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**Electrical Distribution Safety**

**Asset Management from a Public Safety Perspective Working Group**

Stage West  
5400 Dixie Road, Mississauga

**Attendees:**

Neil Sandford	Burlington Hydro
Mary Byrne	Toronto Hydro-Electric Systems Ltd
Doug Morrison	Enersource Hydro Mississauga Inc.
Herb Haller	Waterloo North Hydro Inc.
John O'Neill	Canadian Standards Association
William Schwarz	W.O. Schwarz Consulting
Paul Krupicz	Tiltran Services
Ajay Garg	Hydro One Networks Inc.
Frank Zechner	Frank J.E. Zechner Professional Corp
Peter Petriw	Veridian Connections Inc.
Gaye-Donna Young	Newmarket-Tay Power Distribution Ltd
Lloyd Frank	Kitchener-Wilmot Hydro Inc.
Jerry Van Ooteghem	Kitchener-Wilmot Hydro Inc.
Brian McMillan	Greater Sudbury Utilities Inc.
Fasail Habibullah	Brantford Power Inc.
Michael Fulcher	Fulcher & Associates Ltd
Mike Wittemund	Guelph Hydro Electric Systems Inc.
Rudy Kerec	Power Workers Union
Franz Kropp	Hydro Ottawa Limited
Rick Johnson	Power Workers Union
Ed Jambor	London Hydro Inc.
Doug Fairchild	PowerStream Inc.
Chris Kerr	Toronto Hydro-Electric Systems Ltd
John Barratt	Veridian Connections Inc.
Walter Kloostra	Hydro One Networks Inc.
Peter Krotky	Automated Solutions International Inc.

**ESA:**

Jenifer Robertson	ESA
Jason Hrycyshyn	ESA
Patrick Falzon	ESA
Martin Post	ESA

**Copies:**

Casey Malone	Hydro Ottawa Limited
John Mulrooney	PowerStream Inc.
Lorne Pasche	Welland Hydro Electric System Corp.
Francis Szto	Toronto Hydro-Electric Systems Ltd
Pierre Lemay	Hydro Ottawa Limited
Andre Perron	Hydro One Networks Inc.
Arlen Molyneaux	Guelph Hydro Electric Systems Inc.

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## Electrical Distribution Safety

### 1.0 Welcome and opening remarks

Jenifer Robertson opened the meeting and outlined two goals for the day for the group to consider, a discussion on the draft Terms of Reference and to consider choosing a chair for the working group.

Martin Post provided a quick review of how the Utility Advisory Council and previous working groups had operated, for the benefit of attendees who had not previously participated.

The proposed agenda for the day was reviewed.

### 2.0 Roundtable introductions

Each attendee was asked to introduce themselves, who they represented and provide a bit of background in their interest in the asset management working group.

Some of the main themes from the attendees were a desire to share information and best practices, they wanted to focus on real issues, not hypothetical; there was a concern expressed about duplicate or over-regulation; .

ESA commented that its preference is voluntary participation for this emerging trend rather than government regulation.

### 3.0 Election of Chair

Herb Haller was elected as chair of the working group.

### 4.0 Public Safety - Older Deteriorated Assets

ESA presentation

- Photographs of serious electrical incidents and safety concerns in Ontario over the last four years involving utility owned assets older than 25 years.
- Governments response to public outrage is more regulation
- 11 reported incidents of transformer vault fires or explosions
- 86 reported instances of rotted, cracked or damaged poles
- Two reported incidents of submarine cable concentric neutral failures
  - One incident resulted in an adult and child being shocked
  - Other incident resulted in a fire on an island
- 98 reported instances of line equipment failures
  - Porcelain insulator failed violently resulting in equipment shrapnel breaking a glass patio door and a vehicle.
  - An energized line fell to the ground unexpectedly, contacting two members of the public
- Seven reported incidents of substation fires or explosions or public encroachment

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### Electrical Distribution Safety

- Question - whether lack of maintenance was a contributing factor to these failures?
- A substation was found to have a private deck built up right against the substation fence. The utility had conducted regular maintenance inspections of the station, but never commented on the proximity of the customer property nor acknowledged the potential hazard.
- LDCs would benefit from support of ESA when they have to try to get the public to not build near utility assets. The public, media, bureaucrats and politicians need to be educated on potential hazards and electrical safety.
- Some LDCs have put up a second interior row of fencing at substations in subdivisions for security and visual and noise abatement issue.

#### **5.0 Aged Systems Serious Incident Reports – Contributing factors**

ESA presentation

- Forty Serious Incident Reports over three and one half years involving equipment over 25 years old. There have been 15 more incidents in the last nine months, with the contributing factors aligning with the earlier analysis.
- Usually incidents have three or more contributing factors causing the incident.
- A summary of statistical data analysis was shown including:
  - Analysis by type of contributing factor (corrosion, known equip. weakness)
  - Analysis by asset type (overhead, substation)
  - Analysis by location of asset (rear lot, front lot)
  - Analysis of potential impact on public (shock, explosion)
- ESA was asked if aged wiring in homes and buildings is also an issue and if so how was ESA dealing with those issues. It is for some the same reasons. For instance older wiring in homes is not designed and built to accommodate the load demands of current electrical and electronic household equipment.

#### **6.0 General discussion**

- ESA was asked what their expectations for the working group are.
  - A way to prevent a crisis, similar to Walkerton in the water industry
  - Ensure that legacy distribution meets a high standard of public safety
  - Prevent incidents that have a high impact on the public either in number or severity
- LDCs want to spend money smart – how does an LDC get most “bang for the buck”?
- LDC’s perform asset management but most do not have formal plans.
- Target assets most likely to fail in an unsafe manner.
- Need to get statistics to help identify potential safety issues
- In some cases other statistics can be used – e.g. outages – lack of tree trimming causing outages could also indicate a safety issue

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### Electrical Distribution Safety

- Question – should equipment manufacturers be invited to participate?
- Try to measure incidents with metrics - gather incidents on a per unit measure such as per km of line.
- Can a level of safety be identified through metrics? LDCs can measure against to prove safety is being addressed.
- OEB is requiring information in asset management plans to be submitted, are taking a replace “just in time” approach.
- Need analysis of incidents/fatalities related to asset management to help focus where highest risk is.
- Utility industry needs to analyze their own stats to start and then disseminate /share with other LDCs. Compare and look for trends e.g. specific type of equipment failing in an unsafe manner
- There is a correlation to underground locate industry – developed the DIRT (Damage Incident Reporting Tool) reporting database to gather stats anonymously
- What can the working group do to satisfy the Regulator? Is the group being asked to recommend a) regulation, b) education c) best practice?
  - ESA response: work with industry to understand the emerging trend; not looking for regulation, do not want to increase reporting requirements (, would like to explore best practices/tools to help set priorities in Asset Management Plans for public safety risk assessment
- Should this be a permanent working group to review issues, incidents, trends
- Need to consider the willingness of people/organizations to commit to reporting/ analysis when there is no external force – e.g. a regulatory or mandatory requirement – need to justify the time and expenditure
- Need to be able to justify participating by showing value
- One LDC has hard time collecting information and developing trending so would like to see a tool like the DIRT database. Should include location to help identify the “next big thing”
- Might be easier to develop and implement guideline rather than a regulation
- Need to explore what are common practices versus best practices
- Would like to see if quantifiable targets can be determined for LDCs/ industry to be measured against
- Over the last ten years there has been a lack of technical and equipment communication in the industry – EDA and EUSA used to provide this
- Database can also capture best practices and schedules as well as incidents
- Need to identify high risk events for the public and manage those within the budget. Budgets based on stats supporting risk analysis is easier to “sell” to OEB, Boards, etc.
- Analysis should also include what was the cause of the failure/incident? Lack of maintenance, fatigue, poor installation, incorrect application, etc.

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### **Electrical Distribution Safety**

- Need to understand the probability of events and liability exposure
- What are the deliverables for next agenda / meeting?
  - Education
  - Best practices
  - Common practices
  - Database - failures & best practices
  - Measure of safety
  - Identify high risk – early focus for working group.

#### **7.0 Draft Terms of Reference**

The draft Terms of Reference were reviewed and modified by deleting the phrase “to develop a process” in the 2<sup>nd</sup> paragraph of the Introduction. The revised Terms of Reference is attached.

#### **8.0 Next Meeting**

The next meeting will be held Thursday, February 4, 2010.

The location of the next meeting will be Stage West at 5400 Dixie Road, Mississauga.

#### **Meeting Adjourned**

prepared by Martin Post