Bulletin 64-7-1
Installation and Approval of Energy Storage Systems
Rules 2-024, 64-900, 84-002 and 84-022

Issued May 2022
Supersedes Bulletin 64-7-0

Scope

1) Introduction
2) Approval of Energy Storage Systems (ESSs)
3) Examples of ESSs

1) Introduction

Energy Storage Systems (ESS) are defined in Section 64 of the Ontario Electrical Safety Code (OESC) as a system capable of supplying electrical energy to local power loads or operating in parallel with a supply authority system or any other power sources. ESS can include but are not limited to electrochemical (battery/capacitor), chemical (fuel cell), mechanical (flywheel/compressed air/pumped water) or thermal (heated fluids).

2) Approval of Energy Storage Systems (ESS)

Question 1
What are the approval requirements for ESSs?

Answer 1
All ESSs for use or sale in Ontario shall be approved in accordance with OESC Rule 2-024 and Ontario Regulation 438/07.

Approval may be obtained by one of the following:

1. **Product certification** by an accredited certification body to the requirements of ANSI/CAN/UL 9540 Energy Storage Systems and Equipment. (See Diagram 1)

2. **Field Evaluation** by an accredited inspection body to the requirements of the SPE-1000 model code and applicable requirements of the ANSI/CAN/UL 9540 Energy Storage Systems and Equipment. When separate equipment is combined to form an ESS (see Diagram 2), these are to be considered as complex installations and interconnected wiring attached to the building structure needs to be installed as per the OESC and the complex installation marking requirement as per the Field Evaluation guideline would apply.

3. **For battery energy storage systems (BESS) acceptance by an inspector** during wiring inspection when all of the following conditions are met:
   a) The system is utilizing
      i) Lead acid type batteries; or

ii) For other than lead acid batteries, the system is rated less than 1 kWh;

b) All separate equipment incorporated to form the ESS system are individually approved;
c) All separate equipment incorporated to form the ESS are installed as per their corresponding manufacturer's instructions;
d) Wiring as per the OESC; and
e) Batteries are certified to the applicable standard, except for lead acid type.

3) Examples of ESS

Photo B1 – Example of an ESS

Diagram B1 – Self Contained (Single Unit) BESS (example)

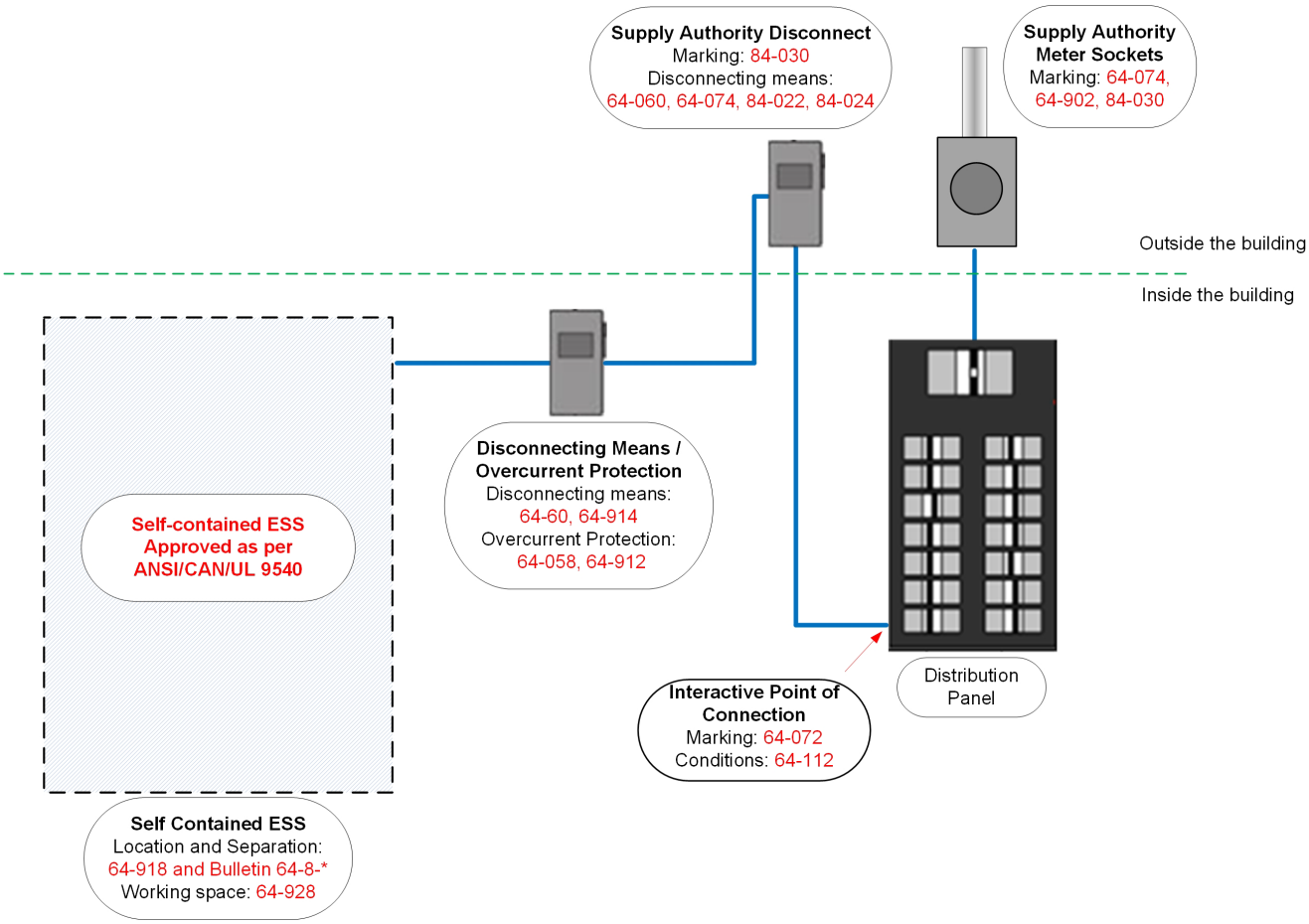
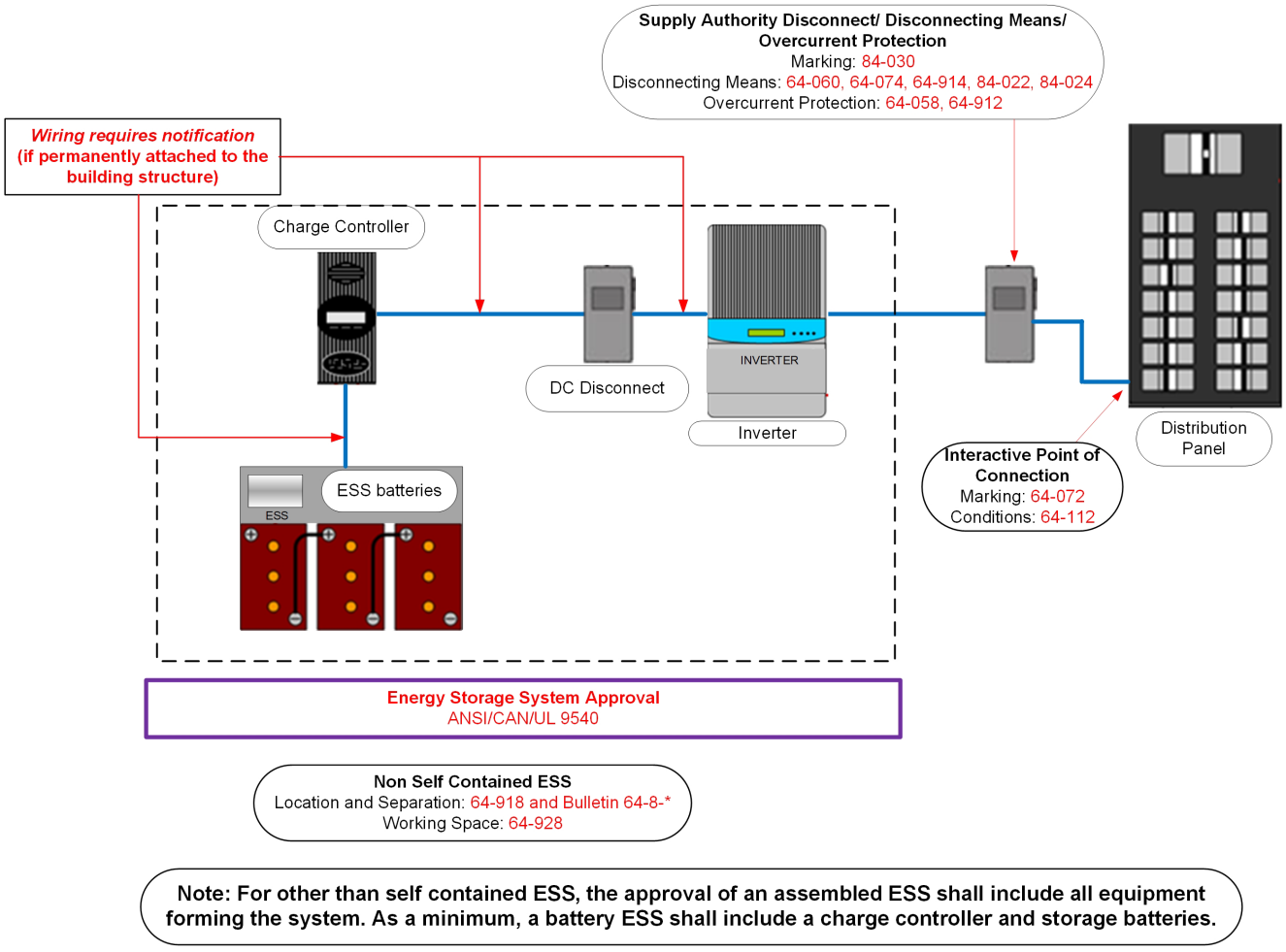


Diagram B2 – Non self contained (Composed of Multiple Parts) BESS (example)



Note:

Interconnection of energy storage systems, whether self-contained or other, shall be in accordance with supply authority requirements as per Rule 84-002. Additionally, a connection authorization is required as per ESA processes. For more information, refer to Bulletin 84-1-*, Interconnection of electric power production sources