

MULTI-MUNICIPAL ENERGY WORKING GROUP
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November 23, 2023

Re: *Battery Energy Storage Systems (BESS)*

Dear Mayor and Members of Council,

Municipalities throughout Ontario have been asked to provide their municipal support for Battery Energy Storage System's (BESS) that are being proposed to fulfill requirements under the Independent Electricity Operator's (IESO) Long-Term Request for Proposal to procure 2,518 MW of year-round effective capacity from dispatchable new build resources.

This presents a challenge at the table given the fact that BESS are a relatively new installation and there has not been time for proper review, education and understanding of the implications that providing municipal support could have on communities with localized proposals.

The Multi- Municipal Energy Working Group has recently expanded their mandate to share, discuss and advocate for "best practises" and other means to address mutual concerns regarding energy generation facilities and storage infrastructure to all the relevant Government Ministries and Agencies. BESS have been an ongoing discussion matter at meetings of the MMEWG and the Members have agreed that more can be done to educate on these installations.

A number of talking points have been summarized below for Council's consideration. The MMEWG will be requesting delegations to appear in front of both Grey County and Bruce County appointed officials.

Lithium Ion batteries, the principal method of storage currently, present a fire hazard.

- The Electric Power Research Institute (EPRI) database of BESS failure events show 32 large-scale (1 MW +) Li-Ion BESS experienced destructive failure in the 3 years since Dec. 2020. Some resulted in fatalities or serious injury of fire fighters
- Contain flammable electrolytes, can create unique hazards when the battery cell enters thermal runaway
- During thermal runaway large amounts of flammable and potentially toxic battery gas generated
- Major toxic gases emitted can include CO, HF, NO₂, HCL, - can pose very large threat to human health, a greater threat than the heat of the fire
- Different Li-Ion batteries have different methods of fire suppression, can spontaneously reignite hours or days after fire event

- Fire crews need training in specific types as some burning batteries can explode if water is used on the fire. At the same time, adjacent batteries must be cooled with copious water
- The response to a fire situation is often to let the affected battery burn out which can take a day or multiple days. Need to ensure safety setbacks to residences, roads, etc. to protect against heat and toxic gases,
- Need to assess the ability of emergency services to provide this type of extended response.
- Need to consider water courses that effluent fire protection water will drain to

Hydro One was concerned about the fire risk being created to their infrastructure by the development of these facilities and have issued their own set of standards¹, most of which are applicable to municipal situations. The documentation listed in table 8 on page 20 of this document should provide direction to municipal requirements for documentation before providing municipal support.

The Hydro One document also sets out setbacks from Hydro One facilities. Setbacks from occupied structures need more separation from BESS facilities. A review of the data base on BESS incidents reported a 2002 incident where the evacuation zone was 400 metres and the shelter in place order covered 800 metres. The 800 metre provides an indication of setbacks that should be used in municipal zoning bylaws.

In the absence of direction from the Ontario Fire Marshall, the following should be considered as requirements:

- Ensure battery incorporates gas monitoring, accessed remotely
- Need fire plan in advance of approval, recommend awaiting Ontario Fire Marshall plan approval
- Lithium-ion battery energy storage systems should incorporate adequate explosion prevention protection as required in National Fire Protection Association (NFPA) 855 or International Fire Code Chapter 12, where applicable, in coordination with the emergency operations plan. Equipment used should also meet UL Test 9540A.
- New lithium-ion battery energy storage systems should be built in accordance with NFPA 855, the most current standards available for safety, and we are calling on local governments to mandate adoption within their cities and municipalities.

Decommissioning requirements also need to be confirmed with the proponent as the IESO has indicated that as decommissioning will occur after the expiration of the IESO contract, it will not be involved in the decommissioning. That is a municipal responsibility.

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Approval must involve all municipalities impacted (for example, within 1500 metres of the proposed project boundary) NOT ONLY the host municipality.

- Bruce Trail/Orchard Storage site, is on boundary of Meaford, Owen Sound, and Georgian Bluffs - Only Meaford had public meeting (15 km away from site) while other municipalities had no knowledge.
- Grey Owl Storage site in Arran Elderslie is on boundary of Bruce and Grey County. No notification of Grey County, Municipality of Chatsworth.

Legislative Changes Needed

- Ontario Fire Marshall reviewing fire safety requirements – Decision expected in 6 months
- Hydro One identified a substantial fire risk to its infrastructure and published standards that proponents need to meet to connect to grid.
- There is no definition in the draft Provincial Policy Statement (PPS) on how large BESS project can be before it is considered the major use, as opposed to ancillary use, of prime agricultural land. The new PPS will not be finalized until early 2024.

Municipal Considerations

- Define emergency response requirements
- Source of water supply for emergencies
- Limits on noise emissions, for example from air conditioning units needed to maintain BESS cooling

A list of current proposals within the province is attached for information. The deadline for proposals is December 12, 2023 and lots of activity is being seen in advance of the fast approaching deadline.

The MMEWG wishes to extend the opportunity for representative to present a delegation for your Municipal Council to educate, address questions and concerns and support our communities through these unchartered proposals.

Warm Regards,

p.p. 

Tom Allwood,
Chair, Multi-Municipal Energy Working Group
Councillor, Municipality of Grey Highlands

KNOWN BESS Projects

22-Nov-23

Proponent	Location	Size (Actual)	Public meeting
Boralex/Six Nations	Hagersville	300	22-Jun
Boralex/Six Nations/Walpole	Lakeshore	80	20-Jun
Atura	Napanee	265	
Capital Power	Essa - King	120	20-Jun
Wahgoshig Solar FITS LP	Windsor	4.99	
Wahgoshig Solar FITS LP	Windsor	4.99	
Wahgoshig Solar FITS LP	Windsor	4.99	
Wahgoshig Solar FITS LP	Mississippi Mills	4.99	
Alectra Energy Solutions	Guelph	20	12/6/2022
Capital Power	Brampton	50	
Alectra Energy Solutions	Vaughan	20	
Alectra Energy Solutions	Vaughan	40	
Solar Flow Through	Cramahe	4.99	19-Jan
Solar Flow Through	Armour	4.99	
Solar Flow Through	Chesley (Arran-Elderslie)	4.99	5-Jan
		929.93	
1 Potentia	Ottawa	50	9-Nov
2 Evolgen	Ottawa	200	28-Nov
3 Evolgen	Ottawa	250	2-Nov
4 Evolgen	QC/Ottawa		
5 Solar Flow Through	Ottawa	120	3-Nov
6 Potentia	Merrickville-Wolford	360	6-Nov
7 Potentia	South Dundas	230	8-Nov
8 Crystal Energy Storage	Elizabethtown-Kitley	300	2-Nov
9 Liberty Pwr/Algonquin	Stirling	200	8-Nov
10 Liberty Pwr/Algonquin	Cobourg	75	15-Nov
11 EDF	Napanee	250	1-Nov
12 Boralex	Napanee	400	28-Sep
13 Baseload Power	N Dundas	75	10-Nov
14 EDP	Brinston South Dundas	230	N/A
15 Alectra Energy Solutions	South Frontenac	400	14-Nov
16 Alectra Energy Solutions	South Frontenac	400	14-Nov
17 Alectra Energy Solutions	Asphodel–Norwood, Peterboroug	400	15-Nov
18 Peterborough Utilities	Selwyn TwpPet erboro		30-Oct
19 Solar Flow Through	Mulmur	1.01	11/14/2022
20 Solar Flow Through	Gravenhurst	120	20-Nov

21 Boralex	Brant	100	16-Nov
22 Boralex	Chatham-Kent	600	13-Dec
23 Boralex	SW Oxford Cty	125	14-Sep
24 Aypa Power	Centre Wellington	250	16-Oct
25 Alectra Energy Solutions	Centre Wellington	250	15-Nov
26 BluEarth	Seaforth Huron East	200	
27 Enbridge	St Clair West	TBD	
28 Enbridge	Corunna	TBD	
29 Enbridge	Corunna	TBD	
30 Shift Solar	Meaford ¹	100	1-Nov
31 Shift Solar	Arran-Elderslie	400	2-Nov
32 Shift Solar	West Grey-Neustadt	100	30-Oct
33 Shift Solar	Guelph-Eramosa	200	30-Nov
34 Northland/Baseload Power	Lakeshore	350	8-Feb
35 Alectra Energy Solutions	Cargill, Brockton	250	9-Nov
36 Nexus Renewables	Minto Wellington	10	7-Dec
37 Starwood Energy/SS Marie PUC	Sault Ste Marie	9.9	13-Nov
38 Starwood Energy/SS Marie PUC	Sault Ste Marie	9.9	13-Nov
39 Starwood Energy/SS Marie PUC	Sault Ste Marie	9.9	13-Nov
40 Starwood Energy/SS Marie PUC	Sault Ste Marie	9.9	13-Nov
41 Starwood Energy/SS Marie PUC	Sault Ste Marie	9.9	13-Nov
Total		7,045.51	