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TOWNSHIP OF ARMOUR

Third-Party Review Report

Emergency Training Schedule - Battery Energy Storage System (BESS)

Prepared for: Township of Armour
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June 2, 2025

PLC-ARMOUR-P2738-ETS-TPR-D

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REVISION HISTORY

REVISION NO.	ISSUE DATE	DESCRIPTION OF REVISION
0	2025-XX-XX	Initial Issue

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
BESS	Battery Energy Storage System
BFDFD	Burk's Falls & District Fire Department
ETS	Emergency Training Schedule
PLC	PLC Fire Safety Engineering
TOA	Township of Armour
TPR	Third Party Review

1. INTRODUCTION

The Township of Armour (TOA) is a municipality situated within the Almaguin Highlands region of Parry Sound District, Ontario, surrounding but excluding the Village of Burk's Falls.

The TOA is evaluating the proposed installation of a 4.99 MW battery energy storage system (BESS) comprised of nine (9) Lithium Iron Phosphate ($LiFePO_4$) battery enclosures. The project is located at the SolarBank Project 903 site, located at 219 Peggs Mountain Road. The proposed project comprises nine identical energy storage containers, five inverters, two transformers, overhead connection poles interfacing with the Hydro One 44kV distribution system and associated auxiliary electrical equipment. Lithium Iron Phosphate ($LiFePO_4$) batteries will serve as the energy storage medium for this system.

SolarBank, the applicant selected to supply the BESS has developed an Emergency Training Schedule (ETS) for the Burk's Falls & District Fire Department (BFDFD) to define the training needs for the BFDFD so that they are able to safely and effectively respond to emergencies associated with the BESS installations. PLC Fire Safety Engineering (PLC) was contracted to conduct an independent third-party review (TPR) of this schedule. This report summarizes the findings of PLC's review.

2. SCOPE OF WORK

The scope of this TPR was limited to a review of the ETS and associated documents to confirm its alignment with the following codes and standards:

- NFPA 1001: Standard for Fire Fighter Professional Qualifications, 2019 Edition [R-1];
- NFPA 1072: Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications, 2017 Edition [R-2];
- NFPA 855: Standard for the Installation of Stationary Fuel Cell Power Systems, 2023 Edition [R-3];
- FM Property Loss Prevention Data Sheets 5-33, 2025 Edition;
- OHSA O. Reg. 213/91, 2025 Edition [R-5];
- NFPA 1720 - Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments, 2020 Edition;
- NFPA 2800 - Standard on Facility Emergency Action Plans, 2023 Edition, and
- Other applicable codes and standards referenced therein.

The ETS and other documentation provided for review is listed in APPENDIX B of this report.

3. METHODOLOGY

The methodology implemented for this review was as follows:

1. An introductory meeting was held with Armour Township staff to confirm the scope of work and other pertinent background information for the project. No site inspections were performed.

2. The hazards as defined in the Emergency Response Plan and the Safety Data Sheet were reviewed to determine their impact on the fire departments response. A list of the documentation reviewed is included in APPENDIX B.

3. The ETS (included as APPENDIX C) was reviewed against the requirements of the applicable codes and standards listed in Section 2 of this report.

4. Where deviations from the applicable codes and standards were identified, they were documented in Appendix A as findings along with other comments and requests for clarification. All items in APPENDIX A are considered outstanding until satisfactorily resolved.

5. Conclusions regarding this third-party review were documented in Section 6 of this report.

4. PLC PROJECT TEAM

4.1. PROJECT MANAGER

Sam Zareian, EIT, RHFAC, MASc., is a Technical Specialist at PLC, specializing in fire protection, code consulting, and accessibility compliance. With a research-focused background in mechanical engineering and over five years of experience, she has contributed to fire and life safety reviews, hazard assessments, and fire safety plan development for diverse sectors projects across Canada. Sam is highly skilled in building code compliance, performance-based fire protection solutions, fire modeling, and site audits, ensuring that projects align with Ontario and National Building & Fire Codes, NFPA, and CSA Standards.

4.2. TECHNICAL LEAD

Rudy Cronk is a principal at PLC, currently holds the position of Vice President of Business Development. With 35 years of extensive experience in the fire protection industry, Mr. Cronk is a highly experienced Senior Fire Officer with a background spanning both municipal and industrial fire protection.

Mr. Cronk has occupied Chief Officer roles in various municipal and private sector organizations. He is a graduate of the Ontario Fire College's fire technology program and remains actively engaged in fire protection committees, including CSA N293 and N393. His notable contributions include pivotal roles in the development of the Town of Haldimand recruit training program, amalgamation transition committee for the Haldimand County Fire Department, and serving on the Canadian Association of Fire Chiefs (CAFC) Codes Committee.

4.3. INTERNAL REVIEWER

Ghaith Qamheiah, P. Eng. is a principal of PLC where he currently serves in the role of President. Mr. Qamheiah holds a Bachelor of Engineering degree from McMaster University in Chemical Engineering, as well as professional engineering designations in Ontario, Manitoba, Saskatchewan and British Columbia.

Mr. Qamheiah has 20+ years of experience in fire and life safety engineering consulting primarily focused on fire hazard assessments, code and intent analysis, development of alternative solutions and performance-based designs, and review of building and fire safety system designs.

5. EVALUATION

PLC conducted an evaluation of the identified hazards associated with the proposed Battery Energy Storage System (BESS) at Armour Township, Ontario. The assessment included a detailed review of chemical, electrical, mechanical, and explosion hazards presented by Lithium Iron Phosphate (LFP) batteries, as well as associated risks from hydrogen gas, refrigerant R-410A, transformer oil (FR3), and carbon monoxide generation.

Additionally, the evaluation encompassed a review of the proposed training curriculum designed to ensure firefighter and stakeholder preparedness for effectively managing potential incidents at the BESS facility.

5.1. EVALUATION SUMMARY

The current firefighter training schedule for responding to incidents involving the BESS facility is presented only as a high-level outline, identifying the key topics intended for discussion. While the outlined topics address critical areas necessary for effective response to BESS fires, the lack of a comprehensive curriculum or detailed training presentation limits the ability to assess the program's adequacy fully.

Conclusions arising from the review were documented in Section 6 of this report.

6. CONCLUSIONS

SolarBank is proposing to install a utility-scale battery energy storage system comprising of nine (9) Lithium Iron Phosphate ($LiFePO_4$) battery enclosures, collectively providing an energy storage capacity of approximately 4.99 MWh, in the Township of Armour.

PLC Fire Safety Engineering has completed a third-party review of the Emergency Training Schedule prepared by SolarBank for the Burk's Falls & District Fire Department to confirm its alignment with applicable codes and standards. The review identified one (1) clarification item, which has been documented in APPENDIX A, for disposition by the project proponents.

7. REFERENCES

[R-1] NFPA 1001: Standard for Fire Fighter Professional Qualifications, 2019 Edition
[R-2] NFPA 1072: Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications, 2017 Edition
[R-3] NFPA 855: Standard for the Installation of Stationary Fuel Cell Power Systems, 2023 Edition
[R-4] FM Property Loss Prevention Data Sheets 5-33, 2025 Edition
[R-5] OHSA O. Reg. 213/91, 2025 Edition
[R-6] NFPA 1720 - Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments, 2020 Edition
[R-7] NFPA 2800 - Standard on Facility Emergency Action Plans, 2023 Edition.

APPENDIX A

Items for Clarification

DISPOSITION OF FINDINGS

NO.	REVIEWER COMMENT	DESIGN DISPOSITION	REVIEWER CONCURRENCE
1	The proposed training schedule lacks sufficient detail to determine if the training to be provided to the Burk's Falls & District Fire Department (BFDFD) will adequately ensure firefighter safety and effective incident response at this facility, per NFPA 1001, NFPA 1072, and NFPA 2800. The schedule also lacks provisions for ongoing annual refresher training, as required by NFPA 855, Section 4.3.2.2.2, which mandates periodic training to ensure responders maintain proficiency. A detailed training curriculum and schedule, which addresses the requirements of all applicable NFPA codes is to be provided to the AHJ. *Reference: NFPA 1001, 1072, 2800 and 855*		

APPENDIX B

Documents Reviewed

Document Number	Document Name	Rev.	Issue Date	Document Type
	EVLO FIRE SAFETY PRESENTATION			Document
	EVLO SAFETY DATA SHEET - EVLOFLEX			Document
	FIRST RESPONDERS GUIDE TO LITHIUM-ION BATTERY ENERGY STORAGE SYSTEM INCIDENTS		2023-01-07	Document
5-33	FM PROPERTY LOSS PREVENTION DATA SHEETS	APRIL 2025	2017-01-01	Document
7-112	FM PROPERTY LOSS PREVENTION DATA SHEETS - LITHIUM-ION BATTERY MANUFACTURING AND STORAGE		2024-10-01	Document
903 BESS	SOLARBANK - EMERGENCY TRAINING SCHEDULE WITH FIRE DEPARTMENT			Document
F.S.BURKS FALLS (7)	CERTIFICATE OF WATER TANKER SHUTTLE ACCREDITATION - PRESENTED TO ARMOUR TOWNSHIP		2023-09-05	Document

APPENDIX C

Emergency Training Schedule

SOLARBANK

803-505 Consumer Rd
Toronto, ON M2J 4V8
Tel: 1 416 494 9559
www.solarbankcorp.com

Emergency Training Schedule with Fire Department

903 BESS

219 Pegg's Mountain Road, Burk's Falls, ON

SOLARBANK

803-505 Consumer Rd
Toronto, ON M2J 4V8
Tel: 1 416 494 9559
www.solarbankcorp.com

Overview

SolarBank will provide and pay for Fire Department training by third party fire experts in BESS, Fire & Risk Alliance. The training will include a high-level virtual information session for the Fire Department as well as an in-depth, in person training once the BESS facility has been constructed. There will also be annual refresher training sessions for the Fire Department.

Virtual Sessions

A virtual session was held with the Burk's Falls and District Fire Department on June 25, 2024 from 12-1:30pm and included Chief Readman, Anthony Natale, Director of Risk & Response at Fire & Risk Alliance, and members of the SolarBank team.

Another pre-delivery virtual fire training session will be held prior to construction commencing and after the final design of the BESS is complete at the availability of the Fire Department.

In-Person Training

The in person, in-depth training will be held at the Fire Departments convenience once the BESS facility construction is complete in order to facilitate a site tour that will enhance the training. See below for a summary of what is to be covered during the detailed training:

BESS Hazards & Response Tactics Training

FRA will develop a training program and provide in person training to the local municipal fire departments, site personnel, the AHJ, and any other interested project stakeholders. The program will include classroom training and familiarization tour of the BESS facility. The training will include the hazards and response tactics associated with the full gamut of emergencies that may reasonably occur at a BESS Facility.

- Micro-Mobility vs Stationary Storage
- BESS System Failures
- Stationary Storage System Overview
- Equipment & Definitions
- General Site Overview
- Battery Management System
- Detection & Suppression
- Emergency System Shutdown
- Hazards
- Chemical
- Electrical
- Arc Flash

SOLARBANK

803-505 Consumer Rd
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- Explosion (NFPA 68/69)
- Managing Lithium-Ion Battery Fires
- Exposure Control
- On Arrival
- Scene Size-Up
- 8 Critical Tasks
- Response Tactics
- Cell Venting/Fire
- Fully Involved Battery Container
- Inverter Failure
- Transformer Failure
- Under Control
- Conditions under which the incident has stabilized and can be placed under control in preparation for decommissioning