Asset Management- Public Safety Perspective
Working Group
Of the Utility Advisory Council**

Terms of Reference

Introduction

At the February 5, 2009 meeting of the Utility Advisory Council (UAC) the ESA brought the topic of Asset Management - from a Public Safety Perspective- for review with the council. Over the last 5 years many serious incidents have occurred on older or deteriorating electrical distribution systems. These incidents did or had the potential to result in fatalities, serious injury, and extensive property damage.

ESA is seeking advice from the council to solicit stakeholder input on the mitigation of safety risks in deteriorating older electrical distribution system installations in Ontario.

Scope

The working group will provide review and comment to:

- Determine the format for informal stakeholder input,
- Undertake additional research and analysis upon which stakeholders can comment such as:
 - Provincial data and trending
 - Jurisdictional analysis
 - Best practices,
- A draft Options Paper prior to being circulated for broader stakeholder review and input.

This initiative was not intended to duplicate the OEB initiatives on Asset Management Practices dated March 10, 2009 but to dovetail from a public safety perspective.

Background

Approximately 40 incidents have occurred on aged installations over the last 3 ½ years. These installations are approximately 25 years or older and have been analyzed with common contributing factors coming to light. Although no fatalities have occurred with these incidents, the potential existed for many fatalities.

The impacts on the public due to serious incidents have been:

- critical injury due to shock;
- non-critical injuries due to shock or falling parts;
- evacuation of residences for up to 6 weeks,
- extensive property damage from fire and explosions.

These serious incidents occurred mostly;

- on sidewalks in city centres or other public places,
- in residential areas
- in rural and recreational areas

The electrical installations were predominantly overhead although serious incidents did occur with underground installations, in buildings and substations in residential areas.

The Utility Regulation Department issued a bulletin last year to utilities as a result of a critical injury due to shock from deteriorating equipment in a public place and is attached.

Serious Incidents –Contributing Factors

The diverse nature of the incidents has made analysis difficult. Attempts were made to find common attributes. Grouping by type of equipment, type of installation, age of installation, utility, geographic area, voltage or time of year did not provide satisfactory insight.

However, by honing in on the contributing factors of the incidents, groupings, that were not immediately obvious, began to appear. Most incidents had more than one contributing factor. It is important to note that although the focus has been on age, what appear to be more important is installations that are deteriorating, or compromised due to the contributing factors listed below.

Electrical Distribution Safety

The primary contributing factors for these incidents are:

- Known equipment weakness - #6 cu solid conductor, wooden insulator pins, porcelain L/A, porcelain insulators, rotten poles
- Weathering effects - deterioration due to effects of weather
- Vegetation & animal encroachment - tree trimming, woodpeckers, raccoons, squirrels
- Structure encroachment - buildings, signs
- Operating practices – inappropriate operation of system
- Load changes - overload/under loading, electrical stress(overvoltage, single phasing, moisture ingress)
- Protection schemes – failure or misapplication of protection schemes
- Installation practices - not to manufacturers specs, premature failure
- Damage by others – cable cuts, nicks
- Lack of Maintenance – per manufactures specs, site specific, application
- Connection deterioration - electrical or mechanical stresses
- Chemical effects - corrosion
- Contamination – salt, dirt, tracking
- Loss of technical knowledge - implications of situations that can lead to shock, fire or explosion.

Roles and Responsibility

The UAC is intended to act as an advisory body in making recommendations and for providing comments from the electrical distribution industry and other stakeholders on the implementation of O.Reg.22/04 or other safety related issues that may be outside the scope of O.Reg.22/04 in Ontario.

Some members of the UAC volunteered to participate in the Working Group and may delegate another person from their organization to participate on their behalf or can invite others who wish to participate.

It is the Working Group's responsibility to update the UAC at each meeting on progress to date. Any documents prepared by the Working Group or ESA will be presented to the full UAC for their review. The Working Group, once established, may consider selecting a chair.

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