

## Wind Power 101



### WP 101 Description:

Participants in this wind power training workshop will learn design and install principles for residential wind systems that range from 10 to 70 feet in diameter and produce 1 to 100 kWh per day. The workshop will cover site analysis, system design, installation and safety issues, and hardware specification. Learn about the different available residential wind turbines, how they work, and the advantages and disadvantages of each.

### Topics Include:

- How residential wind generators work • Site analysis • Towers and tower economics • Grid-tied systems • Off-grid wind/PV hybrid systems • Wind system sizing • Legal issues and zoning • Installation and safety considerations



Solar Energy International has a nationally recognized curriculum and is a minimum requirement in some states for work in the Renewable Energy Industry.

These trainings are being offered free of charge for Alaskans through the Alaska State Energy Sector Partnership (ASESP) Grant through the Dept. of Labor.

All SEI courses will be held in Anchorage with the Exception of the August small-wind turbine training in Hooper Bay

### Training Schedule

Dates	Time	Course
June 4-8	8am-5pm	PV 101
June 11-15	8am-5pm	PV 203
June 25-29	8am-5pm	ST 101
July 16-20	8am-5pm	WP 101
Aug. 16-20 (tentative)	8am-5pm	Turbine Install

For applications and more information

PLEASE CONTACT:

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## Solar Energy International

### Renewable Energy Trainings in Alaska Summer 2012



Sponsored by the Alaska  
Dept. of Labor and  
Workforce Development  
and

Yukon River Inter-Tribal  
Watershed Council

[www.yritwc.org](http://www.yritwc.org)

## Solar Thermal 101



## Photovoltaics 203 Battery-Based



## Photovoltaics 101 Grid-Tie



# RENEWABLE ENERGY IN RURAL ALASKA

### ST 101 Description:

Participants in this workshop will learn the theory, design considerations and installation strategies necessary to install and maintain a solar domestic hot water system. Passive solar water heaters, drainback systems, antifreeze systems, and photovoltaic powered systems are discussed in depth, as well as an introduction to pool and space heating systems. The workshop will include some hands-on labs and tours of solar hot water systems.

#### Topics Include:

- Collectors • Different Types of Solar Hot Water Systems, including: - Passive Batch Water Heaters - Thermosyphon Systems - Drainback Systems - Closed-loop Anti-Freeze Systems - PV Powered Pumped Systems • Components • OG 100 and OG 300 • Solar Site Analysis • Design and Sizing • Installation How-tos • Mounting Strategies • Codes and Safety • Space Heating • Radiant Floor Heating • Pool Heating • Commercial Systems • Maintenance • Lessons Learned • Tours of Working Systems

### PV 203 Description:

This course will build upon the core concepts from PV101, with a specific emphasis on battery-based system design. Students will work through step-by-step design process for battery-based applications, including stand-alone (off-grid), grid-tied with battery back-up, and hybrid systems. Topics such as load analysis, component selection, battery safety, voltage drop, and commissioning procedures will be presented. In addition to sizing exercises and calculations, students will explore additional design considerations unique to battery-based systems.

This course is ideal for people looking to design and install battery-based systems, and for solar professionals who have been working in the grid-direct market and need to learn about battery-based systems in preparation for the NABCEP Solar PV Installer Certification Exam.

### PV 101 Description:

This training will provide an overview of the three basic PV system applications, primarily focusing on grid-direct systems. The goal of the course is to create a fundamental understanding of the core concepts necessary to work with all PV systems, including: system components, site analysis, PV module criteria, mounting solutions, safety, and commissioning. The course will also cover the basics of sizing a residential grid-direct system, wire sizing, overcurrent protection, and grounding.

#### Students Who Complete the training will be able to...

- Differentiate between various renewable energy sources and types of systems
- Perform power and energy calculations
- Perform a load analysis for a grid-direct system and evaluate utility bills and rate plans
- Implement electrical efficiency measures to reduce system size
- Analyze net metering and other incentives that effect the final cost of a PV system
- Diagram an array in series and parallel configurations

And MUCH more...