

William K.G. Palmer P. Eng.  
TRI-LEA-EM, 76 Sideroad 33-34, RR 5  
Paisley, ON N0G 2N0 (519) 353-5921  
[trileaem@bmts.com](mailto:trileaem@bmts.com)  
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Office of the Fire Marshal (Emergency Management Ontario)  
Ministry of the Solicitor General  
25 Morton Shulman Avenue  
Toronto, Ontario  
M3M 0B1

Subject: Safety of the Public and First Responders in the event of a Lithium Ion BESS Fire

In Ontario, the IESO (Independent Electrical System Operator) has already issued approval for the installation of over 1880 MW / 7500 MWh of Battery Energy Storage Systems (BESS) as part of the Long Term – Request for Proposals (LT1 – RFP), and is currently finalizing the next stage of the Long Term – Request for Proposals (LT2-RPF) for an even greater BESS installation.

Elected members of council of municipalities who are part of the Multi Municipal Energy Working Group, which I serve as Technical Advisor have expressed concern for the safety of members of the public and first responders in the event of a fire at a BESS facility. Such fires have occurred already at smaller BESS facilities in Ontario, and at larger facilities internationally. Some of the BESS facilities now approved by the IESO are yet larger, further increasing the risk. Through participation in the IESO RFP Community Engagement webinars, questions were asked regarding risk to public safety and safety of first responders. The IESO responded by forwarding a link to the document, “Solar Electricity and Battery Storage Systems Safety Handbook for Firefighters” (the Handbook) prepared by the Canadian Renewable Energy Association (CanREA) in collaboration with the Ontario Association of Fire Chiefs (O AFC).

Review of the Handbook identifies many concerns. These concerns will be identified in an attachment to this letter. The Handbook provides inadequate consideration of public safety related to fires in BESS facilities, and downplays the risk faced by first responders. Without intending to impugn the integrity of an industry advocacy group which has the stated objective of furthering deployment of BESS systems in preparing the Handbook, it leaves one wondering about the wisdom of the idiom of “leaving the fox guarding the henhouse.”

This request is sent to the Office of the Fire Marshal, of the Ministry of the Solicitor General, charged by the Fire Protection and Prevention Act to co-operate with any body or person interested in developing and promoting the principles and practices of fire protection services, or to take action to remedy or reduce the threat to public safety. This request calls for urgent action, as installation of BESS systems such as the 400 MW / 1600 MWh Neoen Ontario Tara BESS (formerly known as the Shift Solar Grey Owl BESS) have been approved for installation in the municipality of Arran Elderslie. The approval did not even require notification of residents

of the neighbouring municipality of Chatsworth, even though the nearest not-notified residence is within about 100 metres of the optioned land. Neither was consideration required of the capability of the 25 volunteer fire fighters of the Tara detachment of the Municipality of Arran Elderslie Fire Emergency Services to cope with a possible fire in this BESS facility, at 1600 MWh nearly 4 times larger than the 450 MWh Neoen “Victorian Big Battery Facility” in the State of Victoria in Australia, which required deployment of 150 firefighters when part of that BESS caught fire, and burned for 4 days. The handbook identifies, “Water is considered the preferred agent for suppressing lithium-ion battery fires.” Firefighters would need to deliver water by tanker to the site, and the run-off would discharge to the Sauble river, covered by Ontario Source Water Protection, which flows through the site of the BESS.

Attachments refer to the findings of the EV FireSafe study, developed for the Defence Science and Technology Group, of the Australian Government, Department of Defence. Findings from that study, identified the risk from lithium-ion batteries (such as the 60 to 100 kWh batteries in current Tesla Electric Vehicles.) However, the risks summarized in the EV FireSafe study are relevant to the much larger battery approved for installation in the Tara BESS. For comparison, in the case of the auto carrier Felicity Ace, which sank off the coast of Portugal in Feb. 2022, an intense fire propagated through the 3,828 carried automobiles (some of which were EV’s). This was only one of a number of car carrier fires on ships carrying EV’s, some of which resulted in loss of life. The Tara BESS is the equivalent of 16,000 to 26,000 stacked EV batteries. In summary, the EV FireSafe study found:

- Toxic vapour cloud of flammable gases pose respiratory and explosion risk (to first responders and the neighbouring public)
- Thermal runaway makes it difficult to extinguish the fire
- Even once suppressed, there is a risk of fire re-ignition, hours or days later
- Lithium ion battery fires are not yet well understood by emergency agencies

The Office of the Fire Marshal is requested to review the concerns identified in the attachments related to the “Solar Electricity and Battery Storage Systems Safety Handbook for Firefighters” and to give direction to the IESO and impacted municipalities before the ongoing installation of Ontario BESS facilities continues. Possible resources that might be consulted in the Fire Marshal Review are identified in a further attachment.

With respect,



William K.G. Palmer P. Eng.

Attachments:

1. Concerns identified in review of the “Solar Electricity and Battery Storage Systems Safety Handbook for Firefighters.”
2. Findings identified in the EV FireSafe study conducted for the Australian Government, Department of Defence.
3. Additional Resources and References for Consideration in Revision of the “Solar Electricity and Battery Storage Systems Safety Handbook for Firefighters.”

Copied to:

Rick Byers – MPP Grey Bruce Owen Sound [rick.byers@pc.ola.org](mailto:rick.byers@pc.ola.org)  
(c/o Constituency Office [lisa.lapierre@pc.ola.org](mailto:lisa.lapierre@pc.ola.org) )

Steve Tiernan – Fire Chief – Arran Elderslie Fire and Emergency Services (via website)

Steve Hammell – Mayor Municipality of Arran Elderslie [shammell@arran-elderslie.ca](mailto:shammell@arran-elderslie.ca)  
(c/o Emily Dance – Chief Administrative Officer [edance@arran-elderslie.ca](mailto:edance@arran-elderslie.ca) )

Scott Mackey – Mayor Township of Chatsworth [scott.mackey@grey.ca](mailto:scott.mackey@grey.ca)  
(c/o Patty Sinnamon – Chief Administrative Officer [patty.sinnamon@chatsworth.ca](mailto:patty.sinnamon@chatsworth.ca) )

Tom Allwood – Chair Multi-Municipal Energy Working Group  
[councillorallwood@greyhighlands.ca](mailto:councillorallwood@greyhighlands.ca)  
(c/o Julie Hamilton – Secretary MMEWG [jhamilton@arran-elderslie.ca](mailto:jhamilton@arran-elderslie.ca) )

IESO [engagement@ieso.ca](mailto:engagement@ieso.ca)

Ontario Association of Fire Chiefs [karthik.swaminathan@oafc.ca](mailto:karthik.swaminathan@oafc.ca)