



## Post Fellowship Reporting - Project Summary

**Report Title:** Alternative Energy Workshop      **Name:** Peter Duncanson  
**Other Team Members:**  
**Program:** New York City Program  
**Trip Dates:** 11/30/-0001 - 11/30/-0001      **Location Visited:** Hopeland California  
**Post Fellowship Reporting Template:** PFR Template 0

**Project Summary:** During this summers seminar, I learned about the impacts that our energy use has on the planet and how to best teach youth about solutions: energy conservation, energy efficiency, and renewable energy technologies. Each day included a hands-on element that can be employed in the classroom. In addition, I have a practical knowledge that I can apply to my own life. This workshop has been designed to meet the 5th - 9th grade Colorado Science Standards.

**Career Impact:** Through this experience I now have a better working knowledge of how alternative energy can help us change the way we live. I will be able to force students to think about how they can start being positive influences on the environment. I learned in a hands-on manor. This helps me learn how to integrate both theoretical and practical approaches to education within my classroom.

**Classroom/Community Impact:** this curriculum can be used by any science teacher in the school. It can possibly be used as an after school club.

Once Materials and resources set up and the curriculum is finished, any science teacher will be able to teach the "Alternative Energy Workshop". Ultimately I would like to have the curriculum approved by the New York State Regents Board so that it can be taught as regents science coarse.

**Open Response:** ALTERNITIVE ENERGY WORKSHOP - (a curriculum work in progress)

Objective:

Students will be able to:

- Design, build and install a photovoltaic system.
- Design and build model passive and active solar houses

Unit 1: Electricity Basics

- Basics of Electricity
- Electrical Wiring
- Safety Procedures

Unit 2: Solar Power

- Solar Site Analysis
- PV System Components
- Energy Efficient Appliances
- PV System Sizing
- Component Specification
- Stand-alone Systems
- Utility-Interactive Systems
- Operation and Maintenance

Unit 3: Wind Power

- Site analysis
- Towers and tower economics
- How residential wind generators work
- Generators and alternators
- Blade aerodynamics
- Off-grid wind/PV hybrid systems
- Wind system sizing
- Installations and safety considerations

#### Unit 4: Passive Solar House Design

- Site Analysis
- Design Considerations
- Foundation & Roof Options
- Straw bale Construction
- Earthbag Construction
- Adobe and Pressed Block
- Cob Construction
- Rammed Earth Construction

#### Unit 5: Alternative Materials

- Straw/Clay Construction
- Soil Testing
- Plasters
- Building Codes
- Insurance and Financing
- Construction Details
- Healthy Building Materials
- Practical Building Techniques

**Quote:** Sun Energy

Photos:



Photovoltaic panel on site of the Solar Living Institute



Photovoltaic panel on site of the Solar Living Institute



Our outdoors class room on site



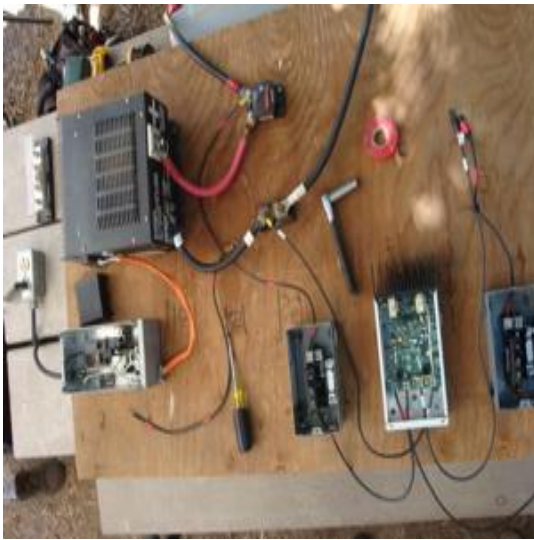
Simulated roof top and hardware to affix solar panels



Trouble shooting sun energy systems



Wind mill on site used to pump water



electronics used to connect to the grid



Moon rise