

Why is Enpower Not Required to Comply With the 120% Rule in Whole Home Backup?

Summary

The Enphase Enpower™ smart switch consolidates interconnection equipment into a single enclosure and streamlines grid-independent capabilities of PV and storage installations by providing a consistent, pre-wired solution for residential applications.

When installed in whole home backup configuration, installers and authorities having jurisdiction (AHJ) may wonder if it should comply with the National Electric Code (NEC) 705.12 (120% rule) or similar requirements. This document explains why Enpower can be installed in whole home configuration with the distributed energy resources connected upstream of the main service panel (home loads).

Rationale

The 2017 NEC and earlier editions of Article 90.7 present the principle that equipment evaluated in laboratory conditions and that is Listed is safe. Enpower 200G is a UL Listed assembly evaluated under UL 1741 and its panelboard interior is a dedicated product to which only those electrical connections (sources and loads) identified by Enphase will be connected. Enpower is designed to have up to 200A input and/or output OCPD on Eaton CSR circuit breakers, up to 80A PV, and 80A Encharge OCPD on Eaton BR circuit breakers. Enpower is not a general use UL 67 panelboard. Enpower bears a marking to this effect “NOT FOR USE TO SUPPLY GENERAL LOADS. DO NOT ADD CIRCUITS.”

NEC requirements, including the 120% rule, do not apply inside dedicated purpose UL Listed assemblies like Enpower. Busbar ratings in Listed assemblies are established via temperature testing and may be higher or lower than the NEC 120% would allow.

If AHJs insist that Enpower still needs to comply with the 120% rule found in 705.12, there are several options for busbars to comply with it. In this case, Enpower could be considered as complying with the follows clause of the NEC 705.12:

2017 NEC 705.12(B)(2)(3)(e) *Connections shall be permitted on multiple-ampacity busbars where designed under engineering supervision that includes available fault current and busbar load calculations.*

Enpower includes multiple-ampacity busbars, and Enphase engineering has made calculations that establish that the ampere rating is sufficient when the system is installed in accordance with Enphase documentation.