Solar Photovoltaic Training

For Architects and Engineers

Rochester, NY

May 4, 2018
Welcome and Introductions

Building Codes Assistance Project

Center for Sustainable Energy

The American Institute of Architects

ASHRAE

Powered by SunShot
U.S. Department of Energy
DOE SunShot Initiative Mission

On the Path TO SunShot

Powered by SunShot
U.S. Department of Energy
Solar Training & Education for Professionals (STEP)

Innovative training programs for the solar workforce

#SunShot

ergy.gov/sunshot
Peter Ewers, AIA, LEED AP BD+C
Peter has 30 years of experience designing residential and commercial projects and has been a licensed architect for 26 years. In 1998, he founded Ewers Architecture in Golden, Colorado with the mission to create beautiful architecture that respects the natural environment. Maximized energy efficiency, minimized environmental impacts, passive solar design, and roofs optimized for solar panels are part of all Ewers Architecture designs. Peter has spoken at solar and design conferences as an advocate for sustainability.
Upon completion of this course, participants will be able to:

• Explain basic technical information and the economical, ecological and community benefits of solar photovoltaics (PV)
• Act in a leadership capacity to increase solar PV deployment in your community and in your practice
• Make an actionable connection between policy objectives for solar deployment and AIA sustainability and 2030 goals
• Increase services to clients with reliable information on solar costs, benefits and available incentives
Learning Objectives

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Why are YOU here?

Learn to design a solar system

Sell solar to my clients

Sell solar to my boss/partner

Continuing education units
Why is this training important?

Buildings use about 40% of primary energy

And 70% of the electricity
Why is this training important?

Architects pollute.

Source: Metropolis Magazine
October 2003
Why is this training important?

Putting the power source on the building
Why is this training important?

Meeting AIA 2030 goals
Architecture 2030 Goals

The 2030 Challenge

Source: ©2015 2030, Inc. / Architecture 2030. All Rights Reserved.
*Using no fossil fuel GHG-emitting energy to operate.
Architecture 2030 Goals

The 2030 Challenge

Fossil Fuel Energy Reduction  Renewable  Fossil Fuel Energy Consumption

Source: ©2015 2030, Inc. / Architecture 2030. All Rights Reserved.
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2012/2015 IECC
Architecture 2030 Goals

WHERE WE REALLY ARE!

Today: 70% Fossil Fuel Energy Reduction, 20% Renewable, 10% Fossil Fuel Energy Consumption

2020: 80% Fossil Fuel Energy Reduction, 20% Renewable

2025: 90% Fossil Fuel Energy Reduction, 10% Renewable

2030: CARBON NEUTRAL

The 2030 Challenge

Source: ©2015 2030, Inc. / Architecture 2030. All Rights Reserved.
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2012/2015 IECC
Renewable Energy Generation Surpasses Nuclear

Monthly electricity generation from selected fuels (Jan 1980 - Apr 2017)

Source: U.S. Energy Information Administration, Monthly Energy Review and Electric Power Monthly

Credit: U.S. Energy Information Administration
Why are WE here?

MYTHBUSTERS
“Solar is ugly.”
Myths & Barriers

“If I wait 10 years, the technology will be better.”
“You can’t save money by going solar.”

“...it’s too expensive”
“You need to own a building to install solar.”
“Solar will lower the value of my building.”
“Solar doesn’t work in certain climates.”
Agenda

- Basic Technical Information on Solar PV
- Architectural Integration of Solar PV
- State of the Market & Current Policy
- Utility Connections & Code Considerations
- Financing Options & Cost Analysis
- Putting it all together
- Emerging Technologies & Wrap-up