

SOLAR ENERGY INTERNATIONAL

Renewable Energy Education & Sustainable Development

2001 Annual Report

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National Renewable Energy Laboratory

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Peltz Power

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Home Power Magazine

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Solar Electric Light Company

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SEI's MISSION

Solar Energy International (SEI) was founded in 1991 as a non-profit educational organization to help others to use renewable energy resources and environmental building technologies through education and technical assistance.

The Need for Renewable Energy Education

SEI provides information, education and training to people who want to shape a sustainable future.

A sustainable future requires an investment of knowledge and skills in the people who will shape that future. The renewable energies of sun, wind and water are clean and abundant, yet underutilized resources. Renewable energy technologies are mature, but few are skilled in their use. Decision-makers need information to make appropriate choices with confidence. Technicians need skills and experience to service the technologies. End-users must learn how to operate and maintain self-reliant renewable energy systems.

SEI IS A LINK BETWEEN PEOPLE AND THEIR RENEWABLE ENERGY RESOURCES.



WE WOULD LIKE TO THANK THE FOLLOWING FOR THEIR SUPPORT

Home Power Magazine • Allen Heath Memorial Foundation • Fred and Elli Iselin Foundation • Alice and Thomas Melly Foundation • Lee Melly Reverend Larry Rice • Steca Inc. • Xantrex Inc.

Solar Energy International is an educational non-profit Colorado Corporation. SEI is recognized by the IRS as a tax-exempt charitable organization under section 501(c)3 of the Internal Revenue Code.

SOLAR ENERGY INTERNATIONAL

RENEWABLE ENERGY EDUCATION PROGRAM

SEI's Renewable Energy Education Program teaches the practical use of solar, wind and water power. Our workshops give individuals the knowledge and skills to design, install and maintain renewable energy systems and to build state-of-the-art solar homes that are efficient, practical and earth-friendly.



- ✦ SEI uses a how-to/hands-on approach with commercial products and field installations.
- ✦ Since 1991, over 1900 people from all 50 states and 49 countries have come to SEI's REEP Program to learn the practical use of renewable energy technologies and environmental building technologies.
- ✦ The 2001 REEP Program offered 30 weeks of workshops through 29 course offerings.
- ✦ Five hundred eighty eight students attended REEP 2001, including 18 international students.

REEP Workshops 2001

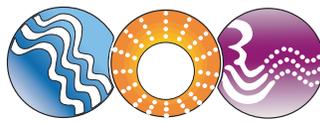
SEI offered five new workshops in 2001, and in more locations than ever before.*

THE FOLLOWING WORKSHOPS WERE OFFERED IN 2001:

- Advanced Photovoltaics
- Biodiesel Fuel *
- Build Your Own Wind Generator *
- Composting Toilets & Graywater Systems *
- Micro-Hydro Power
- Putting the Art in Architecture
- PV Design & Installation
- PV Design On-Line
- Renewable Energy for the Developing World
- Solar Cooking
- Solar Hot Water Heating *
- Solar Home & Natural House Building
- Solar, Wind & Water Power
- Wind Power
- Women's Carpentry
- Women's PV Design & Installation
- Women's Wind Power *

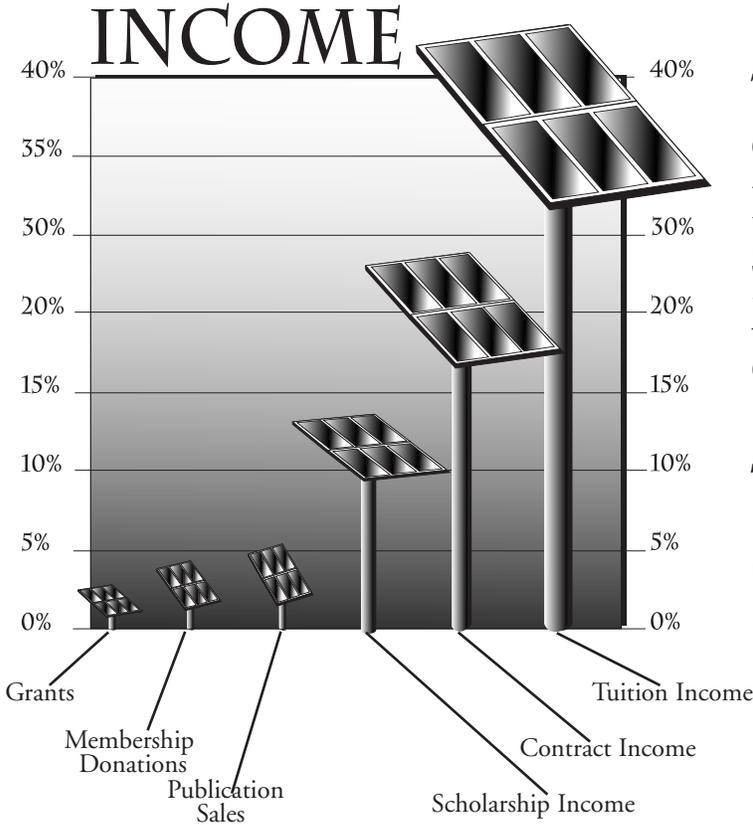
WORKSHOPS WERE OFFERED IN THE FOLLOWING LOCATIONS:

- Asheville, North Carolina
- Austin, Texas
- Carbondale, Colorado
- Lasqueti Island, British Columbia
- Lozeau, Montana
- Matfield Green, Kansas
- Phoenix, Arizona
- Sacramento, California
- San Juan Islands, Washington
- Summertown, Tennessee
- Woodstock, New York



Financial Report Summary 2001

INCOME



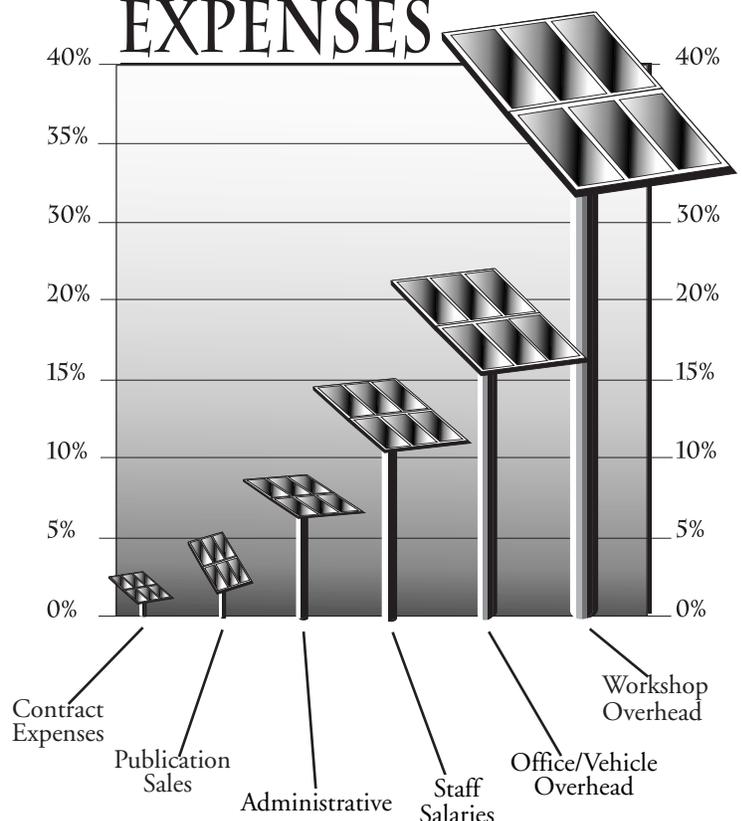
Tuition Income	\$ 333,270
Contract Income	\$ 116,952
Publication/Sales	\$ 42,990
Scholarship Income	\$ 27,075
Membership/Donations	\$ 15,024
Grants	\$ 3,5500

Total Income 2001 **\$ 539,517**
 (Total Income 2000 \$ 427,265)

Workshop Overhead	\$ 239,779
Office/Vehicle Overhead	\$ 120,322
Staff Salaries	\$ 77,763
Administrative Expenses	\$ 44,920
Publication/Sales Expenses	\$ 31,747
Contract Expenses	\$ 15,545

Total Expenses 2001 **\$ 530,076**
 (Total Expenses 2000 \$ 428,502)

EXPENSES



DOMESTIC PROJECTS & INTERNATIONAL TECHNICAL ASSISTANCE

SEI provided training and technical assistance to various groups throughout the United States.

SEI staff provided planning and technical assistance in Latin American and South Africa.

2nd Annual Renewable Energy Youth Camp

In August, SEI hosted our 2nd Annual Youth Renewable Energy Camp. Youth ages 15 - 19 from Germany, Carbondale, and Native American reservations in South Dakota and California came to learn about renewable energy and sustainable living. The week included lessons in natural home building, passive solar design, micro-hydro systems, wind power, solar cooking and solar electricity. In daily morning circles, camp leaders Oso and Yvonne wove together our lessons on renewable energy with their own knowledge of Native American history, spirituality and environmental ethics. Students camped out, visited local renewable energy sites and straw-bale homes, built and raced solar cars, and rafted the Colorado River. The highlight for most students was installing a photovoltaic sign lighting system at Carbondale's Town Hall.

Kids to the Country

SEI traveled to the Farm in Summertown, Tennessee to help out with the Kids to the Country Program (KTC). Funded by Plenty, KTC serves families that are homeless, refugees or from public housing in Nashville and Memphis. Children from age 6 to 12 travel to the Farm to enjoy nature. Their activities include horse-back riding, swimming, arts and crafts, conflict resolution and renewable energy education.



Two of SEI's interns, Matt Harris and Nadia Bini, traveled to the Farm to teach kids renewable energy. Matt and Nadia led a tour of the Ecovillage Training Center. They taught cob building, solar oven construction, solar cooking, and held solar energy demonstrations. They also directed the kids in a performance of "The Lorax" by Dr. Seuss.



PV for South Africa

SEI taught its first workshop on the African continent in March. Board member Linda Lung from NREL, connected SEI with Texas Southern University (TSU). TSU has an exchange program in South Africa and is working with in-country rural communities and regional government officials.

Currently, approximately half of South Africa's population is unelectrified. Under contract to TSU, SEI provided PV Awareness Training at the East London Technikon in South Africa. The five day workshop introduced the local utility decision-makers, lab technicians and students to the world of solar electricity. SEI is seeking accreditation through the Institute of Sustainable Power to do more training of trainers.

Renewable Energy Potential for Belize

In October, SEI staff members Ed Eaton and Mark Colby traveled to Belize to continue SEI's work with the Toledo Cacao Growers Association. They arrived right when Hurricane Iris hit, and helped with relief efforts. The farmers drastically need solar water pumping now as most of their crops were destroyed. SEI plans to provide solar water pumping systems to TCGA farmers.

SEI's partner is Plenty International. Plenty asked SEI to provide technical assistance. We look forward to helping with solar home systems assembled at the local vocational schools.



SOLAR ENERGY INTERNATIONAL

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GUEST INSTRUCTORS & INDUSTRY REPRESENTATIVES

REEP 2001

SEI instructors are leaders in their fields, bringing the most up-to-date information in renewable energy technologies.

PV DESIGN & INSTALLATION

Vern Allen	Interstate Battery
Ezra Auerbach	Xantrex
Bill Beaty	Electrical Engineer
Gene Bertshe	Unisolar
Greg Bowles	Shur-flo
Jamie Braman	Schott Applied Power
Robert Broderick	Pulse Energy Systems
Larry Brown	Sun Mountain
John Berdner	SMA
Steve Connen	Atlantis Energy Systems
Paul Coughlin	Atlantic Solar
Bill Cunningham	Southwest Solar
Windy Dankoff	Dankoff Solar Products
Jim Drizos	Trojan Battery Company
Christopher Freitas	Outback Power Systems
Richard Gottlieb	Sunnyside Solar
Jesse James	Sun Belt Battery Company
Andrew McCalla	Meridian Energy Systems
Mike McGoey	Schott Applied Power
John Mottl	Rainshadow Solar
Jay Peltz	Peltz Power
Joe Schwartz	Home Power Magazine
Carol Weis	Eco Electric
S & E Willy	Backwoods Solar
Ian Woofenden	Home Power Magazine

ADVANCED PHOTOVOLTAICS

Bill Brooks	PV USA/Endecon Engineering
Joe Burdick	Uni-Solar
Jim Drizos	Trojan Battery Company
Mark Fitzgerald	Institute for Sustainable Power
Jim Hensley	Hensley Batteries
Pat Kiernan	Eco Electric
Steve McCarney	Kyocera Solar
Mark McCray	RMS Electric
Ed Witt	NREL



Mick Sagrillo
Wind Power Instructor



NW coordinator
Ian Woofenden (right)
and guest instructor
Jay Peltz

PV Design & Installation
San Juan Islands
Washington

WOMEN'S PV DESIGN & INSTALLATION

Carol Weis	Eco Electric
Karen Wolfer	Day Star Solar
Melinda Zytaruk	SEI alumnus

MICRO-HYDRO ELECTRIC POWER

Brett Bauer	Canyon Industries
Paul Cunningham	Energy Systems & Design
John Heil	Dyno Battery
Bob Matthews	Appropriate Energy Systems
Dan New	Canyon Industries
David Seynour	Asian Phoenix
Eric Smiley	BCIT Technology Centre
Chris Soler	Soler Hydroelectric
Peter Talbot	RPT Electronics

WIND POWER

Mick Sagrillo	Sagrillo Power and Light
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BIODIESEL FUEL

Sven Bernesson	Upsala, Sweden
Justin Carven	Greasecar.com
Rico Cruz Bioprocess	Engineer/Scientist
Joseph Thomspn	Engineer
Joshua Tickell	Author - "From the Fryer to the Fuel Tank"

SOLAR HOME DESIGN

John Cruickshank	Going Concerns Unltd.
Jeff Dickinson	Energy & Sustainable Design
Lydia Doleman	Eco-Energy Builders
Scott Ely	SunsensE
Cedar Rose Guelberth	CRG Design - Healthy Homes
Steven Kanipe Pitkin	County Building Official
David Meade	Owner / Builder
Ron Robertson	Architect, AIA
Curtis Scheib	Eco-Energy Builders
D & M Schevene	Alive Designs
Mike Tierney	Aspen Solar Systems
Randy Udall	CORE



Jeff Dickinson
Board Member and Instructor

Solar Home
&
Natural House Building

BUILD YOUR OWN WIND GENERATOR

Win Anderson	Anderson's General Store
Brian Faley	Xantrex
Paul Gipe	Author - "Wind Power for Home & Business"
Andy Gladish	Blacksmith
Tod Hanley Bergey	Windpower
Michael McGuinness	Scrounger Extraordinaire
John Mottel	Rainshadow Solar
Hugh Piggot	Scoraig Wind Electric
Robert Preus	Abundant Renewable Energy



Hugh Piggot
Instructor

Build Your Own
Wind Generator

RENEWABLE ENERGY FOR THE DEVELOPING WORLD

Ian Baring-Gould	NREL
Todd Bartholf	Econergy
Dave Blecker	Earth Energy Systems
Scott Chaplin	Abintra Associates
Mark Dawson	Peace Corps in Yemen
Kathy Dickerson	Global Health Alliance
Mark Fitzgerald	Institute for Sustainable Power
Bob Freling	Solar Electric Light Fund
Bruno Henriquez	Cubasolar
Rick Holz	Altair Energy
Susan Kinne	Grupo Fenix
T. Miller & S. Brown	RE consultants in Peru
Terry Parker	Bekaert ECD
Matt Sterling	Straw-bale Construction
Neville Williams	Solar Electric Light Company

COMPOSTING TOILETS & GREYWATER SYSTEMS

Larry Abbot	Syracuse Water Department
Scott Chaplin	Abintra Associates
John Cruickshank	Going Concerns Unlimited
Laura Orlando	Resource Inst. for Low Entropy
Larry Schlusser	Sun Frost
Carol Steinfeld	Center for Ecological Pollution Prevention

SUCCESSFUL SOLAR BUSINESSES

Ezra Auerbach	Xantrex
Paul Coughlin	BP Solar
Scott Ely	SunsensE
Kurt Johnson	The Solar Guys

WOMEN'S CARPENTRY

Lydia Doleman	SEI alumnus / woodworker
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Lydia Doleman
Instructor

Women's Carpentry

REEP PROJECTS

SEI's Hands-on, How-to Experiences

Alumni of SEI's 2001 REEP Program gained their hands-on, how-to experiences on a total of 16 installations. REEP projects represent practical applications of the latest commercial technologies and available products.

Each project poses a unique set of details and challenges. Each remains an operational system, providing clean renewable energy for businesses, institutions, ranches, homes and communities. Future participants will visit and learn from these projects before meeting their own installation challenges.

WOMAN POWER

In June, the women in SEI's ***Women's Photovoltaic Design & Installation Workshop*** completed an incredibly challenging installation in the Rocky Mountains. The women installed a 1.5 kW system at Patsy Dehuff's cabin at 10,000 feet altitude in Lake City, Colorado. The 26 women installed twenty PV modules, twelve batteries, dug the trench, and hammer drilled into solid rock to secure the 100-foot conduit run every five feet.



In October, SEI alumnus Jane Koger held SEI's first ever ***Women's Wind Power Workshop*** on her organic cattle ranch in Kansas. The women installed a one-kilo-watt Bergey wind machine on an 84-foot tilt-up tower, to provide Jane's PV-powered ranch with more electricity.

BUILD YOUR OWN WIND GENERATOR

SEI held our first ever workshop where participants built their own wind generators. SEI northwest coordinator Ian Woofenden (HP Editor) facilitated the hands-on experience. This ambitious workshop was taught by Hugh Piggott from Scotland, an international authority on small scale wind power.

(see cover photo)

STAND-ALONE PV

Participants in SEI's ***PV Design & Installation Workshop*** in Sacramento installed a PV system for a couple building their dream home in rural Cave City, California. At night, the participants camped on the couple's 40 acres, and during the days they installed a 1200-watt PV system which will be used to build the home.



GRID-TIED PV

Workshop participants in the ***PV Design & Installation Workshop*** added an additional 750 watts to Andre and Cheri Chartier's system in Colorado. The Chartier's now have 2 kilowatts of grid-tied PV and a 1500-watt wind generator to run their home.

SOLAR WATER PUMPING

SEI's ***PV Design & Installation Workshop*** in Phoenix helped animals obtain water during the dry season when their regular water sources aren't available. Participants installed an 800-watt PV-powered water pumping system for wildlife feeding tanks for the U.S. forest service just north of Phoenix.

BIODIESEL FUEL

Former SEI intern David Max coordinated SEI's new ***Biodiesel Fuel Workshop*** in Montana. Participants converted a car to run on vegetable oil. Two biodiesel workshops are scheduled for 2002.

SEI HOME IMPROVEMENTS

SEI continued to add new energy efficient and educational improvements to our office at the community non-profit center in Carbondale. Participants in SEI's ***PV Design & Installation Workshop*** helped take SEI's classroom off the grid. The 25 participants installed eight PV modules on the roof with a total of 600 watts. The system runs the lights, a television and VCR, and a computer for workshop participants to check e-mail. Participants also installed another PV system on the building which runs another office computer, SEI's outdoor sign light, the Sunfrost refrigerator, and the swamp cooler for the radio station that shares the building. Participants in the ***Composting Toilets and Graywater Systems Workshop*** installed a simple graywater system hooked up to an outdoor dishwashing sink used by students.

SEI BOARD OF DIRECTORS

Jeff Dickinson

Jeff has been a Practitioner of Sustainable Architectural design Alternatives for the past 15 years and has designed and built passive solar, super-insulated homes including straw-bale and Earthship homes. Jeff is an energy consultant as well as co-author and consultant for green materials and energy building codes.

Linda Lung

Linda is the Education Program Coordinator at the National Renewable Energy Laboratory in Golden, Colorado. She works closely with the Department of Energy to design, develop, implement and evaluate educational programs to improve math, science, and technology skills of students in grades kindergarten through post-doctoral.

Don Phillipson

Don is a lawyer specializing in civil litigation. His work has involved water rights, chlorofluoro-carbon accidents, and patents with electronic fuel injections, lighting fixtures and maintenance free lead acid batteries. He also attended SEI's Hydrogen Workshop and Advanced Photovoltaics Workshop.

Randy Udall

Randy is currently the director of the Community Office of Resource Efficiency in Aspen. He writes for many environmental magazines and was the former editor of the Rocky Mountain Institute's Newsletter.

Johnny Weiss

Johnny is a co-founder of SEI, and is currently Executive Director. He initiated and directed SEI's Renewable Energy Education Program. Johnny currently serves on NREL's Education Advisory Board. From 1980 to 1990 he helped develop and teach the Solar Retrofit Training program at Colorado Mountain College.

Lon Winston

Lon has been involved in theatre productions as a director, designer, performer and professor. He founded Carbondale's Thunder River Theatre Company. He is currently on the board of the Roaring Fork School District, the Carbondale Council on Arts & Humanities, Cooperative Educational Services, Yampah Foundation and Colorado Mountain College Theatre.