



Utility Advisory Council Members

LDC/Owner-Operator

Alectra Utilities	Joseph Chiuco
Burlington Hydro	
Elexicon Energy Incorporated	Faisal Habibullah
Festival Hydro	Bryon Hartung
Hydro One	Darren Desrosiers
Hydro One - Transmission	Ajay Garg
Hydro Ottawa	Edward Donkersteeg
Kitchener-Wilmot Hydro	Greig Cameron
London Hydro	
Newmarket-Tay Power Distribution Ltd.	Alex Braletic
Toronto Hydro	Hani Taki

General Interest

Bell Canada/Telecom Industry	Tony Pereira
Consumer Advisory Council	Sandy Manners
CSA Group	Mark Humphries
IHSA	Al Leger
Power Workers Union	Patrick Fee

Other Attendees

Peter Petriw (Hydro One), Kathi Farmer (EDA), John Barratt (Alectra Utilities), Chris Kleberg (Hydro One), Fred Kouhdani (Hydro One Transmission), Alexander Janack (Policy Advisor form MGCS), Lori Gallagher (USF), Stephen Cain (OEB), Arthur Berdichevsky (InnPower), Shannon Wilson (Niagara Peninsula Energy), Rob Koekkoek (Orangeville Hydro)

ESA Attendees

Nansy Hanna, Jason Hrycyshyn, Patrick Falzon, Sean Burger, Claire Loucks, Emily Larose, Hayley Shaughnessy, Karen Ras



1 Notice & Quorum

- The meeting had quorum

2 Minutes of UAC Meeting

The following motion was carried:

Motion: To accept the minutes of the October 7, 2021 meeting

No objections to the Oct 7 2021 meeting minutes

3 Open Action Items

- 2019-02-04 - Measurements Canada Meter Drawing Signed by a Professional Engineer (Jason Hrycyshyn)
 - o Defer
- 2019-03-01 - ESA to develop a process for facilitating resolution of conflict between LDCs and a Third Party equipment owner (Jason Hrycyshyn)
 - o Defer
- 2021-01-03 - UAC Request - Meter Base - Manufacturer's Product Withdrawal (Jason Hrycyshyn)
 - o On the agenda
- 2021-02-01 - Excavation in the Proximity of Underground Distribution Lines Update (Jason Hrycyshyn)
 - o On the agenda
- 2021-03-01 - Street Lighting Work that falls under CSS (Patrick Falzon)
 - o Ongoing

4 UAC Member Term Renewals - Group 1 up for renewal June 2022 - Claire Loucks

- Both the Chair and Vice-Chair terms are complete as of June 2022
- The Chair has indicated a willingness to continue for another term
- The Vice-Chair has changed positions and will be unable to continue for another term
- ESA will contact council members interested in putting their name forward for Vice-Chair

- Group 1 Council member terms will expire June 2022
- ESA will contact these members to discuss their intentions of renewing their membership on the Council



5 Update on the 3-Phase 3-Wire Solidly-Grounded Wye Installations - Jason Hrycyshyn

- About 400 more sites have been completed
- ESA is contacting LDCs that haven't provided an update for a significant period of time

6 CSA C22.3 No 11-2022 - Maintenance of Electric and Communication Utility Equipment and Systems - Jason Hrycyshyn

- An update was provided on the development of this standard
- ESA and OEB have been discussing keeping Appendix C, using the new standard or some other option.
- For ESA to recognize this standard it would most likely be a revision to the guideline

7 New Powerline Safety Survey Data from ESA - Patrick Falzon

- A Guide was published in 2015 for the Component A Powerline Safety Survey
- Recently a LDC has brought a concern with question B7
 - o An LDC was receiving poor scores on this question and asked to have changes to the answers
 - o Answers don't align with ESAs messaging so we have made an update to the answers
- The council had no issues with ESA updating the answers with the proposal presented

8 CSA C22.3 No 1-2022 - Overhead Systems - Jason Hrycyshyn

- An update on the work on this standard was provided.
- This is a Climate Change focused amendment to the 2020 version.

9 CSA C22.3 No 7-2022 - Underground Systems - Jason Hrycyshyn

- An update on the work on this standard was provided
- This is a Climate Change focused amendment to the 2020 version.

10 Auditor Debrief - Recap for UAC - Sean Burger

- Highlights of the presentation and discussion with the Auditors at the 2021 Auditor debrief was provided



- The full presentation to the Auditors can be found on the ESA website (<https://esasafe.com/assets/files/esasafe/pdf/Utilities/Audit-Debrief-2021.pdf>)

11 AMPs Regulation Consultation - Emily Larose

- The current status of the AMPs development was shared with the Council
- The MGCS consultation open to Feb 24, 2022
- More information on the Auditor General recommendation 15.1 can be found on the ESA website (<https://esasafe.com/auditor-general-action-plan/>)

12 Approved Auditors Bulletin - Sean Burger

- A new Auditor asked about ESA providing LDC contact information
 - o LDCs were not in favour of providing this information to new Auditors
 - o LDCs have the auditor information on the ESA website and will use this information when they send out RFPs
- When an Auditor has an "*" beside their name the auditor would have to perform the audit under the shadow or witness audit procedure
 - o This is an ESA requirement that is in the Guideline for Audit (<https://esasafe.com/assets/files/esasafe/pdf/Utilities/Guideline-for-Audit-v2.1.pdf>)

13 Powerline Safety Campaign 2021 - Hayley Shaughnessy

- The Director, Communications, Government and Stakeholder Relations - Karen Ras was introduced to the Council
- ESAs 2021 safety campaigns had good recall with the public (%20) and those that were exposed to the campaigns showed more concern for powerline safety
 - o Audio & visual were placed on several platforms including: Spotify, YouTube, radio, social media, trade magazines, etc.
- Targeted publications in Homestars, Pool & Spa marketing and Landscape trades were done
- ESA continues to provide materials to LDCs for their use on social media throughout the year

14 Powerline Safety Week 2022 - Hayley Shaughnessy

- Looking at a digital led campaign and focusing on communities most affected by powerline contacts



15 Building Broadband Faster Act, 2021 (BBFA) - Jason Hrycyshyn

- An update was provided to the Council
- Building Broadband Faster Act Guideline (https://www.ontarioonecall.ca/wp-content/uploads/Building_Broadband_Faster_with_Guideline-_-_November_30_2021_FINAL.pdf)
- Enabling the enforceability of the Building Broadband Faster Act Guideline (<https://www.ontariocanada.com/registry/view.do?postingId=39987>)

16 CVP Refresher Training - Time Period Discussion - Jason Hrycyshyn

- ESA brought proposed updates to the Technical Guideline for Section 8 Inspection and Approval of Construction (https://esasafe.com/assets/files/esasafe/pdf/Utilities/Guideline_Construction_Inspection_and_Approval.pdf)
- Hydro One uses a 2 year cycle due to the number of people that need to be trained and the cost of implementing the training
- A LDC will be moving this into their annual refresher training along with WHIMIS and other training items.
- Concerns were raised that if ESA put a maximum of 2 years then management may push for 2 years to save money.
- There was agreement that the timeframes for refresher training should be included in the CVP and approved by ESA
 - o Documenting in the CVP is good reference for the future
- It was suggested that ESA remove the need for rationale if refresher training is not done annually
- There were none opposed to the changes ESA has proposed

17 Scorecard - Component C - Jason Hrycyshyn

- The working group scope was updated to discuss what the best metric for evaluating LDC safety performance is
- ESA was asked if it could look into providing the LDC Scorecard metrics to LDCs by the end of January to allow more time for internal discussion at the LDC

18 UAC Request - Meter Base - Manufacturer's Product Withdrawal (Action Item #2021-01-03) - Jason Hrycyshyn



- None of the Electrical Distributors, that responded to the request for information, had experienced or were aware of any incidents
- ESA is considering this issue to be closed

**19 Excavation in the Proximity of Underground Distribution Lines Update
(Action Item #2021-02-01) - Jason Hrycyshyn**

- Changes brought about by the Building Broadband Faster Act have caused ESA to look at Clause 3.2 of the Guideline for Excavation in the Vicinity of Underground Distribution Lines (<https://esasafe.com/assets/files/esasafe/pdf/Utilities/Guideline-for-Excavating-Proximity-of-Underground-Distribution-Lines.pdf>)
- Updated Clause 3.2 to point to the relevant legislation where the timeframes exists
 - o Ontario Underground Infrastructure Notification System Act
 - o Underground Infrastructure Damage Prevention Best Practices produced by the Canadian Common Ground Alliance (CCGA)

20 Incidents - Patrick Falzon

- High level details of 2 incidents were shared with the Council

21 EV and DER - Future of Distribution in Ontario - Jason Hrycyshyn

- ESA shared some of the trends it noticing that may have a significant impact on LDCs
- ESA asked the Council if there were any other items that the Council saw that may have a significant impact on LDCs
 - o Crypto currency mining is using a significant amount of energy
 - o Electrification of natural gas appliances (heating and cooking)
- If distributors cease to be distributors and change to LSEs or DSOs then the regulation may need to be looked at
- This is just what ESA is seeing. ESA is asking if the Council should have a longer more strategic discussion around any of these changes and how they could impact safety and the Regulation
- While these items may have a significant impact on LDCs it is not evident what, if any, safety implactions may result
- The Council is requested to have a focus on industry changes and discuss these items at the UAC

Motion: To adjourn the meeting

Motioned by: Ed Donkersteeg

Second: Ajay Garg

February 15, 2022

3-Phase 3-Wire Solidly-Grounded Wye Customer Services

Update

Utility Advisory Council
Jason Hrycyshyn



3-Phase 3-Wire Solidly-Grounded Wye Customer Services

FLASH NOTICE #1	May 2021	September 2021	January 2022
Number of Possible Configuration of Concerns	Number of Possible Configuration of Concerns	Number of Possible Configuration of Concerns	Number of Possible Configuration of Concerns
~15,000	~7,038	~5,836	~5,416
Number of LDCs without a Possible Configuration of Concern	Number of LDCs without a Possible Configuration of Concern	Number of LDCs without a Possible Configuration of Concern	Number of LDCs without a Possible Configuration of Concern
12	32	35	35



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February 15, 2022

CSA C22.3 No. 11 - 2022 - Maintenance of Electric and Communication Utility Equipment and Systems

Feedback

Utility Advisory Council
Jason Hrycyshyn



CSA C22.3 No. 11 - 2022 - Maintenance of Electric and Communication Utility Equipment and Systems

Background

- Z463 TC and SCOPE (CSA Steering Committee on Power Engineering & EMC) came to an agreement that:
 - Utilities would be included under Z463; or
 - Utilities would have a separate maintenance Standard by next edition (2023).
- Early 2020 - Technical Committee Member recruitment for the development of C22.3 No.11, included representation from:
 - Generation
 - Transmission
 - Stations
 - Distribution
 - Communications

CSA C22.3 No. 11 - 2022 - Maintenance of Electric and Communication Utility Equipment and Systems

Highlights

General Inspection – identification of risks and hazards for planned corrective action

Detailed Inspection – a thorough review of the asset to identify state of deterioration, which may include visual review, measurements, testing, or taking samples, and may prompt corrective action

Note: Currently there are no requirements for a “Detailed Inspection” in Appendix C. This may require new processes and training to be put in place by Distributors which may increase costs.

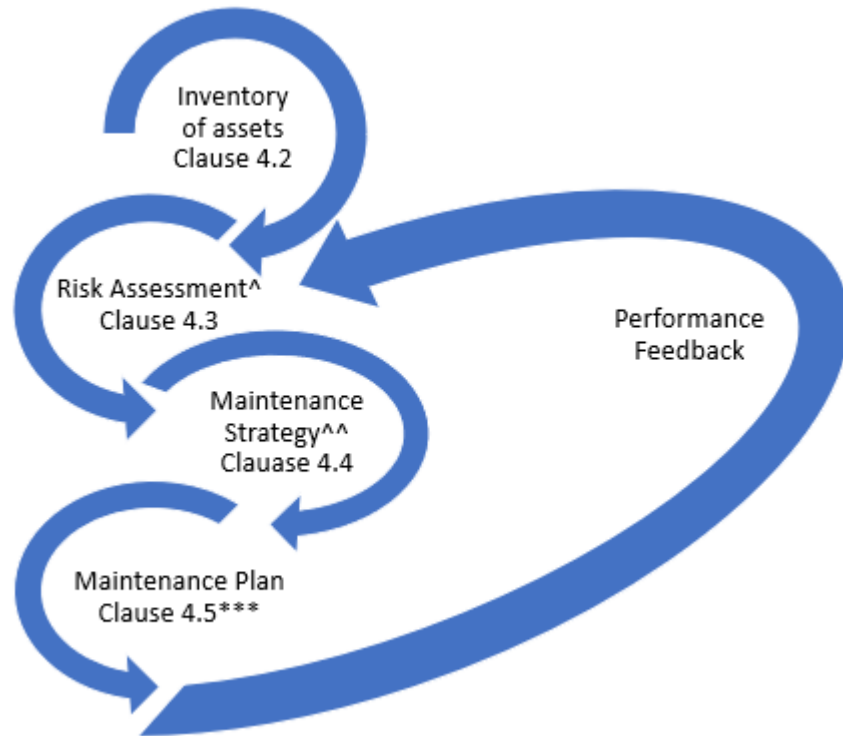
Time-based Approach – frequency of maintenance activities of the asset(s) based on a fixed cycle time (next slide for a visual)

Risk-based Approach – frequency of maintenance activities of the asset(s) based on a risk assessment (next slide for a visual)

Note: Currently there is only the “Time-based Approach” allowed. In the short term the “Risk-based Approach” may increase costs incurred by the Distributor in the short term, however in the long term this should be a lower cost for the majority of the equipment.

CSA C22.3 No. 11 - 2022 - Maintenance of Electric and Communication Utility Equipment and Systems

Risk-based Approach



Time-based Approach



CSA C22.3 No. 11 - 2022 - Maintenance of Electric and Communication Utility Equipment and Systems

Highlights

- No.11 requires more than the Appendix C's "Patrol or Simple Visual Inspection".
- Require LDCs to inventory their assets and assign them to either a "Risk-based Approach" or a "Time-based Approach" for their maintenance.
- For equipment that they put under a "Risk-based Approach"... a "Risk Assessment " and "Maintenance Strategy" must be created.
- **"Risk Assessment"** – Equipment is evaluated to things such as safety, environmental impacts, reliability, customer satisfaction, contingency outage and a total score is generated as to assign the "Maintenance Strategy". This is like the health index for DSPs.
- **"Maintenance Strategy"** – Based in part on the "Risk Assessment" each piece of equipment is assigned a strategy such as corrective, condition based, operations based, predictive, preventative or even run-to-fail.

CSA C22.3 No. 11 - 2022 - Maintenance of Electric and Communication Utility Equipment and Systems

C22.3 No.11 - Schedule

Public Review:	Nov 2021- Jan 2022
CSA Group's Pre-Approval Editing:	Jan – April 2022
Technical Committee Ballot:	May 2022
Ballot Disposition:	May - Jun 2022
Publication:	July - Sep 2022

- ESA and OEB are looking to looking into jointly assessing next steps.
- UAC feedback / advice



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Utility Advisory Council February 15, 2022

Powerline Safety Survey-Component A Update

Patrick Falzon, C. Tech
Powerline Safety/Code Specialist
Powerline Safety Group
Electrical Safety Authority



Powerline Safety Survey-Component A

Background

- As a requirement of the OEB's scorecard, level of public awareness requires the LDC's to perform a survey with members of their community
- ESA's Appendix A "Scorecard Methodology and Implementation Guide" was published in November 2015
- Guide provides the LDC's with standard questions

Appendix A Scorecard Methodology and Implementation Guide *Component A - Public Awareness of Electrical Safety*

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November 2015

Prepared by:
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Powerline Safety Survey-Component A

Background

- An LDC approached ESA in regards to misinterpretation to a powerline clearance question

B7. When undertaking outdoor activities – such as, standing on a ladder, cleaning windows or eaves, climbing or trimming trees – how closely do you believe you can safely come to an overhead power line with your body or an object? Would you say...

Code	Response	Score
01	You can safely touch an overhead power line	0.00pts
02	Less than 1 metre (i.e. less than 3 feet)	0.00pts
03	1 to less than 3 metres (i.e. 3 to less than 10 feet)	0.00pts
04	3 metres to less than 6 metres (i.e. 10 feet to less than 20 feet)	1.00pts
05	You should maintain a distance of 6 metres or more (i.e. 20 feet or more)	0.75pts
98	Don't know	0.00pts

3

Powerline Safety Survey-Component A

Proposal

- Reword the answer to align with LDC's and ESA's messaging
- Provide to the OEB to add to their website

B7. When undertaking outdoor activities – such as, standing on a ladder, cleaning windows or eaves, climbing or trimming trees – how closely do you believe you can safely come to an overhead power line with your body or an object? Would you say...

Code	Response	Score
01	You can safely touch an overhead power line	0.00pts
02	Less than 1 metre (i.e. less than 3 feet)	0.00pts
03	You should maintain a distance of 3 metres or more (i.e. 10 feet or more)	1.00pts
04	You should maintain a distance of 6 metres or more (i.e. 20 feet or more)	0.75pts
98	Don't know	0.00pts

4



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February 15, 2022

CSA C22.3 No. 1 - 2022 – Overhead Systems

Information

Utility Advisory Council
Jason Hrycyshyn



CSA C22.3 No. 1 - 2022 – Overhead Systems

Background

- Regulation 22/04 still points to C22.3 No.1 – 15, however **ESA encourages the use of the latest standard**. The **2022 focuses on Climate Change Adaptation amendments**.
- Due to the urgent need to address climate change the Technical Committees were directed to create an amendment to the standard sooner than maintaining the 5 year interval.

Source: An Assessment of the Impact of Climate Change on Climatic Design Data in Canada

- **Climate change is an enormous long-term challenge** that faces all countries. **It presents a real threat to Canada's Buildings and Core Public Infrastructure (B&CPI)**, which includes buildings, bridges, roads, transit systems, potable water, storm water and sanitary sewage systems. The threat includes the possibility of increases in the frequency and intensity of certain extreme weather events, such as rainstorms and flooding, and other hazards that could result in infrastructure damage and failure.
- **There are limitations in the current approaches used for the design and rehabilitation of Canada's B&CPI as they are based on historical climatic loads. These loads may not be representative of those that could be experienced in a future, warmer, climate.**

CSA C22.3 No. 1 - 2022 – Overhead Systems

Highlights

Distributors should make allowance for future weather projections in order to improve system reliability and resiliency, in design and maintenance.

The “Climate Change” amendments focus on.

- Vegetation (Fires / Wild Fires);
- Flooding;
- Weather Loading;
- Permafrost (mostly Transmission);
- Ice Mitigation.

**** The following are paraphrased from the standard. For exact wording, reference the standard.

CSA C22.3 No. 1 - 2022 – Overhead Systems

Highlights

Vegetation Management has undergone significant change.

- More emphasis on planting vegetation that are appropriate to grow around supply lines.
- In areas of concern for wildfire, the line shall require fire hazard reduction measures. (Examples are provided in the “Note of the Standard”)
- Where there is a higher level of concern for a line, additional buffer can be warranted. This idea is to provide the Distributor with rationale in the event additional buffer should be implemented.

CSA C22.3 No. 1 - 2022 – Overhead Systems

Highlights

Flood Management has undergone significant change.

- Specific requirements for vertical clearances of conductors and equipment above flood hazard zones to allow patrol and rescue boats to travel safely underneath.
- Grade of construction over navigable and non-navigable waters has changed.

CSA C22.3 No. 1 - 2022 – Overhead Systems

Highlights

Weather Loadings has undergone change.

- The table providing “Climatic data for selected Canadian locations” has been updated.
 - Mean annual maximum snow depth
 - 50 year return period temperature minimums
 - 50 year return period temperature maximums
 - 50 year return 10 minute wind speeds
 - 50 year return wind gusts

CSA C22.3 No. 1 - 2022 – Overhead Systems

Highlights

Ice Management has undergone minor change.

- If you have lines in a region where icing on conductors is causing failure, you shall consider an ice management system.



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February 15, 2022

CSA C22.3 No. 7 - 2022 – Underground Systems

Information

Utility Advisory Council
Jason Hrycyshyn



CSA C22.3 No. 7 - 2022 – Underground Systems

Background

- Regulation 22/04 still points to C22.3 No.7 – 15, however **ESA encourages the use of the latest standard**. The **2022 focuses on Climate Change Adaptation amendments**.
- Due to the urgent need to address climate change the Technical Committees were directed to create an amendment to the standard sooner than maintaining the 5 year interval.

Source: An Assessment of the Impact of Climate Change on Climatic Design Data in Canada

- **Climate change is an enormous long-term challenge** that faces all countries. **It presents a real threat to Canada's Buildings and Core Public Infrastructure (B&CPI)**, which includes buildings, bridges, roads, transit systems, potable water, storm water and sanitary sewage systems. The threat includes the possibility of increases in the frequency and intensity of certain extreme weather events, such as rainstorms and flooding, and other hazards that could result in infrastructure damage and failure.
- **There are limitations in the current approaches used for the design and rehabilitation of Canada's B&CPI as they are based on historical climatic loads. These loads may not be representative of those that could be experienced in a future, warmer, climate.**

CSA C22.3 No. 7 - 2022 – Underground Systems

Highlights

Distributors should make allowance for future weather projections in order to improve system reliability and resiliency, in design and maintenance.

The “Climate Change” amendments focus on.

- Ground Movement and Settling;
- Flooding Mapping and Hazards;
- Flood Protection for Equipment.

**** The following are paraphrased from the standard. For exact wording, reference the standard.

CSA C22.3 No. 7 - 2022 – Underground Systems

Highlights

Ground Movement and Settling has undergone some change.

- Construction in unstable soils.
 - Shall take historic and future projections of seasonal soil water content variations and freeze/thaw cycles into consideration.
- In areas where ground movement is possible, the construction shall resist stresses that could result in damage to the line. Examples:
 - U/G residential connections – slack for conductor, expansion joint for duct
 - Road crossings – pipe or duct use

CSA C22.3 No. 7 - 2022 – Underground Systems

Highlights

Flood Protection for Equipment has been included.

- Electrical continuity and civil works that keep the equipment operating and in place in flood hazard zones. Functionally surviving the duration of the event.
- Where practicable, pad-mounted installations above ground should be selected over submersible installations
- Consideration should be given to locating supply installations outside of flood hazard zone(s).
- Equipment subject to submersion in water, enclosure shall be made of corrosion resistant material.



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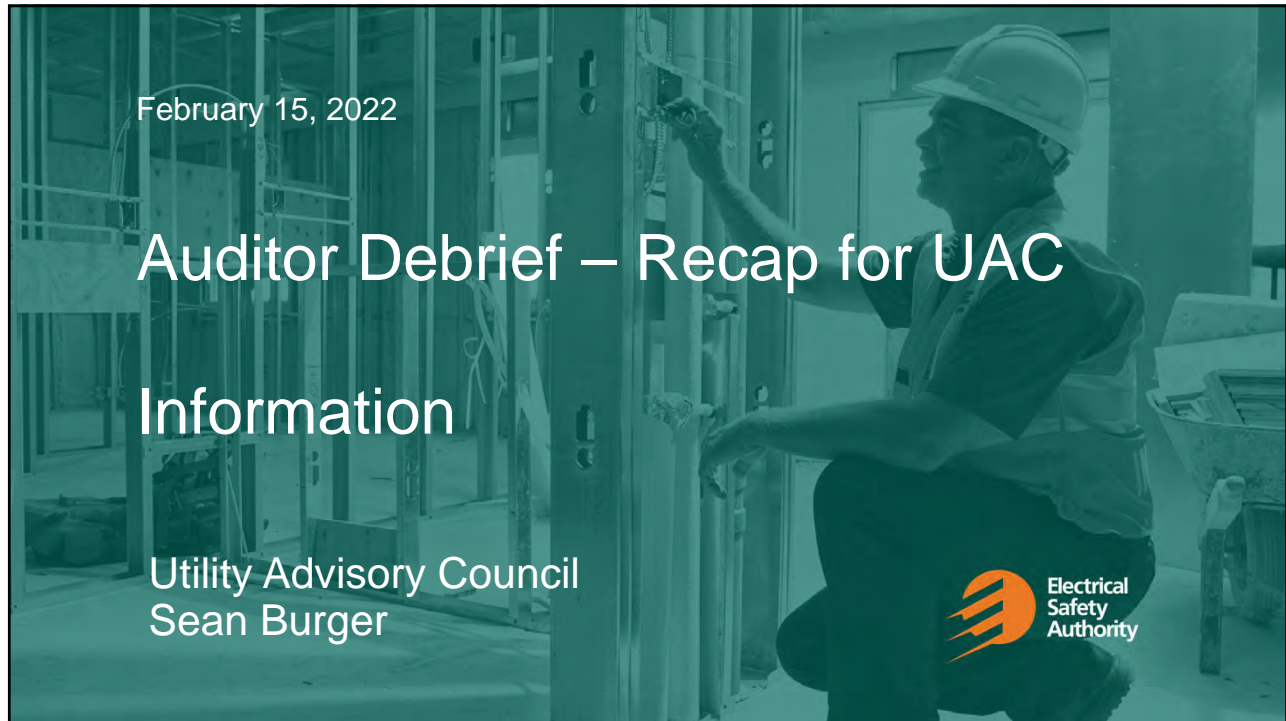
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February 15, 2022

Auditor Debrief – Recap for UAC Information

Utility Advisory Council
Sean Burger



Auditor Debrief – Recap for UAC

Presented to Auditors - November 10, 2021

Link to Presentation:

<https://esasafe.com/assets/files/esasafe/pdf/Utilities/Audit-Debrief-2021.pdf>

Auditor Debrief – Recap for UAC

Summary of Audit Findings for 2020

Total Audit Reports	62	
Full Compliance	59	50 – 2018 54 – 2019
Non-Compliance	1	3rd Party field changes
Needs Improvement	2	



3 UAC Presentation | February 15, 2022

Auditor Debrief – Recap for UAC

Highlights for Sections

Section 4/5 – Safety Standards	None
Section 6 – Approval of electrical equipment	DB-01-21 Equipment Approval — Industry Standards Recognized by ESA. Power Transformers and their certified Test Reports. “Type Test” are required
Section 7 – Approval of plans, drawings and specifications for installation work	3rd Party work issues: Work doesn’t reference the approved standards Confirmation of software approval for non-linear design (e.g. SPIDAcad and PLS-CADD)
Section 8 - Inspection and approval of construction	None

4 UAC Presentation | February 15, 2022

Auditor Debrief – Recap for UAC

Areas of Focus

Changes in CSA Standards:

- C22.3 No. 1 Overhead (2022)
- C22.3 No. 7 Underground (2022)
- C22.3 No. 11 Maintenance (New)

BBFA:

- Current Distributor Bulletins
 - ✓ DB-01-20-v1 - Previous Standards
 - ✓ DB-07-15-v2 - Materially Insignificant
 - ✓ DB-10-12-v1 - LDC Review of Plans
 - ✓ DB-11-12-v2 – Certificate of Deviation Approval
 - ✓ DB-02-16-v1 – Certificate of Deviations – Certified Lists
- Potential Distributor Bulletin – “Mid span poles”

5 UAC Presentation | February 15, 2022

Auditor Debrief – Recap for UAC

Areas of Focus

BTFA:

- Reg 22/04 still applies

COVID-19:

- No change
- Auditor & LDC decides on remote audits

6 UAC Presentation | February 15, 2022



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Overview of Administrative Penalties (Recommendation 15.1)

Presentation to UAC
February, 2022

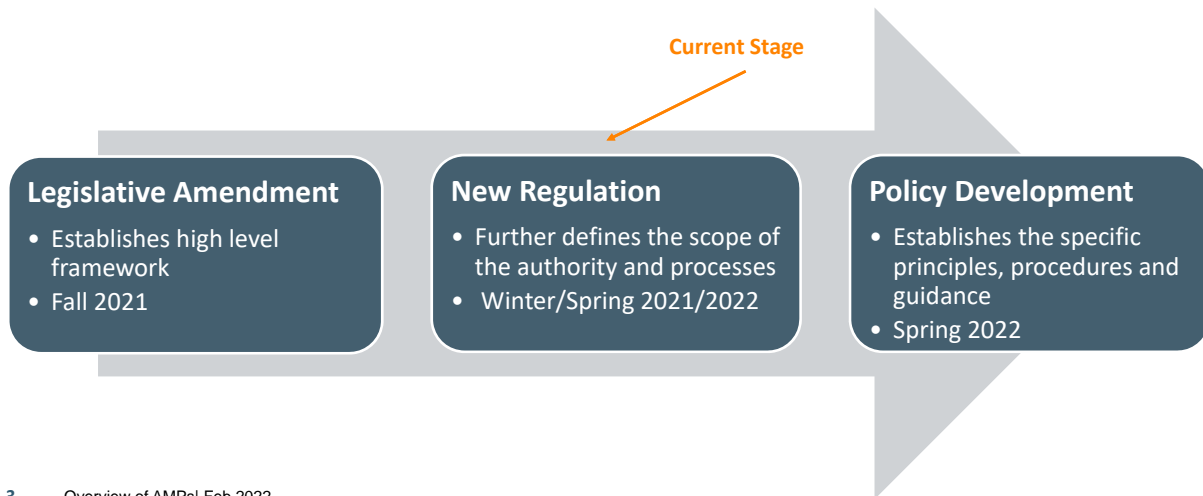
Emily Larose,
Acting Chief Regulatory Officer & General Counsel



AMPs in the Auditor General Report:

- The AG found:
 - Currently ESA can address **illegal electrical installations** through warning letters, suspensions and prosecutions.
 - ESA's oversight of **illegal electrical installations** would be more efficient and effective if ESA had the authority to directly issue administrative penalties.
- Recommendation 15.1:
 - Recommended that MGCS enable ESA to directly issue monetary fines.

Timeline of AMPs Development



3 Overview of AMPs| Feb 2022

ESA AMP Legislative Model

#	Component	
1	Maximum penalty	\$10,000 Max
2	Protection from Prosecution	Yes
3	AP Limitation	2 years
4	Appeal Process	Use existing Review Panel structure
5	Public Reporting	Yes
6	Use of Monies Collected	Must be spent in accordance with objects (e.g. electrical safety education, etc.)
7	Who Can Issue	Statutory Director
8	Scope of application	Specify in Regulation

4

Regulatory Proposal

MGCS Consultation

- Open to February 25, 2022

Addresses:

- Scope
- Processes
- Content/Service of Orders
- Use of Funds
- Appeals

5

Overview of AMPs | Feb 2022

Proposed Categories of Potentially AMP-able Contraventions

Category	Examples
Doing work without licence	<ul style="list-style-type: none"> • Unlicensed • Subcontracting to non-LECs • Doing work while licence suspended
Advertising without licence	<ul style="list-style-type: none"> • Online advertising (Kijiji, etc.)
Repeated failure to comply with licensing requirements	<ul style="list-style-type: none"> • Insurance, name/display requirements, notification of changes, etc. (as an escalation measure after repeated warnings)
Misrepresentation	<ul style="list-style-type: none"> • Falsifying records, issuing fraudulent certificate
Failure to file notification	<ul style="list-style-type: none"> • Unlicensed, property owners, HVAC • LECs (as an escalation measure after repeated warnings)
Removing labels, seals, tags	<ul style="list-style-type: none"> • Product safety, LAOP
Other Code violations	<ul style="list-style-type: none"> • Record of electrical work (property owners) • Interfering with installations (demolition, plumbing, ...) • LAOP Defects: After standard notices & escalation • Intentional non-compliance

6

Overview of AMPs | Feb 2022

February 15, 2022

Approved Auditors Bulletin

Feedback

Utility Advisory Council
Sean Burger



Approved Auditors Bulletin

Updated Distributor Bulletin – Designation of Partially Approved Auditors

*** Marc Richards**

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*** Ted Olechna, P.Eng**

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Email: NimishB@aes-inc.com

* Indicates that the Auditor is approved to perform audits;
however some documentation is pending submittal to ESA.

Approved Auditors Bulletin

Updated Distributor Bulletin – Designation of Partially Approved Auditors

Auditing Experience Required:

30 days minimum of auditing experience over past three years

or

Successful completion of 2 **shadow audits** and 2 **witness audits** of Regulation 22/04 and totaling a minimum of 24 hours.

- Shadow Audit – Following an existing Regulation 22/04 qualified Auditor.
- Witness Audit – Performing an audit under the supervision of an existing Regulation 22/04 qualified Auditor.

3 UAC Presentation | February 15, 2022



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4 UAC Presentation |

February 15, 2022

Building Broadband Faster Act, 2021 (BBFA)

Information

Utility Advisory Council
Jason Hrycshyn



Building Broadband Faster Act, 2021 (BBFA)

BACKGROUND INFORMATION

Accelerated High-Speed Internet Program (AHSIP) - (previously the Accelerated Broadband Program)

Building Broadband Faster Act, 2021

The purpose of the Act is to expedite the delivery of broadband projects of provincial significance. The Government of Ontario has committed almost \$4B to connect every region of Ontario to reliable, high speed internet by the end of 2025.

In April 2021, the Ontario Legislature passed the *Supporting Broadband and Infrastructure Expansion Act, 2021*. A key outcome of this legislation was that it enacted the *Building Broadband Faster Act, 2021 (BBFA)*.

Building Broadband Faster Act, 2021 (BBFA)

HIGHLIGHTS

- Ministry of Infrastructure, supported by Infrastructure Ontario, developed and issued the **Building Broadband Faster Act Guideline (November 30, 2021)** and two BBFA regulations (**“Prescribed Loss or Expense”** and **“Designated Broadband Projects”**), to define the new and coordinated process for expediting the deployment of broadband infrastructure.

3 UAC Presentation | February 15, 2022

Building Broadband Faster Act, 2021 (BBFA)

HIGHLIGHTS

- December 1, 2021 – Posting of Regulation - **“Enabling the enforceability of the Building Broadband Faster Act Guideline”**, with a comments deadline of January 17, 2022.

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February 15, 2022

CVP Refresher Training – Time Period Discussion

Feedback

Utility Advisory Council
Jason Hrycyshyn



CVP Refresher Training – Time Period Discussion

BACKGROUND INFORMATION

- ESA has identified an increased number of requests to prolong the time period between CVP Refresher Trainings.
- **Action Item from previous UAC Meeting** - Advisory Council requested time to review this item for discussion at this meeting.
- Current Time Periods
 - Annual – Typical for Electrical Distributors
 - 2 Year interval – Some Electrical Distributors
 - 3 Year interval – One Electrical Distributor

CVP Refresher Training – Time Period Discussion

PROPOSED GUIDELINE REVISION

(red text is the proposed additional to the Guideline)

4.1.5 For the purpose of the *Regulation* who can carry out an inspection of construction?

The *Regulation* allows three options for the inspections of construction:

- by a *professional engineer*; or
- by a *qualified person*; or
- by ESA, at the request of the *distributor*.

The person carrying out an inspection of construction shall have undergone training as per the *construction verification program*, where the recommended training interval is 1 year. The training interval can be extended up to 2 years with rationale agreed by ESA.

CVP Refresher Training – Time Period Discussion

PROPOSED GUIDELINE REVISION CON'T

(red text is the proposed additional to the Guideline)

Appendix C Generic *Construction Verification Program*

9. Training:

1. Indicate the training to be provided to each *competent* or *qualified person* in the *distributor's construction verification program*.
2. Maintain records of training provided to each *competent* and *qualified persons*.
3. The recommended training interval is 1 year; however, the training interval can be extended up to 2 years with rationale agreed by ESA.



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February 15, 2022

Scorecard – Component C

Feedback

Utility Advisory Council
Jason Hrycyszyn



Scorecard – Component C

BACKGROUND INFORMATION

- Component C addresses “Serious Electrical Incidents”, under the “Performance Categories” of Safety
 - “Number of General Public Incidents” and “Rate per 10, 100, 1000 km of line”
- Working Group last convened a meeting over 10 years ago

Current Working Group Update

- Working Group Meeting #1 – March 30, 2022.
- **Revised Objective from last UAC:** Working Group's objective will be to ensure the best metric for evaluating LDC safety performance. The scope will not be limited to Serious Electrical Incidents, as defined in Section 12 of Regulation 22/04, in order to achieve the objective.
- Results of the Working Group will be brought to the UAC.

Scorecard – Component C

WORKING GROUP MEMBERS

Greg Sheil	London Hydro
Darren Desrosiers	Hydro One
Marvio Vinhaes	ENWIN
Colin Hicks	Entegrus
Rob McKeown	Toronto Hydro
Scott Nichols	Hydro Ottawa
John Barratt	Alectra
Allan Van Damme	London Hydro

3 UAC Presentation | February 15, 2022



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4 UAC Presentation | September 7, 2021

February 15, 2022

Meter Base - Manufacturer's Product Withdrawal

Feedback

Utility Advisory Council
Jason Hrycyszyn



Meter Base – Manufacturer's Product Withdrawal

BACKGROUND INFORMATION

October 6, 2020 – UAC Meeting

ESA informed the UAC of a Manufacturer's Product Withdrawal in September 2020. There was a request for a discussion of the withdrawal in the UAC.

Highlights:

1. Meter bases were manufactured using non-compliant bell nuts between March 3 and August 4, 2020.
2. No incidents reported to date, but present a potential fire hazard.
3. A total of 1,970 Microelectric meter bases were sold in Ontario.
4. This information was communicated to Microelectric's distributors.

Meter Base – Manufacturer's Product Withdrawal

RESULTS OF THE REQUEST FOR INFORMATION

ESA emailed a request for information on October 21, 2020.

None of the Electrical Distributors, that responded to the request for information, had experienced or were aware of any incidents.

ESA is considers this issue to be closed.



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February 15, 2022

Excavation in the Proximity of Underground Distribution Lines

Update

Utility Advisory Council
Jason Hrycyshyn



Excavation in the Proximity of Underground Distribution Lines

Background

- With the introduction of the Building Broadband Faster Act (BBFA), ESA and the Utility Advisory Committee recognized the potential for better alignment between the direction established under Regulation 22/04, Ontario Underground Infrastructure Notification System Act and the BBFA.
- Regulation 22/04 - (Guideline-for-Excavating-Proximity-of-Underground-Distribution-Lines)
The distributor shall make every reasonable effort to respond to locate requests by providing locates within **5 business days**.
- BBFA
Location of Underground Infrastructure - The distributor shall do the work within **10 business days**, that relates to a broadband project.

Excavation in the Proximity of Underground Distribution Lines

Proposal

- After review of the documentation ESA believes that action is appropriate. ESA is proposing the following directional change.
 - Publish a new version of the Guideline addressing Excavation, with a small update.
 - A Redlined version of the proposed new version was supplied in the pre-read materials for this meeting.
 - 1 Material Change is suggested under 3.2 of the Guideline.

3 UAC Presentation | February 15, 2022

Excavation in the Proximity of Underground Distribution Lines

Current – Guideline, Clause 3.2

The distributor shall make every reasonable effort to respond to locate requests by providing locates **within 5 business days of receiving the request**. In emergency **situations, the distributor shall follow the necessary timelines as required by Ontario One Call. An emergency situation locate is to be responded to within 2 hours.**

Proposal – Guideline, Clause 3.2

The distributor shall make every reasonable effort to respond to locate requests by providing locates **as per the current version of the Ontario Underground Infrastructure Notification System Act**. In emergency excavations, shall complete the *locate* using methods documented in the current version of the **Underground Infrastructure Damage Prevention Best Practices** produced by the Canadian Common Ground Alliance (CCGA).

4 UAC Presentation | February 15, 2022

Excavation in the Proximity of Underground Distribution Lines

Ontario Underground Infrastructure Notification System Act

Where infrastructure affected by dig - 6

Member to respond within five days

(2) The member shall make all reasonable attempts to do the things required by subsection (1) within five business days of the day the member receives notification about the proposed excavation or dig, unless there is a reasonable expectation that the excavation or dig will not start within 30 business days of the day the member receives the notification. 2012, c. 4, s. 6 (2).

Time limits

(3) The time limit set out in subsection (2) shall not apply and a different time limit shall apply if,

(a) the member and the excavator agree to a different time limit; or

(b) the regulations set out a different time limit applicable to the circumstances. 2012, c. 4, s. 6 (3).

Exception

(4) Despite subsections (2) and (3), if the notification received under subsection (1) indicates that it is related to a broadband project designated under the *Building Broadband Faster Act, 2021*, the member shall do the things required by subsection (1) within 10 business days of the day the member receives notification about the proposed excavation or dig.

5 UAC Presentation | February 15, 2022

Excavation in the Proximity of Underground Distribution Lines

Underground Infrastructure Damage Prevention Best Practices

4-25: Emergency Excavation (Revised 06, 2006)

Practice Statement: In the case of an emergency excavation, the excavator notifies the one-call center and facility owner/operator and requests an emergency locate. The current practice in Ontario is a two-hour response time by the facility owner/operator.

Practice Description: Provincial regulations require excavators to request locates including emergency situations.

An Emergency excavator locate request is defined as a loss of essential service by a utility and an excavator work crew is on site or dispatched, or there is an imminent safety hazard requiring a locate response by facility owners within two (2) hours

6 UAC Presentation | February 15, 2022



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Guideline for Excavating in the Proximity of Underground Distribution Lines

Version 3.10

Ontario Regulation 22/04 Electrical Distribution Safety

Issue date: ~~February~~ MONTH 19XX, 20221

Guideline for Excavating in the Proximity of Underground Distribution Lines

Legal Disclaimer.

This document contains GUIDELINES ONLY to assist members of the industry in understanding roles and responsibilities under Ontario Regulation 22/04 - Electrical Distribution Safety and Ontario Electrical Safety Code under subsection 113(1) of Part VIII of the Electricity Act, 1998 S.O. 1998, c.15, sched.A. These Guidelines are intended for professional education and may be used for informational, non-commercial purposes only.

Although the information and materials are carefully prepared and are believed to be reliable and accurate, the ESA does not accept any legal responsibility for the contents herein or for any consequences, including direct or indirect liability, arising from reliance on the information or use thereof. The information set forth through the Guideline may be revised or withdrawn at any time without prior notice.

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The guidelines contained herein do not have the force of law. In the event of a conflict between these guidelines and any applicable legislation or regulation which may apply, the relevant law prevails.

Guideline for Excavating in the Proximity of Underground Distribution Lines

Definitions

Abandoned distribution lines means those *distribution lines* that have been identified by the *distributor* in the *locate* as abandoned.

Blanket Locate or Alternate Locate Agreement means permission to excavate, subject to the terms and conditions outlined by a written agreement between the *Excavator* and the *Distributor*.

* *Note a locate is still required through Ontario One Call.*

Boundary Limits means the volume of soil contained by vertical planes placed 1.0 metre each side of the centre line of the marked *distribution line* or 1.0 metre on either side of the marked limits of an underground structure.

Distribution line means an electricity distribution line, transformers, plant or equipment used for conveying electricity at voltages of 50,000 volts or less.

Distributor means the individual, partnership, corporation, public agency, or other entity that is licensed to operate an electric distribution system under the *Ontario Energy Board Act*.

Excavator means the individual, partnership, corporation, public agency, or other entity that digs, bores, trenches, grades, excavates or breaks ground with mechanical equipment or explosives in the vicinity of a *distribution line*. This includes homeowners and other members of the public.

Hand dig means to excavate using a shovel with a wooden or insulated handle, not including picks, bars, stakes or other earth piercing devices.

* *Note a locate is required for hand digging applications.*

Live means electrically connected to a source of voltage difference or electrically charged so as to have a voltage different from that of the earth,

Locate means identification on the ground of the position of the *distribution line(s)* based on records or electronic locating equipment and includes provision of necessary documentation such as a locate sheet.

Mechanical Excavation means equipment operated by means of mechanical, hydraulic, electrical, or pneumatic power, other than vacuum excavation equipment, engaged in ground disturbance; including hand held augers, picks, bars, stakes or any other device that may damage the *distribution line*.

* *Note a locate is required for mechanical excavation applications.*

Vacuum Excavation (Hydrovac) means the use of pressurized water or compressed air to loosen soil and a vacuum system to remove it.

Guideline for Excavating in the Proximity of Underground Distribution Lines

1.0 General

- 1.1 The guidelines described herein are prepared to assist *distributors* and *excavators* in complying with Ontario Regulation 22/04 for the safety of the general public and workers who are carrying out the excavation in the vicinity of *distribution lines*, and for the prevention of damage to *distribution lines* owned by the *distributor*.
- 1.2 For best practices in all aspects of excavation, please refer to the current version of **the Underground Infrastructure Damage Prevention Best Practices** produced by the Canadian Common Ground Alliance (CCGA).

2.0 Locate Request

- 2.1 Prior to excavation the person responsible for the work shall obtain a *locate* as required by Ontario Regulation 22/04. (see Appendix 1- Section 10.3)
- 2.2 In order to obtain a *locate* in Ontario, the *excavator* shall contact “Ontario One Call” and request a *locate* in the areas where excavation will take place. The *excavator* must receive the *locate* prior to commencing any excavation.
- 2.3 When requesting a *locate*, the *excavator* shall provide the information required by Ontario One Call to complete the *locate* process.

Contact Information for Ontario One Call:

Website: www.OntarioOneCall.ca

Telephone: 1-800-400-2255

Guideline for Excavating in the Proximity of Underground Distribution Lines

3.0 Locate Provision

- 3.1 The distributor shall provide the *locate* within a reasonable time. (see Section 3.2 and Appendix 1- [Regulation 22/04](#) Section 10.4 for more information).
- 3.2 The distributor shall make every reasonable effort to respond to locate requests by providing locates within 510 business days of receiving the request. Noting that projects set out in the Building Broadband Faster Act (BBFA) specific to broadband projects, should take preference during the implementation period of the BBFA or any of its associated Guidelines. In emergency situations, the distributor shall follow the necessary timelines as required by Ontario One Call. An emergency situation locate is to be responded to within 2 hours.
- 3.3 The *distributor* shall complete the *locate* using methods documented in the current version of **the Underground Infrastructure Damage Prevention Best Practices** produced by the Canadian Common Ground Alliance (CCGA).
- 3.4 When requested by either party, the *distributor* and the *excavator* shall meet on site to confirm details of the excavation and the location of the *distribution line*.
- 3.5 Where there are no *distribution lines* in the defined area of the proposed excavation the *distributor* will provide written confirmation to the *excavator*.
- 3.6 In the event that the *distributor* does not locate lines in an area (e.g. within the footprint of a building, private property, etc...), the *distributor* will, at minimum, provide notice that locates will not be performed in that area and alternative arrangements shall be made by the *excavator*.

4.0 Locate Expiration

- 4.1 The *distributor* shall indicate the length and conditions of the expiration period on the *locate* form or diagram and provide the *distributor's* contact information.
- 4.2 *Excavators* shall not use expired *locates*. Where delays occur beyond the expiry date or where the *locate* markings become unclear, a new *locate* must be requested by the *excavator*.
- 4.3 Where the *distributor* has ascertained that no changes have taken place since releasing the locate information and the *locate* markings are still clear, the

Guideline for Excavating in the Proximity of Underground Distribution Lines

distributor may provide a new expiry date in writing.

Guideline for Excavating in the Proximity of Underground Distribution Lines

5.0 Located Area

- 5.1 The *excavator* is not in compliance with Regulation 22/04 if they are excavating outside of the located area, as identified on the locate form.

6.0 Initial Exposure

- 6.1 Where the proposed excavation is to be parallel and within the *located area* of a *distribution line* the *excavator* shall initially expose the *distribution line* by *hand digging* or *vacuum excavation*. Exposing the existing underground infrastructure at sufficient intervals to clearly identify the depth and alignment to avoid damage when the proposed ground disturbance path is parallel to and within the hand expose zone of existing *distribution lines*.
- 6.2 Where the *distribution line* cannot be located following the procedures described above, the *excavator* shall contact the *distributor* for assistance with the *locate*.

Guideline for Excavating in the Proximity of Underground Distribution Lines

7.0 Excavating After Test Holes Are Completed

- 7.1** Where test holes in an area have been completed and the *distribution line* located, *mechanical excavation* may take place provided, the *mechanical excavation* is not used closer than 0.3 metre (1 foot) in any direction to the *distribution line*.

Note: Excavation within 0.3 metre (1 foot) in any direction of the *distribution line* shall be carried out by *hand digging* or *vacuum excavation*. For detailed procedures for using *vacuum excavation* in the vicinity of electric *distribution lines* see the IHSA Safe Practice Guide “Excavating with Hydrovacs in the Vicinity of Underground Electrical Plant”.

- 7.2** Prior to initiating any blasting activities in proximity of *distribution lines* *excavators* shall obtain a locate from the *distributors*.
- 7.3** Instructions for supporting *distribution lines* must be obtained from the *distributor*. The *excavator* shall install temporary support acceptable to the *distributor*.
- 7.4** Temporary support shall remain in place until the backfill material underneath the structure has cured or it has been compacted adequately to restore support.
- 7.5** An *excavator* shall not attempt to move a *distribution line* under any circumstances. Where such a need arises during excavation, the *excavator* shall contact the *distributor* to make the necessary arrangements.

Guideline for Excavating in the Proximity of Underground Distribution Lines

8.0 Backfilling Trenches

- 8.1** Where trenches are to be backfilled, the following requirements shall be followed:
- a) backfilling shall be performed in such a manner as to provide firm support under the *distribution lines*;
 - b) the trench shall be backfilled with clean fill or granular material free of material injurious to the *distribution lines*; and
 - c) backfilling shall be performed without using tamping equipment directly on exposed *distribution lines* and using extra caution around electric cable splices.

The *excavator* shall complete the backfilling of trenches using methods documented in the current version of **the Underground Infrastructure Damage Prevention Best Practices** produced by the Canadian Common Ground Alliance (CCGA).

9.0 Unidentified and Abandoned Distribution Lines

- 9.1** Where a *distribution line* is found during excavation that was not identified by the *distributor*, but within the area covered by the *locate*, the *excavator* shall never assume the line is an *abandoned distribution line*. The *excavator* shall immediately contact the *distributor* as appropriate, to determine if the line is abandoned or *live*.

10.0 Procedure When Damage Occurs

- 10.1** If damage to the *distribution line* occurs, including damage to the jacket, the *excavator* shall leave the *distribution line* exposed, barricade the area and contact the *distributor* immediately.
- 10.2** If there are any flames or sparks originating from the exposed *distribution line*, the *excavator* shall barricade the area, and keep public and workers away. Call 911 and the *distributor* immediately.
- 10.3** In no case shall the *excavator* attempt to control or make repairs to a damaged *distribution line* or equipment.

11.0 Complaints Process

- 11.1** ESA is independent of any other Regulator's requirements, enforcement policies, and dispute resolution processes. When addressing any complaints against a *distributor* or *excavator*, or resolving any disputes, ESA will first consider the requirements of Ontario Regulation 22/04. Any other applicable regulations, national standards or industry practices may also be considered in the ESA complaints process.
- 11.2** Any *distributor*, *excavator* or third party may log a complaint with ESA regarding Regulation 22/04 compliance. In order to log a complaint with ESA regarding the actions of another party, the complaint shall be submitted in writing to ESA at the following email:
utility.regulations@electricalsafety.on.ca.
- 11.3** The complainant shall provide the following information:
- a) the name and contact information of the complainant;
 - b) identification of the other party or parties involved;
 - c) relevant dates and locations; and
 - d) a detailed description of the issue.
- 11.4** ESA will review the complaint, contact the parties involved if necessary and issue disciplinary actions as required.

Guideline for Excavating in the Proximity of Underground Distribution Lines

Appendix 1

Ontario Regulation 22/04 Electrical Distribution Safety

Section 10 - Proximity to Distribution Lines

- (1) Despite section 5 of CSA Standard C22.3 No. 1-15 Overhead Systems, a person may place an object closer to an energized conductor forming part of a system of overhead distribution lines than the required minimum separations from energized conductors forming part of such a system if the person first obtains an authorization from the distributor responsible for the energized conductor. O. Reg. 22/04, s. 10 (1).
- (2) Despite sections 5 and 6 of CSA Standard C22.3 No. 7-15 Underground Systems, a person may place an object closer to an energized conductor forming part of a system of distribution lines than the required minimum separations from energized conductors forming part of such system if the person first obtains an authorization from the distributor responsible for the energized conductor. O. Reg. 22/04, s. 10 (2).
- (3) Before digging, boring, trenching, grading, excavating or breaking ground with tools, mechanical equipment or explosives, a Excavator, owner or occupant of land, buildings or premises shall, in the interests of safety, ascertain from the distributor responsible for the distribution of electricity to the land, building or premises the location of any distribution line that may be interfered with in the course of such activities. O. Reg. 22/04, s. 10 (3).
- (4) The distributor shall provide reasonable information with respect to the location of its distribution lines and associated plant within a reasonable time. O. Reg.22/04, s. 10 (4).

Utility Advisory Council February 15,2022

Incidents Information

Patrick Falzon, C. Tech
Powerline Safety/Code Specialist
Powerline Safety Group
Electrical Safety Authority



Incidents

Copper theft fatality

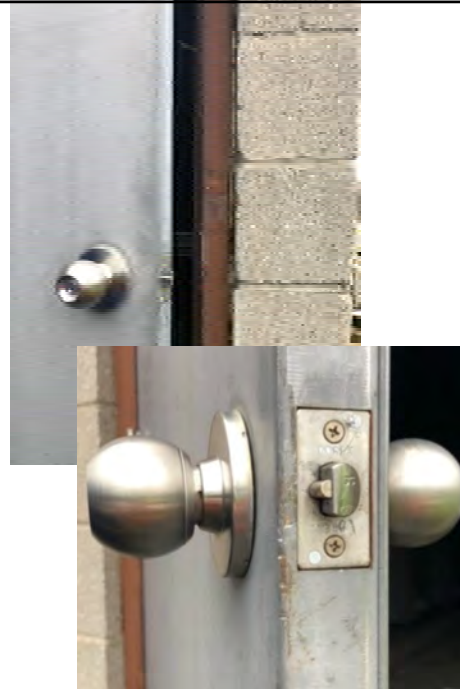
- Two neighboring commercial/industrial building vaults were broken into
- First vault the hasp was pried, lock not cut
- Copper was taken



Incidents

Copper theft fatality

- Second vault the latch was tampered with
- Victim was found inside vault



3

Incidents

Distributor Bulletin

- Reminder DB-02-21-v1 references CSA underground system requirements for new installations.



Distributor Bulletin

Vault Access

Background

The ESA has received reports of serious injuries or fatalities in respect to members of the public performing illegal acts to obtain copper by accessing transformer vaults housing Electrical Distributor owned equipment, by removing the sliding bolt fasteners with the use of common tools while a lock was in place.



ESA Direction

The following requirements for vault doors in the current CSA 22.3 No. 7-20 Underground Systems states:

9.7 Vault doors, subsurface box covers, and subsurface chamber covers
9.7.1 Subsurface box and chamber covers shall be designed or restrained so that they will not fall into subsurface chambers and boxes or protrude far enough to contact cables or equipment. Covers shall be over 45 kg (100 lb) or otherwise be tamper-resistant. Vault doors shall be tamper-resistant.

Tamper-resistant — the state in which, in any normal operating condition, contact with live parts cannot be made either directly or by means of any conductive material, with or without the use of such common tools as might be accessible to children. It does not imply proof against any deliberate actions of adults and children.

Although tamper-resistant requirements for vault doors were not considered in CSA 22.3 No. 7-15 Underground Systems as enforced under Ont. Reg. 22/04 Section 5(3),

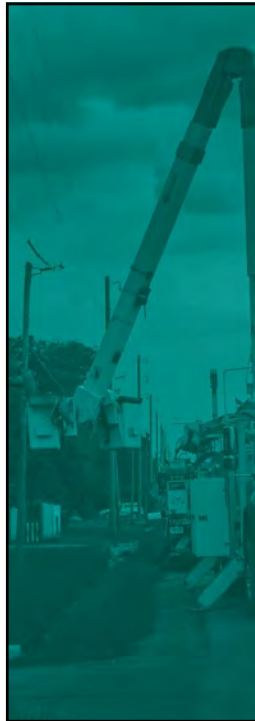
May 12, 2021

1 of 2

Bulletin DB-02-21-v1

Provincial Office: 155A Matheson Blvd. West, Suite 200, Mississauga, Ontario L5R 3L5
 Website: <https://esa.ca> E-Mail: Utility.Regulations@ElectricalSafety.on.ca

4



Incidents

Non-electrical injury

- Member of the public fell into cable chamber located in the sidewalk in town
- The chamber's collar deteriorated causing the lid to collapse
- Reminder to perform inspection of chambers for deterioration



5



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February 15, 2022

EV and DER – Future of Distribution in Ontario

Feedback

Utility Advisory Council
Jason Hrycyshyn



EV and DER – Future of Distribution in Ontario

Background

- ESA's noticing the potential for a significant amount of change in electrical distribution and is looking for UAC feedback / discussion.
- ESA's goal is to gather additional insights into possible changes in electrical distribution industry and identify their impacts.
- The follow slide will highlight the areas that ESA is noticing the potential for change.
 - Are there areas that ESA is missing or should not be on the list?
 - Is there any advise the Council has to address the future state of the industry?

EV and DER – Future of Distribution in Ontario

Areas of Potential Change

- Electrical Vehicles (EVs) and their Charging Stations
- Distributed Energy Resources (DERs) / Non-Wires Alternatives (NWAs)
- Load Serving Entities (LSEs)
- Distribution System Operators (DSOs)
- Peer-to-Peer purchasing of electricity (P2P)
- Internet of Things (IoT)
- Anything missing?

EXAMPLE

**Electrical Vehicles (EVs) and their Charging
Stations**

&

**Distributed Energy Resources (DERs) /
Non-Wires Alternatives (NWAs)**

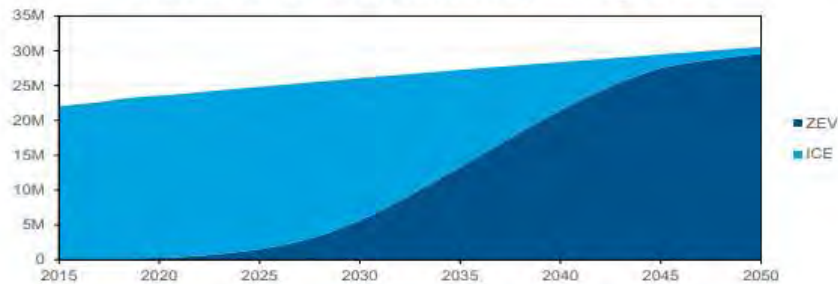
EXAMPLE

Electrical Vehicles (EVs)

- NRCan was seeking input regarding EV Grid Readiness in January 2022.
- Federal government set mandatory targets for all cars to be zero emission by 2035.
- Some Information pulled from NRCan work.

Exhibit 2 presents the national vehicle fleet's overall size based on the number of ZEVs and ICE vehicles.

Exhibit 2 Canada-Wide Fleet Size of ZEVs and ICE (Federal Target Scenario)

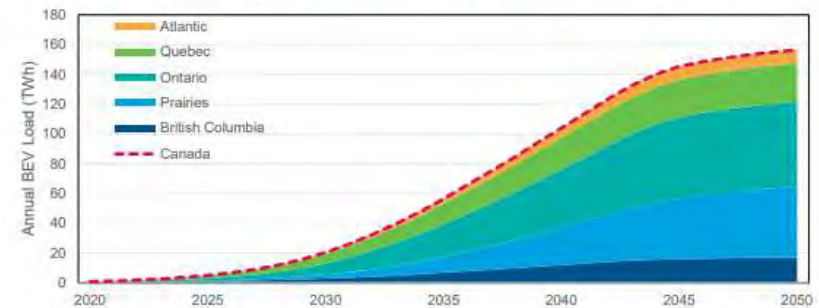


Battery Charging Load for BEVs and PHEVs

	BC	AB	SK	MB	ON
2020 Grid Annual Demand, GWh	63,626	86,536	26,455	26,528	134,303
2030 EV Annual GWh	2,885	1,825	517	454	7,777
2040 EV Annual GWh	11,945	17,328	4,522	3,373	39,093
2050 EV Annual GWh	17,224	32,847	8,794	5,847	57,047

Exhibit 3 results from the load forecast at the national level for all EVs; it excludes FCEVs.

Exhibit 3 EV Charging Load Forecast (Federal Target Scenario)



NRCan – Natural Resources Canada; ZEV - Zero-Emission Vehicles; ICE – Internal Combustion Engine; FCEV – Fuel Cell Electrical Vehicle
UAC Presentation | February 15, 2022



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Annex

Information Slides

EV and DER – Future of Distribution in Ontario

Electrical Vehicle Chargers

- In March 2021, the United States passed the milestone of 100,000 public chargers (as recorded by the Department of Energy's Alternative Fuel Data Center)

Questions for the UAC

- Does the Council have any thoughts/recommendations for ESA regarding any alterations that should be considered with respect to our Regulatory stance or practices?
- Are there any concerns with ESA using the NRCan data as input into our decision making process?

EV and DER – Future of Distribution in Ontario


Distributed Energy Resources (DERs) / Non-Wires Alternatives (NWAs)

- ESA is interested to discuss the DERs that Electrical Distributors are/will own in the system, but also wishes to discuss the impact of DERs owned by customers.
 - Are there considerations that ESA under Regulation 22/04 should consider that currently don't appear to be addressed under the current regulatory structure?
- As per the IESO – DERs are beginning to upend the traditional framework of relying on large generators.
 - This has impacts on protection systems, the supply mix (both Watts and VARs) and the Distributors role in maintaining a safe and reliable electricity grid.

EV and DER – Future of Distribution in Ontario

Distributed Energy Resources (DERs) / Non-Wires Alternatives (NWAs)

- If there is the expected significant raise in EVs or large agricultural facilities, and DERs are a suitable solution to a supply issue, are there impacts to Regulation 22/04?
- If the IESO were to lower the threshold to 100kW in order for more participation in the IESO-administered markets, are there impacts to Regulation 22/04?
- Since inverters generally have shorter life spans (closer to 10 years) than solar panels. This means the inverter is likely to be replaced during the useful life of the resource, offering an opportunity to install newer smart inverters that may offer additional controllability and higher granularity and frequency of data transmission that could be leveraged by Distributors. Are there impacts to Regulation 22/04?



Load Serving Entities (LSOs) & Distribution System Operators (DSOs)

LSE & DSO – Future of Distribution in Ontario

Load Serving Entities (LSEs)

At the most basic level, an LSE is an entity that is responsible for securing electricity resources to meet the supply needs of the customers it serves. They would assume the obligation to serve their load customers through planning and procurement of incremental supply resources. For example, through DER, CDM, etc...

If LSE licenses were to exist is there any thoughts as to whether the work above would be directed through a “Distributor” or through another channel?

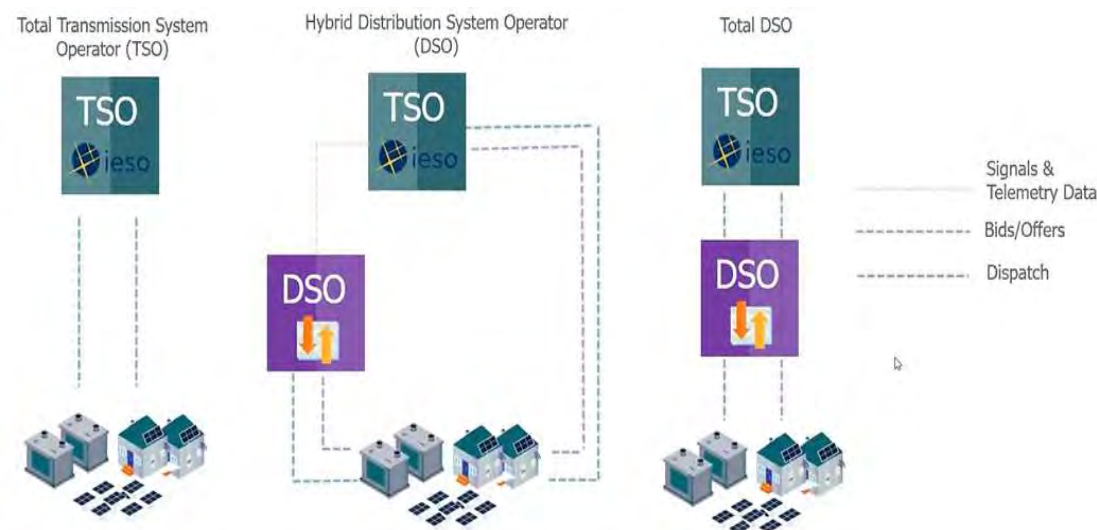
LSE & DSO – Future of Distribution in Ontario

Distribution System Operator (DSOs)

IESO has explored various scenarios for controlling integrated DERs. Some examples include:

- Total DSO - DERs submit energy market bids to the distributor and supply of electricity is significantly controlled at the distributor level.
- Hybrid DSO: DERs submit energy market bids and offers to DSO and TSO. DERs submit capacity market bids and offers to DSO and TSO.

Transmission – Distribution Coordination of NWAs



LSE & DSO – Future of Distribution in Ontario

LSEs and/or DSOs

- ESA is seeking input into the impacts of LSE and DSO models.
- If LSE or DSO licenses were to exist, due to the addition of additional services/responsibilities, is there advice the UAC would provide ESA.
 - Note: Regulation 22/04 – Section 2 states:
“This Regulation, and not the ESC, applies to distributors who are licensed to own or operate a distribution system under Part V of the Ontario Energy Board Act, 1998.”

Peer-to-Peer purchasing of electricity (P2P) & Internet of Things (IoT)

P2P and IoT – Future of Distribution in Ontario

- ESA is interested in the Council's feedback about the effects of P2P electricity markets being created and the advancement in IoT, on the Distribution sector and Regulation 22/04.
- P2P – ESA's vision of this idea is that customer's may be allowed to purchase electricity from other customer's connected to the electricity grid, instead of the electrical distributor.
 - Is there any advice from this Council that ESA should be aware of, if this concept was deployed in Ontario?
- IoT – Is there anything ESA should be considering with respect to IoT?