

# **SOL110: Achieving Solar – An Introductory Guide**

## ***Course Description***

In this five-module course, you will get an understanding of the fundamentals of energy consumption in the U.S. before going on to receive a detailed primer on today's solar energy applications. Whether you are concerned with residential or small business applications, after this course you will understand the difference between solar thermal systems and solar photovoltaic (PV), and the basic technologies for each. Climate and geographic factors, siting, and zoning considerations will be discussed, and you will learn about some of the community barriers to incorporating solar on your building. Finally, you'll get information on locating a contractor, and understand how a solar installation can add value to a structure.

## ***Objectives***

At the conclusion of this course, you should be able to:

- Recognize the economics and environment driving the adoption of renewable energy;
- Identify basic aspects of solar power and the technologies that harvest it;
- Recall the role site characteristics play in a successful solar powered installation;
- Differentiate between solar electric and solar thermal technologies;
- Identify resources for evaluating solar electric and solar thermal systems;
- Locate a qualified solar contractor;
- Decide whether solar power is appropriate for your needs.

## **Introduction**

### **Module 1: The Context for Solar Energy**

- Energy fundamentals
- Energy production
- Renewable energy

### **Module 2: What is Solar Energy?**

- Solar technologies
- Solar physics
- Solar angles

### **Module 3: Solar Heating**

- Solar space heating
- Solar water heating
- Solar thermal systems
- Considerations for solar thermal systems
- Solar air conditioning

### **Module 4: Solar Electric (Solar Photovoltaic)**

- How solar electricity works
- Connections: Off the grid or on the grid?
- Types of PV systems
- Considerations for solar electric systems

### **Module 5: Getting Ready to Install**

- Restrictions on solar
- Overcoming objections
- Choosing a contractor

### **Module 6: The Value of Solar**

- Return on investment
- Payback for solar
- Incentive programs
- Costs and lifetime value

## **Conclusion**