From: Mark Wight
To: Joan Yu
Cc: Richard Secord
Subject: EXTERNAL: Re: EXTERNAL: Rule 007 Consultation Table
Date: Tuesday, June 11, 2024 8:32:10 PM

Hello Ms. Yu,
Thank you for the email and I would approve that my uploaded notes be included to the feedback table.
Please note the correct page referenced from the Canada ERG should be pages 186 and 187, not page 188. My apologies for that.
Understandably the ERG is the guide for hazardous goods in a transportation setting, and one could argue that BESS's are stationary. However that is, in my opinion, semantics.

Many thanks again,

Mark

From: Joan Yu [redacted]
Sent: June 11, 2024 5:24 PM
To: Mark Wight [redacted]
Subject: RE: EXTERNAL: Rule 007 Consultation Table

Hello Mark,

Thank you very much for your recommendation and rationale.

Would you please advise if you would like us to upload your feedback including the setback table to AUC Engage Website for the Rule 007 consultation?

Thank you and best regards.
Joan
Joan Yu, P.Eng.
Science Analyst – Specialist

From: Mark Wight [redacted]
Sent: Monday, June 3, 2024 8:28 PM
To: Joan Yu [redacted]
Subject: EXTERNAL: Rule 007 Consultation Table

Dear Ms. Yu,
See attached.
To expand further on Energy Storage Facilities.
These, I am assuming, are BESS facilities and if so lithium-ion batteries, no matter how technologically advanced, no matter which composition (there are 6 main types), all will, and have experienced thermal runaway failures. From Mid 2021 to date there have 66 globally documented lithium-ion battery related fires/failures including both BESS and other large energy storage containers, warehouses, etc. That is one every 3 weeks. (See link.)

https://storagewiki.epri.com/index.php/BESS_Failure_Incident_Database

In thermal runaway the electrolyte solution, that is ubiquitous in all lithium-ion batteries, once involved in fire, releases massive amounts of Hydrogen Fluoride (HF). When combined with water, as in when Fire Departments attempt to extinguish or cool down area, the 'precipitant' or fall out is hydro fluoric acid. Common ERP's are to let these types if fires 'burn-themselves-out'.
The nominal calculation for HF emission related to lithium-ion fires is 20 - 200 kg of HF/MWh. Therefore a 200 MW/400 MWh BESS would have a potential worst case scenario release between 8000 - 80,000 kg HF. (See linked article)

https://www.nature.com/articles/s41598-017-09784-z
[Note - this scientific paper is cited by many experts who have submitted evidence before the AUC.]
As per the Emergency Response Guide (ERG) page 188, thermal runaway events related to lithium ion batteries should be treated as a large HF fire,
..."Fire

• If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions."

This is my rationale for a minimum of 1600 m setback to residences. In an abundance of caution I would recommend an even further minimum set back.

The other set backs, as it relates to Solar and Wind Projects, some Alberta Municipalities are in the process of amending their Land Use Bylaws as is the case with the Provost MD #52 putting a minimum setback of 1600 m for all renewable projects from residences. I think this is a wise decision.

Sincerely,
Mark Wight
Eastervale Preservation Authority

Rule 007 consultation sample table - setbacks for renewable energy facilities

As discussed during the May 29, 2024, Rule 007 consultation session, the AUC is seeking submissions on the issue of setbacks for renewable energy facilities.

If you recommend the AUC **not establish** setbacks, please provide your reasoning.

If you recommend the AUC **establish setbacks**, please provide your reasoning, and populate the sample table found under the Consultation documents section on this page. Download the sample table document and enter an appropriate setback distance for each type of facility and provide a rationale for your recommendation. Once complete, please sent the filled-out table document to joan.yu@auc.ab.ca.

Infrastructure type	Wind Power Project		Solar Power Project		Energy Storage Facility	
	Appropriate setback	Rationale/main factor(s) for defining setback	Appropriate setback	Rationale/main factor(s) for defining setback	Appropriate setback	Rationale/main factor(s) for defining setback
Residence	3200 m	Flicker/Noise	1600 m	Glare	1600 m	Emergency Response Guide UN 1052 Guide 125 Hydrogen Fluoride
Hospital						
School						
Park						
Road						
Railway						
Aerodrome						
Industrial facility						

Please adhere to the following instructions when populating the sample table:

- Add any infrastructure you suggest the AUC should consider when establishing setbacks.
- Explain how the setbacks should be measured (e.g., from the closest project infrastructure, from the property boundary, from the closest sound-generating equipment).
- Describe the types of impacts and the types of infrastructure the AUC should consider.