Solar Education For Communities

mrea
midwest renewable energy association
www.midwestrenew.org
MREA
Midwest Renewable Energy Association

- Founded in 1990 with the first Energy Fair
- Promote renewable energy through educational courses in solar PV, solar thermal and small wind
- Partner with colleges and professionals
- Illinois Community College Partners:
  - Kankakee Community College
  - McHenry Community College
  - Heartland Community College
  - Illinois Green Economy Network
Solar Education For Communities

- **Introduction**
  - Improve Community Outreach
  - Expand your Programs
- **Describe the Power Pack Team**
  - Building a Solar Education Community
  - Detail the Educational Power Hour
- **Increase Solar Education - Solar Street Team**
- **Integrate MREA Professional Certificate Program**
- **Grow Solar Initiative**
- **Wrap Up**
Solar Education For Communities

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• Wrap Up
Power Pack Partnership

Collaborative partnership:

- MREA
- Kankakee Community College
- Community colleges
- Regional partners
- National Science Foundation
- Department of Commerce and Economic Opportunity
- Illinois Green Economy Network

Illinois Power Pack Partnership
Power Pack Goals

- Educating communities on the benefits of solar energy
- Collaborating with community college solar PV programs
- Promoting approved, local installers
- Supporting solar components from local, regional, US companies
- Integrating solar business and financial institution sponsors
The Power Pack Team

- Community Colleges
- Power Hour Presenters
- Suppliers
- Installers
- Financial Institutions
Certified Installers

Promoting MREA approved local installers to ensure installation expertise:

- Qualifications include NABCEP, UL, or US DOL
- Proven solar installation history
- 5 year labor warranty
- Cost competitive

Illinois Power Pack Installers
Local Suppliers

Integrating local and regional suppliers and manufacturers to support local economies

Illinois Power Pack Suppliers
Partnering with financial institutions to provide loan products that help make investing in a solar system possible.
The Power Pack Team

- Community Colleges
- Power Hour Presenters
- Installers
- Suppliers
- Financial Institutions
Community Outreach and Education: 
**Power Hour**

Educating the public through the *Power Hour*, a FREE 1-hour solar informational program:

- Market trends
- Solar PV system components
- Siting requirements
- Economic benefits
- Review approved installers, suppliers, financial institutions
- Q & A opportunities, lead generation for installers
Market Trends

NATIONAL SOLAR JOBS CENSUS 2013

OVER 142,000 AMERICANS WORK IN THE SOLAR INDUSTRY.

A new solar system is installed every 4 minutes in the United States.

THE SOLAR FOUNDATION®

Image courtesy of groSolar. Research and Education to Advance Solar Energy.
Siting Requirements
Economics

Sample 5 kW System

- Meets approximately 1/2 to 3/4 of annual household usage
- Total installed cost approximately $20,000 (based on $4 per watt)

Sample 5 kW System

Environmental Benefits
- 124 tons of carbon dioxide (CO2) eliminated from your ecological footprint
- Equivalent to:
  - Planting 2,889 trees
  - Driving reduced by 248,000 auto miles, or 12,648 gallons
  - Recycling 332 tons of waste instead of sending it to landfill
- Displacing CO2 emissions from the annual electric use of 14 homes

Residential Renewable Energy Tax Credit

- Tax credit of 30% on qualified expenditures
  - Includes labor costs, system installation, interconnection wiring
- No maximum credit
- Systems must be placed in service before 12/31/16
- The home must be owned by the taxpayer but does not have to serve as the principal residence
Identify Power Pack Partners

Suppliers

- Werner Electric Supply
- Schneider Electric
- Renusol Solar Mounting Systems

Installer

- Ecosolar
- Continental Energy Solutions
- Admira Alternatives

Financial Institutions

- Homestar Bank & Financial Services
SOLAR PV GLOSSARY

Solar System Components

Watt - A measure of power, often written as W. Indicates how much power is produced by a PV module or PV system. A kilowatt is 1,000 watts, often written as kW.

Kilowatt Hour - A measure of energy. Indicates the amount a PV system produces or what is used over a period of time. Often written as kWh.

Grid - The electric grid is a network of wires that distribute electricity.

Module - A complete, environmentally protected unit consisting of solar cells designed to generate DC power when exposed to sunlight.

Array - A complete power-generating unit consisting of electrically and mechanically integrated PV modules with structural supports and components.

Inverter - An electronic device that converts DC power from a PV array to AC power that is used in the home.

Balance of System (BOS) - Includes all components of a photovoltaic system other than the photovoltaic panels and mounting equipment.

Fixed tilt array - A photovoltaic array set at a fixed angle with respect to horizontal.

Adjustable tilt array - A variation of a fixed-tilt photovoltaic array that permits manual adjustment of the tilt to increase the array output for seasonal adjustment.

Tracking array - A photovoltaic array that follows the path of the sun to maximize the solar radiation incident on the PV surface.

PV Systems Types

Grid Tie - A photovoltaic (PV) system with an inverter that connects the PV system to the electric grid. A grid-tied solar system can work much more efficiently than a stand-alone system.
The Power Pack Team

- Community Colleges
- Power Hour Presenters
- Installers
- Suppliers
- Financial Institutions
Collaborating to build a solar installation workforce:

• MREA Site Assessment Certificate students conduct free site assessment for Power Hour attendees

• Recognized Training Provider - instructor is trained to teach MREA Site Assessment Certificate program

https://www.youtube.com/watch?v=RrfTkdkQDcs
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Solar Street Team Description

- Engages community college instructors to deliver Power Hours
- Utilizes MREA standardized Power Hour presentation with customization flexibility
- Includes Facilitator’s Guide
- Incorporates informational handouts for consumers i.e. Selecting a Solar Installer
- Establishes a Community of Practice
- Supported through the MREA
1. Expands solar education to more neighborhoods, organizations, businesses
2. Recognizes and promotes the college and their programs
3. Supports sustainability efforts and community outreach
4. Advances potential workforce stream for RE graduates
5. Supports local business and economies through the Power Pack
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MREA Professional Certificate Program

- MREA PV Site Assessment Certificate (ANSI-IREC Accredited)
- MREA PV Design and Sales Certificate
MREA Professional Certificate Program

MREA Photovoltaic Site Assessment Certificate

PV 101
PV 201
Skills Assessment: Two Practice Site Assessment Reports
Exam

MREA Photovoltaic Design and Sales Certificate

PV 101
PV 201
PV 202 and PV 203
Skills Assessment: One Practice Design & Sales Proposal
Exam
There are many ways to incorporate the MREA Professional Certificate Program into your training institution. The following four models are the most common ways MREA has seen the program set up, but we are willing to work with you to find the right fit for your institution.

**Model 1**
- **Program Type**: Credit (Certificate, Diploma, AAS)
- **Course Structure**: High involvement, lab time, group work
- **Time**: Semester
- **Prerequisites**: Met by institution's own curriculum
- **Practice Reports**: Required class assignments (PowerPack)
- **Tech Mentor**: Instructor
- **Exam**: RTP offers exam and counts for grade

**Model 2**
- **Program Type**: Credit (Certificate, Diploma, AAS)
- **Course Structure**: Lecture and group work
- **Time**: Semester
- **Prerequisites**: Met by institution's own curriculum
- **Practice Reports**: Reports are not part of semester grade, but encouraged (PowerPack)
- **Tech Mentor**: Instructor
- **Exam**: RTP offers exam, but not part of grade

**Model 3**
- **Program Type**: Non-credit (Continuing Education)
- **Course Structure**: Lecture and lab work
- **Time**: 1-3 days or Multiple weekends
- **Prerequisites**: Met by institution's own curriculum
- **Practice Reports**: Independent assignments
- **Tech Mentor**: Instructor
- **Exam**: Student schedules exam with the MREA

**Model 4**
- **Program Type**: Non-credit (Continuing Education)
- **Course Structure**: Lecture main focus
- **Time**: 1-3 days
- **Prerequisites**: Uses MREA's PV 101 course
- **Practice Reports**: Independent assignments
- **Tech Mentor**: MREA tech mentors (Additional fees for students)
- **Exam**: Student schedules exam with the MREA

mreacertificate.org
Showcase Schools

Model 1

Program Type
- Credit (Certificate, Diploma, AAS)

Course Structure
- High involvement, lab time, group work

Time
- Semester

Prerequisites
- Met by institution’s own curriculum

Practice Reports
- Required class assignments (PowerPack)

Tech Mentor
- Instructor

Exam
- RTP offers exam and counts for grade

Model 4

Program Type
- Non-credit (Continuing Education)

Course Structure
- Lecture main focus

Time
- 1-3 days

Prerequisites
- Uses MREA’s PV 101 course

Practice Reports
- Independent assignments

Tech Mentor
- MREA tech mentors (Additional fees for students)

Exam
- Student schedules exam with the MREA

https://www.youtube.com/watch?v=_APhiNamk8M
MREA Recognized Training Provider

**Photovoltaic Site Assessment**
Recognized Training Provider

- PV 101
- OR
- PV 201
- OR
- PV 201

**Skills Assessment:**
Two Practice Site Assessment Reports

- Exam

- Photovoltaic Site Assessment Certificate

- PV 705

- RECOGNIZED TRAINING PROVIDER

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**Photovoltaic Design & Sales**
Recognized Training Provider

- PV 101
- PV 201
- PV 202 and PV 203

**Skills Assessment:**
One Practice Design & Sales Proposal

- Exam

- Photovoltaic Design and Sales Certificate

- PV 706

- RECOGNIZED TRAINING PROVIDER
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A Midwest initiative to grow the solar market.

Supported through the US Department of Energy Sunshot Initiative

Providing resources and training to industry professionals with stipends for PV Design and Sales Certificate courses

www.midwestrenew.org/courses

Expanding the Power Pack program
Solar Education For Communities

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Next Steps

1. Complete the Sign-in Sheet
2. Access the MREA Community of Practice
3. Join the Solar Street Team
4. Learn to how to best leverage the MREA Professional Certificate Program
5. [Website Link]
6. Visit the Grow Solar Web Site: [Website Link]

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