

DRAFT

2007 SEET Workshop—Topical Outline

(updated Feb. 7, 2007)

The following listing contains topics under consideration for the 2007 SEET Workshop in Golden, CO on July 16 – 27. Potential participants are encouraged to contact ATEEC (mdocherty@eicc.edu) with comments and suggestions, in order to help determine the applicability, depth, and focus of the topics from the educator's point of view.

The final agenda will be available in the spring and will reflect specific days/times, presenters, field activities, hands-on lab activities, technician-level training requirements, and group development of classroom activities for the topic areas.

Sustainable Energy Overview

- Global population, global energy
- Current U.S. portfolio
- Conventional energy baseline (coal, nuclear, hydro)
- Climate change and peak oil
- Current outlook for sustainable energy efforts
- Challenges of the sustainable energy paradigm shift

Utilities

- The U.S. electric system
 - Central station vs. distributed generation
 - Metering & billing
 - Federal & state renewable energy incentives
- The U.S. natural gas & heating oil system

Building Design

- Weatherization
- Sound building design (LEEDS)
- Energy-10 – Passive Solar Building Design Code
- Introduction to RETScreen passive solar heating project model

Solar Electric (Photovoltaics)

- Solar PV technologies
- PV Systems (Stand Alone & Grid Connected)
- Intro to RETScreen PV project model

Solar Resource Assessment & Solar Thermal Systems

- Solar resource assessment (measurements & data sources)
- Solar hot water technologies
- Solar hot water systems
- Intro to RETScreen solar project models

Wind Technology

- Wind resource assessment (measurements & maps)
- Wind technologies (small, medium & large)
- Community-scale, behind-the-meter applications

Wind Technology (cont)

- Utility-scale, merchant power systems
- Intro to RETScreen wind energy project model
- Field tour, National Wind Technology Center
- Field tour, Ponnequin Wind Farm

Biomass Heat & Power

- Resource assessment
- Direct combustion wood heating
- Bio-power, direct combustion & gasification
- Intro to RETScreen biomass project models

Biofuels

- Ethanol
- Bio-diesel
- Methane

Transportation

- U.S. transportation infrastructure
- Transportation and urban planning
- Technologies (hybrids, plug-in hybrids, electric)
- Trucks, trains and long-distance transport
- Hydrogen as a transport fuel

Geothermal

- Resource assessment
- Power, direct use, ground-coupled heat pumps
- Intro to RETScreen ground-source heat pump project model
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Small Hydropower

- Resource assessment
- Technology
- RETScreen small hydro project model

Hybrid Power Systems

- Combining energy technologies to improve reliability & reduce cost
- Intro to Hybrid Optimization Model for renewable electric systems (HOMER)

Community Energy Planning

- 11-step process for developing a community energy plan

Instructional/Curriculum Development Needs

- Program
- Course
- Material

Technician Certification