

# Solar Grid-Tie eLearning| Inverters, Interconnection Codes & Grid-Tie Systems Training

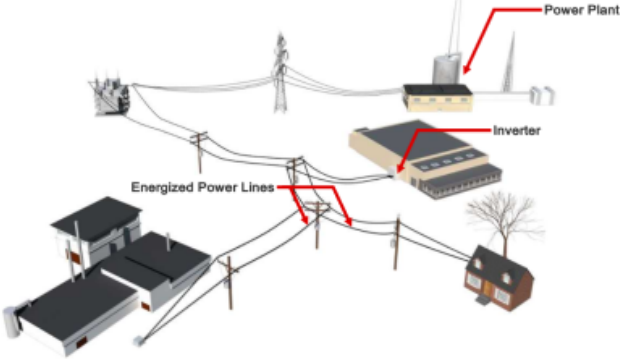
Grid-Tie Systems Description - WX20317-XC01JEN-E1

Objective 1: Describe the Operation of an Interactive PV Inverter

### Interactive PV Inverters

Grid-tie systems use an interactive-type inverter to connect to and interact with the grid. Often, these systems do not have battery backup.

Instead, the inverter converts DC power directly from the PV array into AC power at the required voltage and frequency to match the grid.



The diagram illustrates a grid-tie system. A PV array (represented by solar panels) is connected to an inverter. The inverter is connected to a set of energized power lines. These power lines are connected to a power plant and a house. The power plant is labeled 'Power Plant', the inverter is labeled 'Inverter', and the power lines are labeled 'Energized Power Lines'. The house is shown with a tree in front of it.

AMATROL Page 3 of 34

## eLearning Course: M20317

The Solar Grid-Tie eLearning course focuses on grid-tie inverters. Learners will study the operation of various inverters, the interconnection codes and standards for grid connection, and the types of grid-tie systems.

## Teach Alternative Energy

### What Types of Grid-Tie Systems Are Popular?

PV systems that connect to the utility grid are called grid-tie systems. There are two types: interactive systems and battery-backed systems. Interactive systems do not include batteries, while battery-backed systems do. If the electric grid is powered up, these two systems operate in the same way. They both supply loads with a combination of PV power and utility power. They also export power to the grid when the PV array produces more power than local loads require.

The operation of interactive and battery-backed systems differ when the electric grid goes down. A battery-backed system is able to supply power to critical loads from the batteries in the absence of utility power. An interactive system, on the other hand, does not supply power to the loads when there is no utility power. The reason that interactive systems, which do not have battery backup, stop supplying loads with grid power is the anti-islanding requirement imposed by all utilities. This requirement dictates that the inverter must not apply power to the grid while it is down. Since the output connections of an interactive inverter connect to both the loads and the grid, the loads also lose power while the inverter's output is disconnected.

## Interactive eLearning

### Solar Grid-Tie eLearning Features Multimedia Curriculum

Amatrol's unmatched [multimedia](#) utilizes text, audio, and stunning 3D animations that engage learners in theoretical knowledge and concepts. This thorough, exceptionally detailed curriculum is built to begin with the basics and steadily advance to more complex concepts. Through partnerships with key industry leaders and leading edge educators, Amatrol developed the right balance of knowledge needed to train learners to work in their chosen field.

## Additional Info

---

### Requires:

- Computer: [See requirements](#)

### Options:

- Grid-Tie Learning System - Solar (85-GT1)
- 

#### Address

**Amatrol  
2400 Centennial Blvd  
Jeffersonville, IN 47130**

#### Contacts

**email: [contact@amatrol.com](mailto:contact@amatrol.com)  
phone: (800) 264 8285**