

## Solar Connection Feeders

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**Code reference:** 2023 Oregon Electrical Specialty Code (OESC)—Sections 690.4 and 705.12

**Date(s):** Issued—Aug. 5, 2021  
Last updated—Oct. 1, 2023

**Subject:** Connection of solar photovoltaic (PV) electrical system to a feeder

### Question:

Are solar PV system inverter output conductors allowed to be tapped to feeder conductors on the load side of the service disconnecting means?

### Answer:

Article 690.4 permits the use of a solar PV system to supply a building or other structure in addition to other electrical power sources such as the utility. The rules for connecting these systems on the load side of the service disconnecting means are found in Section 705.12.

### Analysis:

There is confusion among installers and inspectors on the application of the OESC to the connection of PV inverter output conductors to feeders on the load side of the service disconnecting means.

This interpretation is intended to clarify one option for connecting interconnected power source circuits to feeders for solar PV system installations in Oregon.

The solar PV inverter output connection may be made as a tap to a feeder in accordance with Section 240.21(B) as long as the feeder supplies a subpanel and the load on the feeder is limited to its ampacity by the installation of a main breaker in the subpanel as permitted in Section 705.12(B)(1)(b). See Section 705.12(B)(2) for requirements applicable to sizing the tap conductors. Section 240.4(B) may be used when sizing the overcurrent device installed in the subpanel.

This does not preclude the use of Section 705.12(B)(1)(a).

This type of connection is quite common and helps to facilitate compliance with renewable energy mandates in a safe and affordable manner while providing a reasonable measure of safety mirroring similar requirements throughout the electrical code.

**Contact:** Visit the division website to [contact a building code specialist](#).

**Code language:**

**705.12 Load-Side Source Connections.** The output of an interconnected electric power source shall be permitted to be connected to the load side of the service disconnecting means of the other source(s) at any distribution equipment on the premises. Where distribution equipment or feeders are fed simultaneously by a primary source of electricity and one or more other power source(s), the feeders or distribution equipment shall comply with relevant sections of 705.12(A) and (B). Currents from power source connections to feeders or busbars shall be based on the maximum circuit currents calculated in 705.28(A). The ampacity of feeders and taps shall comply with 705.12(A), and the ampere ratings of busbars shall comply with 705.12(B) .

**705.12(A) Feeders and Feeder Taps.**

Where the power source output connection is made to a feeder, the following shall apply:

(2) Where the power source output connection is made to a feeder, the feeder shall have an ampacity greater than or equal to 125 percent of the power-source output circuit current. Where the power-source output connection is made to a feeder at a location other than the opposite end of the feeder from the primary source overcurrent device, that portion of the feeder on the load side of the power source output connection shall be protected by one of the following:

- a. The feeder ampacity shall be not less than the sum of the primary source overcurrent device and 125 percent of the power-source output circuit current.
- b. An overcurrent device at the load side of the power source connection point shall be rated not greater than the ampacity of the feeder.