

## TECHNOLOGY AND INDUSTRY OVERVIEW

### Solar Electricity

Solar electricity is generated by capturing sunlight and converting it into usable electricity. This is a clean form of electricity powered by sunlight—the ultimate source of renewable energy.

### Solar Modules and Solar Cells

Solar modules (or solar panels) capture and convert sunlight into usable electricity.

A solar module is composed of an array of solar cells. Solar cells are built from a semiconducting material (e.g., silicon) that can absorb and control photons—the basic form of solar energy.

### Creating Solar Electricity

1. Photons present in sunlight hit a solar module. These photons are absorbed by solar cells in the solar module, much as pavement or the human body absorb "heat" from sunlight.
2. When a photon is absorbed by solar cells, electrons are knocked loose. A percentage of these electrons are captured by the solar cells and redirected as a electrical current.
3. The solar cells convert the electrical current into usable electricity.

### The Solar Supply Chain



1. Polysilicon processing. Quartz or sand is refined into solar grade polysilicon feedstock. The polysilicon is then processed into crystalline silicon ingots.
2. Wafer processing. Crystalline silicon ingots are sliced into wafers.
3. Solar cell processing. Wafers are processed into solar cells through a multi-step process of etching, doping, coating, and applying electrical contacts.
4. Module assembly. Solar cells are strung together in an array, encapsulated in a physically durable and weatherproof package, and framed.
5. System integration. System integrators (installers) use solar modules in the solar electric systems they design and install for system owners.

## TECHNOLOGY AND INDUSTRY OVERVIEW (CONTINUED)

### Helios USA and the Solar Supply Chain

Helios USA is positioned in the solar supply chain as a module assembler.

- We manufacture high-performance mono-crystalline solar modules for use in solar electric systems.
- We use only high-end components and an advanced, automated manufacturing platform to offer high-efficiency modules that produce reliable power at a competitive price.
- We offer a generous, long-term warranty guaranteeing 90 percent of minimum rated power for 10 years and 80 percent for an additional 15 years.
- We assemble our modules at our headquarters in Milwaukee, Wisconsin. We strive to source from American suppliers whenever possible to ensure high performance, high quality, and on-time delivery.

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