

## 2008 SEET Workshop

<b>Deliverables/Outcomes</b>			
<b>Deliverable/outcome</b>	<b>Detail</b>	<b>Due</b>	<b>Stipend</b>
1. Contribute to group's recommended resources list.	To be shared in a resource clearinghouse	Pre-workshop	N/A
2. Contribute a recommended instructional material.	For example, core curriculum, classroom activity, syllabus, lesson plan, etc. to be shared in a resource clearinghouse	Pre-workshop	N/A
3. Develop & present group activity.*	Groups to be determined. Activity is to develop an instructional resource (e.g., activity, lesson plan, etc.) to be implemented in classroom & shared in resource clearinghouse. Activity starts during workshop, finishes through online group communication..	50% complete by end of workshop; 100% complete by end of fall semester 2008	1 <sup>st</sup> half of general stipend (\$690)
4. Participate in two follow-up group meetings.*	Online meetings after the workshop	Oct 2008 & Jan 2009	N/A
5. Report on implementation of workshop-to-classroom learning.*	Sustainable energy material from workshop implemented in the classroom	End of 2008 fall semester	See accompanying item 6.
6. Provide student impact information.*	Included in report in item 5, for class(es) taught & workshop dissemination activities through pre- & post-testing, surveys, etc.	End of 2008 fall semester	2 <sup>nd</sup> half of general stipend (\$690)
7. Perform two dissemination activities.*	"Train-the-trainer" type of activity to disseminate SEET knowledge to peers; local, regional, and/or national	Thru Dec 2008	\$300 for each activity, total of \$600 stipend
8. Provide workshop and project evaluations.*	Written & online surveys, focus group	End of workshop & Jan 2009	N/A

\*See below for additional information.

### **Deliverable #3: DEVELOP & PRESENT GROUP ACTIVITY/FINAL PROJECT.**

During the workshop, five teams of five participants will develop a sustainable energy instructional resource based on learning from the 2008 SEET Workshop:

- During online discussion prior to the workshop, participants will have the opportunity to get to know one another and form into groups of five with like interests, if they wish. If groups aren't formed, NREL will make group assignments on the first day of the workshop.
- Opportunities for further discussion, questions, and group work will be provided throughout the workshop.

- A working prototype of the resource will be presented to the rest of the group on the last day of the workshop (Friday, July 18).
- Teams will use PowerPoint and/or other visual aids to share their work with all workshop participants and staff in the July 27 presentation sessions.
- The materials will be pilot-tested in the team members' classrooms after the workshop.
- Following pilot-testing in the classroom, the teams and/or individuals will submit the resources to ATEEC as their final SEET project, for inclusion in an online sustainable energy resource clearinghouse format.

## **Criteria for Development**

Any deliverable developed will:

- Address programmatic or curricular needs of an institution with respect to the workshop thematic areas of renewable energy and/or energy efficiency
- Include learning objectives, outcomes, and an assessment or certification plan to measure student performance
- Involve students in research, problem-solving, hands-on, and/or laboratory-based learning opportunities or through actual work experience
- If applicable, meet local, state, and/or national standards or certifications for science, technology, engineering, and/or mathematics
- Demonstrate direct impact on the development of students' scientific, technical, and/or mathematics knowledge and skills

## **Workshop Themes**

During the workshop at NREL, participants will be exposed to ongoing research and development by NREL staff in the following broad areas:

- Building Design & Energy Efficiency
- Renewable Energy Research and Technology
- Climate Change and Energy
- Wind Energy
- Solar Thermal
- Solar Photovoltaics
- Bioenergy
- Curriculum Articulation

## **Deliverable Topics**

It is suggested that each team reach consensus to choose a topic and a specific focus within that topic for their instructional resource (at least to the course, unit, or even lesson level). For example, a program in Solar Energy Systems could be divided into several courses such as:

- Solar Thermal Technologies (with units or lessons on Site Evaluation, Installation, etc.)
- Photovoltaic Energy Systems (with units or lessons on Site Evaluation, Installation, etc.)
- Advanced PV Studies (with units or lessons on Residential or Commercial Applications, Installation/Construction, Maintenance, etc.)

Some examples (and these are EXAMPLES only, each group will decide on its own focus) for topics include:

- Building design and construction issues for the 21st century
- Community planning to maximize energy efficiency and use of renewable energy
- Workforce development requirements for renewable energy technologies
- Micro-grids: Small scale energy systems
- Turbine design and maintenance
- Introduction to PV: site assessment, load analysis, array design, building, testing, grid-tied vs. stand-alone systems
- Biomass production, analysis, and processing
- Bio-hydrogen production, storage, and production of electricity
- Renewable energy and energy efficiency in the context of global warming
- Curriculum articulation from high school to community college, or community college to university

**Deliverable #4: TWO ONLINE MEETINGS.**

Agendas to be provided prior to meetings.

**Deliverables #5 & 6: REPORT ON IMPLEMENTATION OF  
WORKSHOP-TO-CLASSROOM LEARNING, INCLUDING STUDENT IMPACT  
INFORMATION.**

See online file template.

**Deliverable #7: PERFORM TWO DISSEMINATION ACTIVITIES.**

See online file template.

**Deliverable #8: EVALUATIONS.**

Surveys to be provided.