Energy Education Resources: Kindergarten Through 12th Grade

August 2006

Energy Information Administration

National Energy Information Center U.S. Department of Energy Washington, DC 20585

This report is available on the Web at:
www.eia.doe.gov/bookshelf/eer/kiddietoc.html
or
http://tonto.eia.doe.gov/FTPROOT/other/0546(2006-2007).pdf

PREFACE

Energy Education Resources: Kindergarten Through 12th Grade is published by the National Energy Information Center (NEIC), a service of the Energy Information Administration (EIA), to provide students, educators, and other information users a list of generally available free or low-cost energy-related educational materials.

The entries are listed alphabetically by organization title. Each entry includes the address, telephone number, and description of the organization and the energy-related materials available. Most of the entries also include Internet (Web) and electronic mail (E-Mail) addresses. In the back of the book there is a subject index cross-referenced by number to the alphabetical entries.

Some of the organizations represented in this list take policy positions on certain energy issues and express them even in educational materials. Because EIA is the independent statistical and analytical agency within the U.S. Department of Energy (DOE), it does not advocate any policy position of DOE or any other organization. EIA has completed this list solely to aid educators and students in locating materials.

This year's edition was done by Curley Andrews and Marion King. To include a new entry, contact EIA at the following address:

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Copies of this publication are available free of charge from NEIC. Released for Printing: August 2006

CONTENTS

	Pa	ge
1	A1 Cable Solutions, Inc.	. 1
2	Air & Waste Management Association (A&WMA)	
3	Alliance to Save Energy	
4	Aluminum Association, Inc.	
5	American Chemical Society	3
6	American Chemistry Council (ACC)	
7	American Coal Foundation	
8	American Council for an Energy-Efficient Economy (ACEEE)	
9	American Electric Power	
10	American Forest Foundation	
11	American Geological Institute (AGI)	8
12	American Nuclear Society	
13	American Oil & Gas Historical Society	
14	American Petroleum Institute (API)	
15	American Plastics Council (APC)	
16	American Public Power Association (APPA)	12
17	American Solar Energy Society (ASES)	12
18	American Water Works Association (AWWA)	13
19	American Wind Energy Association (AWEA)	13
20	Arizona Department of Commerce Energy Office	14
21	Aseptic Packaging Council (APC)	14
22	Baltimore Gas and Electric Company (BGE)	14
23	BP's A+ for Energy Program	
24	Bronx Zoo/Wildlife Conservation Park	16
25	Bullfrog Films	16
26	California Energy Commission	17
27	California Foundation for Agriculture in the Classroom	18
28	California Regional Environmental Education Community	
	Project(CREEC)	
29	Cape Light Compact	
30	Center for Energy & Economic Development (CEED)	
31	CenterPoint Energy	
32	Channing Bete Company	
33	Charles Edison Fund	
34	Chlorine Chemistry Council (CCC)	
35	City Utilities of Springfield, MO	
36	Colorado Energy Science Center (CESC)	
37	Consumer Aerosol Products Council	
38	Creative Teaching Press, Inc.	
39	Culver Company	
40	Denver Earth Science Project	
41	Disney Educational Productions	
42	Dominion Resources, Inc.	27

43	Earth Foundation	28
44	EcoSoul/National Fuel Cell Education Program (NFCEP)	29
45	Edison Electric Institute (EEI)	
46	Edison Museum	30
47	Educational Development Specialists	30
48	Educational Dividends	
49	eesmarts	31
50	Energy Education Group	32
51	EnergyNet U.S.	
52	EnergyTeacher.org	
53	Enterprise for Education, Inc.	
54	Environmental Education Council of Ohio	35
55	Environmental Hazards Management Institute (EHMI)	
56	EV Media	
57	FirstEnergy Corp.	
58	Florida Power & Light Company (FPL)	
59	Florida Solar Energy Center (FSEC)	38
60	Foodservice & Packaging Institute, Inc. (FPI)	
61	Frey Scientific	40
62	Fuel Cells 2000	
63	General Atomics Sciences Education Foundation	41
64	Geothermal Education Office	
65	Geothermal Heat Pump Consortium	42
66	Hawaiian Electric Company, Inc.	42
67	Illinois Department of Commerce & Economic Opportunity	43
68	Independent Petroleum Association of America	
69	Institute for Chemical Education (ICE)	
70	Interstate Oil and Gas Compact Commission	
71	JEA	
72	Johnson Controls, Inc.	
73	Keep America Beautiful, Inc.	
74	KidWind Project	
75	Kissimmee Utility Authority (KUA)	
76	Learn OnLine, Inc.	
77	Midwest Energy Efficiency Alliance	
78	Midwest Renewable Energy Association	
79	Mineral Information Institute (MII)	
80	Minnesota Department of Commerce-Energy Division	51
81	National Aeronautics and Space Administration (NASA)	
82	National Arbor Day Foundation	
83	National Association of Conservation Districts (NACD)	
84	National Biodiesel Board	
85	National Corn Growers Association (NCGA)	
26	National Cotton Council of America	54

157 Westinghouse Electric Company104158 Wisconsin Public Service Corp. (WPSC)105159 Women in Mining Education Foundation (WIMEF)105160 Xcel Energy106Subject Index107

A1 Cable Solutions, Inc.

P.O. Box 36 Watertown, WI 53094 (608) 444-1598 Fax: (920) 261-0096

E-Mail: a1cable2005@sbcglobal.net

A1 Cable Solutions designs and manufactures high-reliability aircraft wire harness and cable assemblies, industrial panel wiring, OEM wire harness and cable assemblies, precision fabricated assemblies and custom display products.

A1 Cable Solutions has developed the *Pedal Power* energy education display, a bicycle-powered display board that sets up in minutes and is small enough to be easily portable but large enough to be seen from the back of the classroom. The lightweight, rugged construction and innovative design provides an educational advantage to any presentation on energy conservation by allowing the audience to create and consume their own energy with hands-on activities. Grade-appropriate lesson plans help guide the presenter through discussion topics and exercises designed to exercise critical thinking and math skills in a fun way that audiences will remember. 1

AIR & Waste Management Association (A&WMA)

One Gateway Center, Third Floor 420 Fort Duquesne Boulevard Pittsburgh, PA 15222 (412)232-3444 Fax: (412) 232-3450

E-Mail: info@awma.org Web: www.awma.org

A&WMA is a not-for-profit, nonpartisan professional organization that enhances knowledge and expertise by providing a neutral forum for technology exchange, professional development, networking opportunities, public education, and outreach to more than 9,000 environmental professionals in 65 countries. A&WMA also promotes global environmental responsibility and increases the effectiveness of organizations to make critical decisions that benefit society. For more information about A&WMA, please visit our website at www.awma.org.

A&WMA provides educational materials for teachers and students in kindergarten through grade 12. Materials are designed to improve the environmental literacy of students and educators and introduce

them to actions that they can take to reduce waste, conserve energy, and develop pollution prevention plans. Materials include fact sheets and information books on such topics as air pollution, pollution prevention, recycling, hazardous waste, landfills, and others. A&WMA also produces the *Environmental Education Resource Guides (EERGs)* on air quality and nonpoint source pollution prevention. EERGs are supplementary curricula with a hands-on, interdisciplinary approach to environmental education.

We encourage A&WMA members and other interested parties to sponsor local teacher-training workshops. The workshops provide teachers an opportunity to participate in EERG activities and create an ongoing dialogue between environmental professionals and the educational community. Contact A&WMA headquarters to find out about teacher-training opportunities in your area or to order public education materials. 2

THE ALLIANCE TO SAVE ENERGY

1850 M Street, NW, Suite 600 Washington DC 20036 (202) 857-0666 Fax: (202) 331-9588

E-Mail: greenschools@ase.org

Web: www.ase.org

Energy Hog E-Mail: mellingson@ase.org Energy Hog Web: www.energyhog.org

The Alliance to Save Energy is a coalition of prominent business, government, environmental, and consumer leaders who promote the efficient and clean use of energy worldwide to benefit consumers, the environment, economy, and national security.

Green Schools Program

The Alliance's Green Schools Program is a comprehensive energy savings program for K-12 schools that incorporates energy education and energy-saving activities in and around the school building. Students begin to understand energy and its link to the environment and economics, and the schools benefit by cutting energy costs. Free, downloadable lessons plans, information about the Green Schools Program, contact information and more are available online at www.ase.org/greenschools.

Energy Hog Campaign

The Alliance to Save Energy's Energy Hog Campaign is a national public service advertising campaign created by the Ad Council in partnership with the U.S. Department of Energy, The Home Depot, North American Insulation Manufacturers Association, and 20 state

energy offices. The campaign features a dastardly character, the Energy Hog, who bring to life the invisible concept of energy waste. The Energy Hog makes saving energy fun for children and empowers them to work with their parents to make wise energy choices. Kids can become official Energy Hog Busters by beating the Energy Hog on the website www.energyhog.org.

The Energy Hog Challenge is a set of classroom educational activities on the benefits of saving energy and includes a teacher and student guides. Students learn where energy comes from, how we use it, and why saving energy is important. They also discuss how to search out and destroy Energy Hogs in their own home. The guidebooks can be downloaded free at www.energyhog.org. 3

THE ALUMINUM ASSOCIATION, INC.

1525 Wilson Blvd., Suite 600 Arlington, VA 22209 (703) 358-2960 Fax: (703) 358-2961

Web: www.aluminum.org

A trade association representing the U.S. aluminum industry. Serves as principal source of information on aluminum and the industry.

Provides information on recycling. A complete listing of our publications, along with ordering information, is available on our website. 4

THE AMERICAN CHEMICAL SOCIETY

1155 16th Street, N.W. Washington, DC 20036 (202) 872-4075 Fax: (202) 833-7732

E-Mail: education@acs.org Web: www.chemistry.org

The world's largest scientific society with a membership of over 158,000 chemists and chemical engineers.

Publishes educational materials for use in grades 4 through 12: *The Best of Wonder Science, Volumes I and II*, offers hundreds of handson activities for elementary school students; *ChemMatters*, an award-winning magazine for high school students, relates chemistry to everyday life (published quarterly, back issues are available); *ChemCom*, a chemistry textbook program for high school students,

connects basic chemistry concepts and content to the real world; *Introduction to Green Chemistry*, a laboratory manual for advanced high school chemistry students, introduces students to environmentally benign industrial processes that begin with renewable resources; and *Science in a Technical World (STW)*, a series of high school science modules, places students in a variety of problem-solving roles as chemical technicians.

All of these products include such energy-related topics as electricity, recycling, nuclear energy, and the environment. A free *Teaching Resources Catalog* is available upon request. 5

AMERICAN CHEMISTRY COUNCIL (ACC)

1300 Wilson Boulevard Arlington, VA 22209 (703) 741-5000 Fax: (703) 741-6000

Web: www.americanchemistry.com

The American Chemistry Council (ACC) represents the leading companies engaged in the business of chemistry.

ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through *Responsible Care*®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing. The business of chemistry is a \$550 billion enterprise and a key element of the nation's economy. It is one of the nation's largest exporters, accounting for ten cents out of every dollar in U.S. exports. Chemistry companies are among the largest investors in research and development. Safety and security have always been primary concerns of ACC members, and they have intensified their efforts, working closely with government agencies to improve security and to defend against any threat to the nation's critical infrastructure. 6

AMERICAN COAL FOUNDATION

101 Constitution Avenue, N.W., Suite 525-E Washington, DC 20001-2133 (202)463-9785

Fax: (202) 463-9786

E-Mail: info@teachcoal.org Web: www.teachcoal.org

A nonprofit educational organization supported by a coalition of coal producers and mining equipment manufacturers and suppliers.

Teachers can receive FREE educational materials (teacher packet and coal samples). These materials include: general information brochures on coal, electricity, and land reclamation; coloring and activity book; activity book with teacher guide (website); activities for elementary and secondary students (website); coal samples; a guide to coal CDs and videos (website).

Additional copies and other material (video, CD-ROM) are available for a nominal charge. When ordering, include name of organization/school, address, phone/fax numbers, and grade level. Contact ACF for information. To place an order, contact West Glen Communications, 1430 Broadway, New York, NY 10018, (800) 325-8677, (212) 921-9536 (fax). 7

AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY (ACEEE)

1001 Connecticut Avenue, N.W., Suite 801 Washington, DC 20036 (202) 429-8873 (202) 429-0063 (publications)

Fax: (202) 429-2248 E-Mail: info@aceee.org Web: www.aceee.org

An independent, nonprofit organization dedicated to advancing energy efficiency as a means of promoting both environmental protection and economic prosperity.

Publishes a variety of books, reports, consumer guides, and fact sheets. Material covers energy use and efficiency, as well as related environmental issues in buildings, industry, and transportation. ACEEE's books and reports are written primarily for adults and concern energy-efficient technologies and policies for end-use.

In addition, the *Consumer Guide to Home Energy Savings* is a popular illustrated book for general consumers and is a suitable

teaching resource for grades 8 through 12. *ACEEE's Green Book*® *Online: The Environmental Guide to Cars and Trucks*, updated annually and available only online, is a one-of-kind buyers' guide that ranks vehicles according to environmental friendliness. These materials are available for a fee and are described in a free catalog. 8

AMERICAN ELECTRIC POWER

Community Relations 1 Riverside Plaza, 19th Floor Columbus, OH 43215 (614) 716-1668 Fax: (614) 716-2699

E-Mail: educate@aep.com Web: www.aep.com

American Electric Power is one of the largest electric utilities in the United States, delivering electricity to more than 5 million customers in 11 states. AEP ranks among the nation's largest generators of electricity, owning nearly 36,000 megawatts of generating capacity in the U.S. AEP also owns the nation's largest electricity transmission system, a nearly 39,000-mile network that includes more 765 kilovolt extra-high voltage transmission lines than all other U.S. transmission systems combined. American Electric Power, based in Columbus, Ohio, is celebrating its 100th anniversary in 2006.

Provides free educational services to pre-K through grade 12 educators in areas served by American Electric Power's operating units: AEP Ohio, AEP Texas, Appalachian Power (in Virginia and West Virginia), AEP Appalachian Power (in Tennessee), Indiana Michigan Power, Kentucky Power, Public Service Company of Oklahoma and Southwestern Electric Power Company (in Arkansas, Louisiana and east Texas).

Internet resources at the website include *The Electric Universe*® for students, teachers and parents; and *Learning from Light* and *Learning from Wind*, featuring graphs of actual solar and wind power generation at participating schools and sites. Other services include live theatre presentations on electrical safety for elementary schools; classroom resources; information centers, tours and nature trails; and educator workshops. 9

American Forest Foundation—Project Learning Tree

1111 19th Street, N.W., Suite 780 Washington, DC 20036 (202)463-2475 Fax: (202) 463-2461

E-Mail: info@plt.org Web: www.plt.org

Project Learning Tree is sponsored nationally by the American Forest Foundation. A nonprofit educational and conservation organization developing, funding, and administering programs that encourage the long-term stewardship of our natural resources. The Foundation's core programs are Project Learning Tree (PLT) and American Tree Farm System.

Project Learning Tree (PLT) is sponsored at the State level by a variety of State natural resource and education agencies. Crafted to meet State and national standards, PLT provides all the tools educators need to bring the environment into their classrooms—and their students into the environment. PLT's supplementary curriculum guide, Project Learning Tree: Environmental Education Pre K-8 Activity Guide (96 multidisciplinary activities), focuses on the total environment: land, air, and water. It is local, national, and global in scope. The curriculum underscores PLT's primary goal—to increase students' understanding of our complex environment. PLT is designed to teach students how to think, not what to think, about environmental issues. The curriculum remains easily adaptable to many settings from the classroom to youth organizations, museums, nature centers, and Scout troops. Each activity features Reading Connections, and many activities have Technology Connections and Differentiated Instruction identified.

Two of the storylines in the *Project Learning Tree: Environment Education Pre K-8 Activity Guide* focus on energy. The first storyline highlights the concept that energy exists in different forms and comes from renewable and non-renewable sources. The second storyline emphasizes that societies use energy in many different ways and that human use of energy has short- and long-term social, economical, environmental, and health impacts. These energy storylines are comprised of 14 activities. PLT provides secondary education teachers with a series of topic-specific modules that challenge students to explore every facet of an issue—illustrating the complexity of real-life environmental decisions. In particular, PLT's secondary education module, *Exploring Environmental Issues: Municipal Solid Waste*, helps students explore causes and solutions of this universal urban environmental issue.

PLT offers the *Energy & Society* kit—energy education materials at the Pre K-8 level. Students learn about their relationship with energy and investigate the environmental issues related to energy's role in society. *Energy & Society* helps students develop critical thinking skills to make decisions about their personal energy use. In addition to hands-on activities, Energy & Society integrates music and dance to enhance the study of energy issues. The kit includes an activity guide with background information for educators, music CD, dance video, and poster set, and is available online at http://shop.plt.org, as well as through workshops. All PLT curricular materials are available through local workshops. Contact PLT for the name of the program coordinator in your state or visit the PLT website at *www.plt.org* for more information on all of PLT's programs. 10

AMERICAN GEOLOGICAL INSTITUTE (AGI)

4220 King Street Alexandria, VA 22302-1502 (703) 379-2480

Fax: (703) 379-7563 E-Mail: agi@agiweb.org Web: www.agiweb.org

The American Geological Institute is a nonprofit federation of 44 geoscientific and professional associations that represents more than 100,000 geologists, geophysicists, and other earth scientists. Founded in 1948, AGI provides information services to geoscientists, serves as a voice of shared interests in our profession, plays a major role in strengthening geoscience education, and strives to increase public awareness of the vital role the geosciences play in society's use of resources and interaction with the environment.

AGI disseminates information on earth science education through several mechanisms, including publications such as high-school curricula (*EarthComm*TM) and middle-school curricula (*Investigating Earth Systems*TM); and workshops and presentations for teachers and educators. Visit *www.agiweb.org/education* for more information. AGI also publishes Geotimes, a monthly news magazine (*www.geotimes.org*), and provides geoscience career information (*www.agiweb.org/careers*). During the second full week of October, AGI sponsors *Earth Science Week* to raise awareness about how the earth sciences affect our lives and society (*www.earthscienceworld.org/week*). The Earth Science World ImageBank (*www.earthscienceworld.org/imagebank/*) provides a library of geoscience images for free educational use. Earth Science Week Kits and other AGI publications are available on a secure website at *www.agiweb.org/pubs*. 11

AMERICAN NUCLEAR SOCIETY

Outreach Department 555 North Kensington Avenue LaGrange Park, IL 60526 (708) 352-6611 Fax: (708) 352-0499

E-Mail: outreach@ans.org

Web: www.ans.org or www.aboutnuclear.org

A nonprofit scientific and educational organization of professionals in the field of nuclear science and technology.

Offers free publications (single copies) on nuclear energy and uses of the atom. Available materials include *Nuclear Energy Facts Q&A*, *Nuclear Technology Creates Careers*, and a *Personal Radiation Dose Chart*. A free publications list is available upon request by mail or electronic mail at *outreach@ans.org*. Teachers may sign up for the free newsletter, *ReActions*, which contains articles on uses of the atom in everyday life and in each issue an "activity card" with a project for classroom use. Short workshops and sessions are held throughout the year at exhibits, conferences, in-service training, and by invitation. 12

AMERICAN OIL & GAS HISTORICAL SOCIETY

1201 15th Street, NW, Suite 300 Washington, DC 20005 (202) 857-4785 Fay: (202) 857-4799

Fax: (202) 857-4799

E-Mail: bawells@aoghs.org Web: www.aoghs.org

The American Oil & Gas Historical Society (AOGHS) is a 501(c)-3 nonprofit organization dedicated to preserving the history of the U.S. oil and natural gas exploration and production industry by providing advocacy and service for community museums and organizations that work to preserve that history through exhibition, material preservation – and especially educational programming.

For almost 150 years (1859-2009), U.S. oil and natural gas producers have made lasting contributions to local communities across the nation. Beginning with the nation's first commercial well in Titusville, Pennsylvania, these American entrepreneurs have provided thousands of jobs, served as the foundation for many local economies, and provided the tax and government revenues to open schools and pave roads.

The domestic gas industry, however, remains one of the least understood industries by students and the general public. AOGHS accomplishes its mission by providing advocacy for museums and historical societies that educate the public, energy education about U.S. oil and gas industry heritage through publications, and a communication network of common contacts through which museums & historical associations can share education strategies and resources. The society maintains a unique communications network linking community oilfield museums and historical societies with schools, libraries, state and regional trade associations, and independent producers—all to promote museum exhibits and energy education outreach. More than 80 community oil and gas museums and educational resources are linked to the www.aoghs.org website. Museum events and K-12 education efforts are featured alongside stories of exploration and production heritage in AOGHS publications.

The society publishes a quarterly energy education newsletter, the *Petroleum Age* (ISSN 1930-5915), which chronicles oil and gas history, museum exhibits and education programs. It also includes feature articles designed to promote student interest in the fascinating history of the pioneers and events that created the petroleum industry. AOGHS members believe the U.S. oil and gas industry's historic social, economic and scientific accomplishments provide a vital context for educators teaching the complex business of meeting America's energy needs. 13

AMERICAN PETROLEUM INSTITUTE (API)

1220 L Street, N.W. Washington, DC 20005 (202)682-8081 Fax: (202)962-4719

Web: www.api.org or www.classroom-energy.org

The American Petroleum Institute (API) is the primary trade association for the oil and natural gas industry in the United States. Representing one of the most technologically advanced industries in the world, our membership includes more than 400 companies engaged in the exploration, production, refining, transportation and marketing of petroleum, natural gas and related products.

API supplies educational materials on the petroleum industry to teachers at no charge. API has created an online resource for educators and students that explores the topic of energy at www.classroom-energy.org including classroom activities, interactive tours, and links to a variety of energy education

resources. In partnership with Project Learning Tree (PLT), API developed the *Energy and Society* K-8 education program, including multidisciplinary education materials to help students understand the critical role that energy plays in their daily lives. Program components, all correlated to national education standards, include a music CD and video, posters, study guide and website. The *Energy & Me* music CD features 15 songs about energy and is a 2002 Parents' Choice Recommended Award winner. For more information about the program, visit PLT's website at *www.plt.org/curriculum/energy.cfm*.

Additionally, API offers a wide variety of energy education material for 9-12 graders on API's website, www.api.org, including interactive modules and videos such as Adventures in Energy, Technology Transforming an Industry and Environmental Commitment, which demonstrate the industry's cutting-edge technology and continued environmental progress in the exploration, production, refining, transportation and marketing of petroleum products. For a complete list of API's education materials for all grade levels, please download a brochure at www.classroom-energy.org/teachers/ed_materials/API_Education_Materials.pdf. 14

AMERICAN PLASTICS COUNCIL (APC)

1300 Wilson Boulevard Arlington, VA 22209 (703) 741-5000 Fax: (703) 741-6000 Web: www.plastics.org

APC is a national trade association representing the nation's largest resin producers, including monomer and polymer production and distribution. Founded in 1988, APC advocates unlimited opportunities for plastics and promotes their economic, environmental and societal benefits. Plastics: A World of Unlimited Opportunities. Plastics Make It Possible®.

APC has an interactive, online version of their *Hands on Plastics: A Scientific Investigation Kit* curriculum for grades 5-8, as well as the addition of a K-4 Curriculum. The curricula, found at *www.teachingplastics.org*, was developed in its original format in conjunction with the National Middle Level Science Teachers Association and features background information on plastics and polymers, multi-media examples of classroom activities, and ties to the National Science Education Standards. The information is also available on a CD-ROM. The free kit of supplemental materials for grades 5-8 curriculum can be ordered online, along with other APC publications. **15**

AMERICAN PUBLIC POWER ASSOCIATION (APPA)

2301 M Street, N.W., Suite 300 Washington, DC 20037 (202)467-2900 Fax: (202)467-2910

Web: www.appanet.org

The American Public Power Association is the service organization for the Nation's more than 2,000 not-for-profit, community- and state-owned electric utilities.

Provides various general information pamphlets, including general information on public power, *Careers in Public Power*, and *All About Electricity and 10 Ways Kids Can Save It*. Also available are two videos, *Simple Things You Can Do To Save Energy* and *Simple Things You Can Do To Save Energy In Your School*. The videos were developed through APPA's Demonstration of Energy-Efficient Developments (DEED) program. Publications and videos are offered for a nominal fee. A complete list of materials available is on the website at *www.appanet.org*. DEED also offers scholarships to college students and this information is available on the website. **16**

AMERICAN SOLAR ENERGY SOCIETY (ASES)

2400 Central Avenue, Suite A Boulder, CO 80301 (303) 443-3130 Fax: (303) 443-3212

E-Mail: ases@ases.org

Web: www.ases.org or www.solartoday.org

A national membership association dedicated to advancing the use of solar energy.

The American Solar Energy Society (ASES) is a nonprofit membership organization founded in 1954 to encourage the use of solar and renewable energy technologies to be a source of sound, broad technical knowledge and to provide a forum for addressing critical issues relating to these energy technologies. ASES publishes the magazine *SOLAR TODAY*; sponsors the annual National Solar Energy Conference and the Annual ASES National Solar Tour; and supports regional chapters throughout the country. ASES is the United States section of the International Solar Energy Society. ASES offers sample copies of its magazine, *SOLAR TODAY*. It has one science project book, *Elementary and Secondary Science Projects in Renewable Energy and Energy Efficiency*, available for a fee. See www.ases.org or www.solartoday.org for more details and to download additional information. 17

AMERICAN WATER WORKS ASSOCIATION (AWWA)

6666 West Quincy Avenue Denver, CO 80235 (800)926-7337 Fax: (303) 795-1989

E-Mail: knitschke@awwa.org

Web: www.awwa.org

AWWA is the authoritative resource for knowledge, information, and advocacy to improve the quality and supply of drinking water in North America and beyond. AWWA is the largest organization of water professionals in the world. AWWA advances public health, safety and welfare by uniting the full spectrum of the entire water community. Through our collective strength we become better stewards of water for the greatest good of the people and the environment.

Offers educational materials for sale designed to teach young people about water treatment, distribution, and conservation. Materials include activity books, teacher's guides, comic-style books, compact disks and videos. Call for a free catalog and visit the website for additional materials. 18

AMERICAN WIND ENERGY ASSOCIATION (AWEA)

1101 14th St. N.W., 12th Floor Washington, DC 20005 (202) 383-2500 Main (202) 383-2514 Direct Fax: (202) 383-2505

Web: www.awea.org Web: www.aweastore.com

The American Wind Energy Association (AWEA) is the national association of the U.S. wind energy industry. AWEA's membership is composed of companies and individuals dedicated to advancing the use of clean, renewable wind energy. The mission of AWEA is to promote wind power growth through communication, education, and advocacy.

AWEA offers an Educator's Packet on wind energy, including: a Wind Energy Teacher's Guide; the current Wind Energy Status Report, which outlines the domestic and international growth of the wind industry; the Basic Facts About Wind Energy, which discusses the scale of wind projects, as well as economic development; and a Wind Energy Information Guide, a compilation of further sources to contact for information about wind energy. Packets are free upon request.

Other educational materials, such as videos and posters, are available for a fee through the AWEA online publications listing. Educators are encouraged to visit the AWEA website at www.awea.org. 19

ARIZONA DEPARTMENT OF COMMERCE ENERGY OFFICE

1700 West Washington, Suite 220 Phoenix, AZ 85007 (602) 771-1144 Fax: (602) 771-1203 E-Mail: jima@azcommerce.com

Web: www.commerce.com or http://azsolarcenter.com

A DOE-funded program that emphasizes an energy efficiency curriculum for students in kindergarten through grade 12.

Provides materials for primary and secondary schools through downloadable PDFs on its website. Information includes *Bright Ideas* (single-topic publication covering energy and the environment, recycling, solar cooking, and photovoltaics). 20

ASEPTIC PACKAGING COUNCIL (APC)

2120 L Street, N.W., Suite 600 Washington, DC 20037 Web: www.aseptic.org

A trade association representing the U.S. manufacturers of drink boxes. APC's primary mission is to inform the American public about the product benefits and environmental attributes of aseptic packaging.

For more information, visit the APC website at www.aseptic.org. 21

BALTIMORE GAS AND ELECTRIC COMPANY (BGE)

Educational Services 7225 Windsor Boulevard Baltimore, MD 21244 (410) 265-4098 Fax: (410) 265-4299

Web: www.bge.com

Baltimore Gas and Electric Company is an investor-owned utility serving Baltimore City and all, or part of, nine Central Maryland counties. Provides educational services free of charge to schools in **BGE's service area**. Services include classroom programs, career programs, resources, videos, and classroom literature for students in kindergarten through grade 6. Plant tours can be arranged through Constellation Energy Group by calling (410) 783-3272. Teachers may order materials through BGE's website above. **22**

BP's A+ FOR ENERGY PROGRAM

BP - California Community Relations 6 Centerpointe Drive, 797 La Palma, CA 90623 E-Mail: Irene.Brown@bp.com Web: www.aplusforenergy.com

BP is a global producer, manufacturer, and marketer of oil, gas, chemicals, and renewable energy sources. Californians know BP best as ARCO and the ARCO ampm convenience store brand. Every day, BP serves approximately 13 million customers in more than 100 countries with energy solutions. Every day, more than 100,000 BP employees combine their energy and innovation to build the BP brand.

The **A+ for Energy Program** was developed by BP to recognize California teachers for innovation and excellence in teaching energy and/or energy conservation in the classroom. Any K-12 teacher currently teaching in a California public or private school is encouraged to participate.

BP awards up to \$2 million in grants to K-12 California teachers for innovative classroom, after-school, extra-curricular, or summer activities focused on energy and/or energy conservation. Grants of \$5,000 or \$10,000 are awarded directly to teachers, based on the budget submitted with the application. In addition, grant winners receive energy education curriculum units designed and developed by the National Energy Education Development (NEED) Project. Teachers receive over \$1,500 of resources – including hands-on classroom energy transformation kits, tools to teach energy in any discipline, and sponsorship to attend the NEED Energy Conferences for Educators scheduled in July each year. For more information about the grant program, visit www.aplusforenergy.com. For information about the classroom materials, visit www.need.org. 23

BRONX ZOO/WILDLIFE CONSERVATION PARK

Education Department 2300 Southern Boulevard Bronx, NY 10460 (800) 937-5131 Fax: (718) 220-1057

E-Mail: tnaiman@wcs.org Web: www.wcs.org/education

The purpose of the Wildlife Conservation Society (WCS), since its founding in 1895 as the New York Zoological Society, has been to save wildlife and inspire people to care about our natural heritage. The Society continues to pioneer environmental education programs throughout the United States and abroad. It has the world's leading international conservation program devoted to saving endangered species and ecosystems.

WCS offers *Voyage From the Sun*, a 20-lesson classroom science module for grades 4 through 9. Developed with funding from the U.S. Department of Energy, Voyage is designed to introduce students to the major way in which energy is important to wildlife, focusing on the rainforest and tundra habitats. It encourages students to explore the story of earth's energy — its solar origins, how it is incorporated into living systems through photosynthesis, and how it flows from plants to animals.

During Voyage training workshops, teachers learn strategies for making the study of energy fun and exciting, as well as receiving first-hand training in how to guide their students, as the Energy Pyramid becomes a classroom exhibit. Through activities, such as Photosynthesis Scramble and Tundra Math, teachers build the confidence to lead students on a voyage of discovery as they explore how energy is central to biology and how it links the natural and physical sciences. For more information, call the Director of National Programs at the number above. 24

BULLFROG FILMS

P.O. Box 149 Oley, PA 19547 (800) 543-3764 Fax: (610) 370-1978

E-Mail: video@bullfrogfilms.com Web: www.bullfrogfilms.com

An educational film distributor that offers the largest collection of energy videos and DVDs in the country.

Provides educational videos and DVDs on energy and energyrelated issues. Titles include: Biogas from the Sea; Building the Brookhaven House; Design with the Sun; The Four Corners: A National Sacrifice Area?; How to Keep the Heat in Your House; Kilowatts from Cowpies: The Methane Option; Water Power; In Our Own Backyards: Uranium in the U.S.; Uranium; Small Is Beautiful: Impressions of Fritz Schumacher; Harness the Wind; Downwind/ Downstream; Poison in the Rockies; Lovins on the Soft Path; Opening Your House to Solar Energy; Journey of the Blob; Wake Up Freddy; Going Green: How to Reduce Your Garbage; Recycling is Fun!; Rising Waters: Global Warming and the Fate of the Pacific Islands; Silent Sentinels; Global Warming: Turning Up the Heat; Turning Down the Heat: The New Energy Revolution; Living Under the Cloud: Chernobyl Today; Turning the Toxic Tide; Race for the Future; An Energy-Efficient Doghouse; Solar Energy Doghouse; City Lights; Rethink-Pollution Prevention Pays; Recycling With Worms; Planet Neighborhood; It's Eco-Logic; Water and the Human Spirit; Here's My Question: Where Does My Garbage Go?; Motor; Nuclear Dynamite; Save Our Land, Save Our Towns: The Next Industrial Revolution: Razing Appalachia; Rough Science Series: Sun and Sea; Biomimicry; Good Riddance! Air Pollution; Oil on Ice. Programs are available for purchase or rental. Special packages, with discounted prices, can be created to serve most schools' needs. A free catalog is available upon request. 25

CALIFORNIA ENERGY COMMISSION

1516 9th Street, MS-29 Sacramento, CA 95814 (916)654-4989 Fax: (916)653-5590

E-Mail: mediaoffice@energy.state.ca.us

Web: www.energyquest.ca.gov

The California Energy Commission is the State's principal energy planning organization, promoting a balanced and competitive energy system through its diverse programs.

Energy Quest, an online resource for students, teachers and parents, is dedicated solely to energy education and features information on renewable energy, conservation, safety, energy-related math and science experiments; word games; and links to other resources. Teachers and students will enjoy learning about electricity generation from You've Got the Power video, available on Energy Quest or on VHS or CD format. A perfect partner with the Teacher's Guidebook Energy for Keeps - Electricity from Renewable Energy is available online.

The Energy Commission also provides energy and environmental education material on-line for teachers - kindergarten through grade 12 - including *Compendium for Energy Resources* (curriculum evaluation); *Universal House*; *Energy Shelter & the California Indian*; *Conserve and Renew*. The Energy Commission's Consumer Energy Center, *www.consumerenergycenter.org*, provides information for older students on renewable technologies, lighting, passive design, transportation, and building materials.

Renewable Energy Alliance

Sacramento, CA 95814 Phone: 916-654-4180

E-Mail: Mkrapcev@energy.state.ca.us

Web: www.consumerenergycenter.com/renewable/index.html

The California Energy Commission, as part of a statewide renewable energy education program, has formed the Renewable Energy Alliance, a voluntary partnership of organizations connected to California's renewable energy market. Alliance members combine their efforts to increase consumer awareness of renewable energy sources. As of February 2005, there are 254 individual members from 183 member organizations representing federal, state, regional, community, public, private and/or grassroots renewable energy organizations who have joined the Alliance. 26

CALIFORNIA FOUNDATION FOR AGRICULTURE IN THE CLASSROOM

2300 River Plaza Drive Sacramento, CA 95833 (916) 561-5625

Fax: (916) 561-5697 E-Mail: cfaitc@cfbf.com Web: www.cfaitc.org

A nonprofit educational foundation that provides educational resources and training for teachers to use agriculture as an integration theme throughout kindergarten through grade 12 curricula.

Teachers may view and download many resources from the California Foundation for Agriculture in the Classroom's website (www.cfaitc.org) including lesson plans, comprehensive classroom units, videos, a resource guide, and the Cream of the Crop newsletter. Most programs are specific to California but a limited number are adaptable to other states. Lesson plans can be used as vehicles for teaching Content Standards for California

Public Schools. The Foundation encourages classroom integration of agriculture to increase the understanding of its vital role in our lives. This is encouraged through hands-on activities that reinforce concepts in science/environment, mathematics, English/language arts, history/social science, health/nutrition, physical education, and visual and performing arts. 27

CALIFORNIA REGIONAL ENVIRONMENTAL EDUCATION COMMUNITY PROJECT (CREEC)

Environmental Education Program California Department of Education 1430 N Street, 4309 Sacramento, CA 95814 (916) 323-6189 Fax: (916) 323-2833

E-Mail: PLafonte@cde.ca.gov

Web: www.creec.org/

The CREEC Network is your "one stop shop" for environmental education resources in California, bringing together local, state, and federal agencies in support of the development of environmentally literate students. 28

CAPE LIGHT COMPACT

PO Box 427 Superior Courthouse Barnstable, MA 02630 (508) 375-6703 Fax: (508) 362-4136

E-Mail: dfitton@capelightcompact.org Web: www.capelightcompact.org

The Cape Light Compact is a regional services organization made up of all 21 towns of Cape Cod and Martha's Vineyard. The purpose of the Compact is to represent and protect consumer interests in a restructured utility industry. As authorized by each town, the Compact operates the regional energy efficiency program and works with the combined buying power of the region's 197,000 electric consumers to negotiate for lower cost electricity, green and renewable energy and energy efficiency benefits. These benefits include home energy assessments, rebates on energy efficient lighting and appliances, subsidies for energy efficient new construction and energy education.

In partnership with the National Energy Education Development (NEED) Project and the Barnstable County Cooperative Extension, the Cape Light Compact staff strives to promote an energy-

conscious and educated society by creating effective networks of students, educators, and business, government, and community leaders to design and deliver objective, multi-faceted energy education programs. Ongoing teacher workshops are held throughout the year as well as technical support and free use of NEED educational kits. All materials and subject mater are aligned with the Massachusetts state frameworks for grades 3 – 5. For more information and updates for upcoming workshops, please visit www.capelightcompact.org. 29

THE CENTER FOR ENERGY AND ECONOMIC DEVELOPMENT (CEED)

333 John Carlyle Street, Suite 530 Alexandria, VA 22314 (703) 684-6292 Fax: (703) 684-6297

E-Mail: info@ceednet.org Web: www.ceednet.org

CEED is a nonprofit corporation dedicated to preserving the coal option for America's future energy needs through the use of research, education, and advocacy programs.

CEED works primarily with regional, state, and local policymakers to provide accurate information regarding electricity from coal's role in providing reliable, affordable, and environmentally sound electricity to millions of American families and businesses. CEED materials and information are online at www.ceednet.org. 30

CENTERPOINT ENERGY

Community Relations 1111 Louisiana P.O. Box 1700 Houston, TX 77251 (713) 207-2222 or (713) 207-7579 Fax: (713) 207-9892

E-Mail: lucretia.ahrens@CenterPointEnergy.com

Web: www.centerpointenergy.com

CenterPoint Energy is an investor-owned electric and natural gas delivery company headquartered in Houston and serving seven States from Texas to Minnesota.

In the **Houston area**, CenterPoint Energy provides free educational services to K-12 schools. Services include classroom presentations, videotapes, publications, and activity booklets for students.

Resources and newsletters for educators and teacher in-service training, as well as teacher workshops, are also available. In addition, curriculum supplements are available on topics such as electrical and natural gas safety. Electric Universe and Energy Underground resources for teachers and students are on the website. 31

CHANNING BETE COMPANY

One Community Place South Deerfield, MA 01373 (800) 628-7733

Fax: 1 (800) 499-6464

E-Mail: custsvcs@channing-bete.com Web: www.channing-bete.com

A publishing firm specializing in scriptographic products. Most utilities provide them to schools in their service territories free of charge; however, the booklets are available for a fee.

Offers My Book series, designed for students in kindergarten and grade 1; Coloring and Activities Books for students in grades 1 through 3; and Information and Activities Books for students in grades 4 through 6. Water, electric and energy conservation stickers and growth charts are also available. Contact your local utility for availability or call the above number. Provides educational services fulfillment for utilities. Please call for pricing, a catalog, and a free sample. 32

CHARLES EDISON FUND

One Riverfront Plaza, 3rd Floor Newark, NJ 07102 (973) 648-0500 Fax: (973) 648-0400

E-Mail: info@charlesedisonfund.org Web: www.charlesedisonfund.org

A charitable foundation providing science teachers with simple, basic, proven fun experimental booklets containing 82 experiments.

Provides The Best of Edison Science Teaching Kits, which are available to teachers. Each kit contains nine how-to booklets based on experiments of Thomas Edison and other scientists. These are suitable for grades 4 through 8. Titles include: Energy for the Future; Useful Science Projects; Environmental Experiments; Selected Experiments and Projects; Nuclear Experiments; Energy

Conservation; Alternative Energy Sources; Static Electricity — It's a Snap; and Lewis Howard Latimer Experiments. There is a small fee for handling charges. Write for coupon to receive this kit. These experiments are also located at the above website, which can be downloaded free of charge. 33

THE CHLORINE CHEMISTRY COUNCIL® (CCC)

1300 Wilson Boulevard Arlington, VA 22209 (703) 741-5821 Fax: (703) 741-6821

E-Mail: info@science-education.org Web: www.science-education.org

The Chlorine Chemistry Council®, a business council of the American Chemistry Council, provides information to the public regarding chlorine and promotes the practice and understanding of the responsible use of chlorine chemistry.

The Science Center is a user-friendly site with a variety of fun, educational offerings focused on chlorine science, including:

- Water Germs Busted by Chlorine and Swimming Pool Germs
 Busted by Chlorine—Downloadable coloring/activity books
 featuring the adventures of The Chlorin8tor and Little Hector,
 The Disinfector superheroes who teach students the value of
 chlorine disinfection while imparting an appreciation of
 simple microbiology.
- The Chlorine Compound of the Month—Informative, illustrated articles on a different chlorine compound each month, including interesting facts and basic chemical principles.
- The Global Bug Conspiracy—A creative learning tool that "vilifies" some of the most common waterborne pathogens as "mischievous microbes" that are defeated by chlorine disinfection. 34

CITY UTILITIES OF SPRINGFIELD, MO

301 E. Central P.O. Box 551 Springfield, MO 65801 (417) 831-8348 Fax: (417) 831-8324

E-Mail: Cara.Shaefer@cityutilities.net

Web: www.cityutilities.net

City Utilities of Springfield (CU) is a progressive, communityowned utility serving the Springfield metropolitan area in southwest Missouri with electricity, natural gas, water, telecommunications and transit services.

Offers power station and renewable energy project tours, classroom presentations, an extensive speakers' bureau, and a variety of energy management resources. City Utilities' partnership with a local high school has become a model for other business and education partnerships. The partnership between CU employee volunteers and Central High School encourages young people to stay in school and facilitates the school-to-work transition for many students. 35

THE COLORADO ENERGY SCIENCE CENTER (CESC)

1626 Cole Boulevard, Suite 375 Lakewood, CO 80401 (303) 216-2026, ext 101 (School Programs Office)

Fax: (303) 237-0992

E-Mail: ppacker@energyscience.org Web: www.energyscience.org

A nonprofit organization specializing in energy education.

The Colorado Energy Science Center has developed the *Energy* Science in the Home Activity Guide, a set of hands-on modules that improve student proficiency in math and science while giving students the tools to identify energy efficiency opportunities in their own homes. CESC also organizes an annual contest where students compete for home energy efficiency upgrades for Colorado families.

Private sponsors donate cash, energy efficiency products and services as contest awards. The contest encourages students to articulate what they've learned and to become effective champions of smart energy. Formed by the three managing partners of the National Renewable Energy Laboratory in 1999, CESC educates energy users to make smart investments in clean, cost-effective, sustainable energy technology. 36

THE CONSUMER AEROSOL PRODUCTS COUNCIL

99 Canal Center Plaza, Suite 310 Alexandria, VA 22314 (703) 683-1044 Fax: (703) 683-4622

E-Mail: rmorris@smithharroff.com

Web: www.nocfcs.org

Supported by companies that manufacture and market aerosol products, the Consumer Aerosol Products Council was founded in 1991 to provide information on aerosols and environmental issues for consumers, media, and educators at all levels.

Offers Another Awesome Aerosol Adventure, a **free** educational unit for students in grades 4 through 8. Includes a 10-minute video produced by the creative team from the popular children's television program Beakman's World. Designed with humor in mind, the video, along with accompanying teacher and student guides, a colorful classroom poster and take-apart aerosol can, makes the complex issues of aerosol technology, ozone depletion, and environmental awareness memorable and fun for a middle school-age audience.

Another Awesome Aerosol Adventure is available through Video Placement Worldwide at (703) 836-9797. The organization also offers the Science Class Challenge, an opportunity to win \$500 to \$5,000 for your school and a pizza party for your class by teaching an activity found on our website and entering our contest. The Science Class Challenge is available for grades 4–9 and encourages students and teachers to learn about the earth's protective upper ozone layer, CFCs, and the environment. 37

CREATIVE TEACHING PRESS, INC.

15342 Graham Street Huntington Beach, CA 92649-1111 (800) 287-8879 Fax: (800) 229-9929

E-Mail: customerservice@creativeteaching.com

Web: www.creativeteaching.com

An educational publisher of quality, content-rich teaching materials for grades PreK-8th.

Offers award-winning educational teaching materials for grades Pre-K-8th. Energy-related titles include: Earth Book For Kids Activities to Heal the Environment—Grades 3–6 (LW289); Science Fair Projects and Activities—Grades 5–8 (LW407); Integrating Science with Reading Instruction—Grades 5–6 (CTP2816);

Integrating Science with Reading—Grades 3–4 (CTP 2815) and Gobble Up Science—Grades 1–4 (LW343). These books are available online at www.creativeteaching.com and from school supply stores and bookstores. Free catalogs are available upon request. 38

CULVER COMPANY

104 Bridge Road Salisbury, MA 01952-9904 (800)4-CULVER Fax: (978)463-1715

E-Mail: customerservice@culverco.com

Web: www.culverco.com

A publisher and distributor of educational materials about energy and related topics.

Produces booklets, educational websites, videos, posters, and program enhancement items for children and adults. Teacher discussion guides are also available. Utilities purchase and distribute these materials **in their service areas**; other organizations may purchase them directly. **39**

DENVER EARTH SCIENCE PROJECT

Office of Special Programs & Continuing Education Colorado School of Mines Golden, CO 80401 (303) 273-3621 (800) 446-9488, ext 3621 (outside 303 area code)

Fax: (303) 273-3314 E-Mail: desp@mines.edu

Web: www.mines.edu/outreach/cont ed/desp/desp.html

A teacher enhancement program, in partnership with corporations, federal agencies, school districts, and professional organizations, which provides innovative earth science curricula for use in grades 4 through 12.

Provides, for a fee, a series of educational workshops that address a range of earth science topics developed by trained curriculum development teams, including experienced earth science teachers and practicing scientists. The hands-on student activities included in each module incorporate real data and follow a problem-solving approach. Each module integrates mathematics, geography, economics, and social and environmental issues with basic earth science concepts.

The modules are:

- Oil and Gas Exploration (Grades 7-12)
- Ground Water Studies (Grades 7-9)
- Paleontology and Dinosaurs (Grades 7-9)
- Energy—A Closer Look at Oil and Gas (Grades 4 6)
- Do You Know Your 3 R's? Radiation, Radioactivity, and Radon (Grades 7-10)

Each module contains a teacher resource kit, which includes a teacher/student notebook, maps, audiovisual materials, posters, oil samples, groundwater models, etc. Call to find out the location of the nearest training site. 40

DISNEY EDUCATIONAL PRODUCTIONS

105 Terry Drive, Suite 120 Newtown, PA 18940 (800) 295-5010 Fax: (215) 579-8589

Web: www.Edustation.com

Disney Educational Productions develops and distributes entertaining and thought-provoking videos that excite children of all ages to learn about a variety of subjects.

Offers educational videos (some titles on DVD as well) on energy, the environment, earth science, recycling, and water. Curriculum-oriented videos come with discussion guides and lesson plans. Titles include:

- Bill Nye the Science Guy shows, such as Garbage, Pollution Solutions, and The Water Cycle. Other relevant Bill Nye titles: Atmosphere, Atoms, Biodiversity, Earth's Crust—Earth Science Archaeology, Electrical Current, Energy, Erosion, Forests, Fossils, Lakes & Ponds, Oceanography, Rivers & Streams, Rocks & Soil, Simple Machines, Static Electricity, The Sun, Volcanoes, Waves, Wetlands, and Wind
- Return to Sender: A Story About Littering
- Recycle Rex (starring Disney's hip animated recycling dinosaur)
- *The Energy Savers* (starring Donald Duck, Mickey Mouse, and Goofy)

- Zort Sorts: A Story About Recycling
- The Great Search Man's Need for Power and Energy

Bill Nye, the Science Guy, is now available on DVD. The DVDs include a Bi-Lingual (Spanish) mode, Interactive Science Quiz and Glossary, Bonus Footage and extended 20-page Teacher's Resource Guide.

New ABC News Classroom Edition video series includes one curriculum set entitled *The Final Frontier* concerning the space program. The individual titles in this set are: *The Race to the Moon, The Shuttle Era, To Mars and Beyond,* and *Space Age Technology*. Programs are available for purchase. Call the toll-free number to request a free catalog. **41**

DOMINION RESOURCES, INC.

North Anna Nuclear Information Center

1022 Haley Drive Mineral, VA 23117 (540) 894-2029 (804) 771-3200

Fax: (540) 894-0379

Web: www.dom.com/about/stations/nuclear/northanna/nanic.jsp

Surry Nuclear Information Center

5570 Hog Island Road Surry, VA 23883 (757) 357-5410 Fax: (757) 357-4711

Web: www.dom.com/about/stations/nuclear/surry/snic.jsp

Dominion is one of the nation's leading energy companies, serving more than 5 million retail energy customer accounts in nine states. As one of the nation's largest producers of natural gas and electric power, Dominion operates seven nuclear reactors in three states, Virginia, Connecticut and Wisconsin.

We live in a wired world. Electricity is vital to everyday life—powering everything from computers to air conditioners, lighting our homes and running our factories. Nuclear energy produces electricity for one in five homes and businesses, the largest emission-free source of energy used in the United States. To provide you with facts concerning nuclear energy and electricity, Dominion operates Energy Information Centers at both of its nuclear power stations in Virginia. The North Anna and Surry Nuclear Information Centers offer interactive exhibits as well as high-energy presentations for groups of all ages.

Educational programs (scheduled in advance) are provided free of charge and are designed to meet the Virginia Department of Education's Standards of Learning (SOLs). All programs are tailored to the needs of your group, no matter the age or experience level. These programs are offered to you as a field trip to one of our Centers, or as an Outreach Program in your classroom. Contact us for a list of our *Energized Programs* and to schedule the experience that will meet the energy educational needs of your students. 42

EARTH FOUNDATION

5401 Mitchelldale, B4 Houston, TX 77092 (800) 566-6539 (713) 686-9453 (in Houston) Fax: (713) 686-6561

E-Mail: nhilton@earthfound.com Web: www.earthfound.com

An organization dedicated to environmental education and conservation.

Each year thousands of schools participate in the Earth Foundation's Rescue the Rainforest Project. Thus far, the network of 10,000 active environmental teachers and students is responsible for raising \$10 million for rainforest conservation through the sale of environmental T-shirts. A Rainforest Project Kit is available to educators. The kit, which includes curriculum, videos, instructions, and a ready-made fundraising project, contains everything a school will need to supplement an ecology unit with a teaching method called Solution-Based Teaching. Upon completion, participating schools receive a certificate recognizing them for the acres adopted and written updates about the area being preserved. Schools that adopt ten or more acres receive a free follow-up video that shows students live footage of the area. Call (800) 5-MONKEY to receive your Rescue the Rainforest Kit and for more information about this project or the Coral Reef Rescue Campaign. 43

EcoSoul/National Fuel Cell Education Program (NFCEP)

18051 Irvine Boulevard Tustin, CA 92780 (714) 368-1444 Fax: (714) 730-8902

E-Mail: Skip@nfcep.org Web: www.nfcep.org

Founded in 1993, EcoSoul, Inc. is a California 501(c)(3) nonprofit focusing on energy, education and the environment. EcoSoul is host to the National Fuel Cell Education Program, promoting ways in which our future hydrogen economy can be realized through practical, hands-on educational materials.

Our mutual programs are deeply involved in the adoption of renewable energy in our country and the implementation of effective energy technology programs through educating our youth about hydrogen systems, fuel cells, micro-turbines, wind and solar energy, ocean/tidal energy, biomass, biofuels, energy storage, transportation, energy efficiency programs and distributed power generation. 44

Edison Electric Institute (EEI)

701 Pennsylvania Avenue, N.W. Washington, DC 20004-2696 (202) 508-5000 To order publications: (800) 334-5453 To fax an order: (301) 843-0159

Web: www.eei.org

EEI is the association of U.S. shareholder-owned electric companies, industry associates, and international affiliates worldwide.

EEI suggests that you first contact your local electric company for any educational materials. Many utilities have educational programs about energy and the environment for schools. EEI's limited supply of educational and consumer resources are located in the Products and Services Section online at https://www.eei.org/products_and_services/descriptions_and_access/index.htm#Consumer-and-Educational-Resources. Publications are available for a fee. 45

EDISON MUSEUM

350 Pine Street Beaumont, TX 77701 (409) 981-3089 Fax: (409) 838-2361

E-Mail: info@edisonmuseum.org Web: www.edisonmuseum.org

A private, nonprofit education foundation that manages the only Edison museum west of the Mississippi River.

Provided are tours of the museum for school and organized tour groups. Films are available to groups not exceeding 35. By mail or over the Web are a series of free information handouts addressing Thomas Edison — the Inventor Bulletin Series. Tours involve a 20-minute orientation through the interactive museum. The exhibits cover Edison's life and his "major" inventions — the incandescent light bulb, the phonograph, and the motion picture camera. Interactive elements include a complete computerized database of Edison's 1,093 U.S. patents, Edison silent movie sampler, Edison music sampler and a Morse code simulator. The museum is free and open Monday through Friday, 9:00 a.m. to 5:00 p.m. closed on major holidays. 46

EDUCATIONAL DEVELOPMENT SPECIALISTS

5328 E. 2nd Street, #512 Long Beach, CA 90803 (562)434-6225 Fax: (562) 434-7551

E-Mail: kayice@aol.com

Web: EDSpecialists.com or ThinkEarth.org

Curriculum developers and distributors of energy and environmental education programs.

EDS offers the *Energy Source Education Program* and the *Think Earth Environmental Education Program*. Sponsors nationwide can purchase program units to provide free to schools. Units are also sold directly to teachers and others. Energy source units include *People Power* for grades 5 and 6. The award-winning *Think Earth* curriculum contains nine separate units, with videos, for students in pre-kindergarten through middle school. See the website for descriptions of each unit. 47

EDUCATIONAL DIVIDENDS

302 West Hill Street, Suite 102 Champaign, IL 61820 (877)359-9444 Fax: (217)359-9446

E-Mail: carol@educationaldividends.com Web: www.educationaldividends.com

Develops educational products that are designed to change the classroom paradigm to consistently produce creative self-learners who are employable.

Using its AND Model, Educational Dividends offers classroom activities, curriculum and professional development that integrates technology, standards-based learning, leadership and workplace skills. To learn more about Educational Dividends' products and services, visit the above website. **48**

EESMARTS

P.O. Box 1564, 1-6b New Haven, CT 06506 (877) 514-2514 Fax: (888) 214-5732

eesmarts is a one-of-a-kind energy education program that's enlivening Connecticut students and educators alike.

eesmarts is a series of grade-specific curriculum units that use lively characters, exciting stories and hands-on activities to teach students all about energy and how to use it wisely. Created by a team of Connecticut certified educators, each curriculum unit integrates science, language arts, math, citizenship, abstract thinking and the scientific method. The lessons are flexible and interactive, and can be done in two days or two weeks depending on teacher preference and student interest. All lessons are reflective of the Connecticut Mastery Test, Connecticut Framework and National Science Standards. Curriculum units for Grades K-8 are available at NO COST to schools in the United Illuminating Company and the Connecticut Light and Power Company service territories through the Connecticut Conservation and Load Management Fund. 49

ENERGY EDUCATION GROUP

664 Hilary Drive Tiburon, CA 94920 (415) 435-4574

E-Mail: energyforkeeps@aol.com Web: www.energyforkeeps.org

A nonprofit educational organization founded to increase awareness and understanding of renewable energy.

Energy for Keeps is an illustrated guide to electricity from renewable energy. A text for all, plus class activities and science standards correlations (California and national), for grades 6 through 12. Comprehensive, inter-disciplinary, inquiry-based. Information available at www.energyforkeeps.org. 50

ENERGY NET U.S.

302 West Hill Street, Suite 102 Champaign, IL 61820 (877) 359-ENET (3638) Fax: (217) 359-9446

E-Mail: carol@educationaldividends.com

Web: www.energynet.net

A nonprofit organization offering standards-based, technologyenriched classroom projects for a moderate fee.

EnergyNet offers teaching material appropriate for all grade levels. Elementary students enjoy finding ways for their homes and schools to save energy through our *Energy Detectives* project. *Home Energy Makeover* is designed for students in Math and Family & Consumer Sciences classes (grades 5-12). This six-week unit incorporates economics, technology, teamwork and presentation skills. Students will learn to manage a home energy budget, reduce a home's energy use while increasing comfort, make cost-effective energy remodeling choices and present their suggestions in compelling ways.

Students in grades 6 through 12 have three additional choices: Energy Auditing provides a great background on the many ways students can reduce the costs of energy in their homes and schools; *Community Energy Consultants* assists students in sharing this knowledge with their community by conducting energy audits on any number of local buildings; and *Energy Engineers* involves students in the process of designing energy efficiency into school renovation and construction programs. To learn more about the hands-on projects and activities, visit *www.energynet.net*. 51

ENERGY TEACHERS.ORG

39 Noble Street West Newton, MA 02465 917-653-4342

E-Mail: eer@energyteachers.org Web: http://energyteachers.org

EnergyTeachers.org is a network of teachers and informal educators interested in energy curriculum, working in Massachusetts, New England, and beyond. The network is maintained by teachers who believe that energy production and use are increasingly important topics for classes in science, technology, engineering, and social studies. There are no membership fees. Any teacher can participate at any level in the organization.

EnergyTeachers.org maintains a web site with announcements, curriculum ideas, a calendar, an online forum for sharing ideas, and a bibliography of energy-related materials suited for the classroom or lesson-preparation. Our nonprofit connects busy teachers with free or inexpensive resources proven to work in the classroom. We visit schools for planning meetings with teachers, and we lend books locally (within ~150 km of our office). We occasionally conduct classroom presentations. EnergyTeachers.org also mails a newsletter free to educators nationwide, nine issues per year. Please send email or call us to find out what we can do for you. 52

ENTERPRISE FOR EDUCATION, INC.

1316 Third Street, Suite 103 Santa Monica, CA 90401 (310)394-9864

Fax: (310) 394-3539

E-Mail: entfored@aol.com Web: www.entfored.com

Offers booklets for primary and secondary school science classes free from many electric utilities.

Contact the education specialist at your local electric utility. Materials also may be purchased directly from the publisher. A catalog is available. Supplies a variety of 8-, 16- and 32-page *Energy and Environmental Skill Builder* color booklets.

Teachers can create short-to-comprehensive units based on the subject and grade level. The following are available:

- Environment Using Our Resources Wisely (grades 2 through 4); The Greenhouse Effect and Global Warming (grades 6 through 12); Percentages Help an Environmental Engineer (grades 6 through 8); and The Clean Air Challenge, 32 pages with video and science experiment kit (grades 8 through 10)
- Conservation Efficiency of Electric Appliances (grades 6 through 10); Climate and Comfort (grades 6 through 12); Is Efficiency the Best Energy Source? (grades 9 through 12); King Barkley's Almost Birthday Disaster, 32-page booklet plus 11-minute sing-along CD (grades kindergarten through 5); and Electricity is in the News (grades 4 through 8)
- Nuclear Energy Nuclear Reactor (grades 8 through 12); The Atom and Radiation (grades 6 through 12); and Nuclear Fuel Cycle (grades 8 through 12)
- Fossil Fuels Coal: The Once and Future King? (grades 6 through 9); Natural Gas (grades 6 through 12); Geology of Oil (grades 6 through 12); and Refining Oil (grades 8 through 12); Safe at Home; and Leo Learns How to Use Natural Gas Wisely (Grades 4-8, 16-pages).
- Electricity Mouse House Surprise, a 32-page teacher big book and student little book (safety) (grades kindergarten through 2); Sam and Jody Save the Circus (safety) (grades 2 and 3); Paths for Electricity (safety) (grades 3 through 5); Energy Transformations (grades 4 through 9); Generating Electricity (grades 5 through 9); Sources of Electricity (grades 5 through 9); Demand for Electricity (grades 6 through 9); Working With Energy Graphs (grades 6 through 12); Measuring Helps an Electrician Wire an Apartment (grades 4 through 6); An Electrical Engineer Plans an Electrically Safe Outdoor Concert (safety) (grades 5 through 9); Electricity from Wind, Water & Sunlight (grades 4 through 8), that includes a lab activity kit; and Risk: Taking Chances, Making Choices (grades 6 through 10)
- Waste Management Hazardous Wastes from Homes, 40 pages and a 48-page teacher's guide (grades 9 through 12)
- Water The Day the Water Stopped teacher big book and student little book (grades kindergarten through 2). 53

THE ENVIRONMENTAL EDUCATION COUNCIL OF OHIO

PO Box 1004 Lancaster, OH 43130 (740) 653-2649 Fax: (740) 653-6100

E-Mail: director@eeco-online.org Web: www.eeco-online.org

The Environmental Education Council of Ohio (EECO) is a nonprofit organization that provides cutting-edge environmental education services throughout the state to all educators. EECO has a mission to lead in facilitating environmental education that fosters global stewardship and a sustainable future for all Ohioans.

The Environmental Education Council of Ohio (EECO) is a membership based nonprofit organization that has been providing environmental education services to Ohio and surrounding states since 1967. Since that time we have grown tremendously, and currently provide direct contact throughout the state with Regional Directors in all twelve regions of the Ohio.

EECO proudly offers cutting-edge workshops, conferences, a quarterly newsletter, green papers and other services to K-12 formal and nonformal educators. EECO is currently branching out to provide services now to adult audiences, the business community, environmental organizations, community based groups, universities, the general public, and other underserved audiences. We hope that you will join us in promoting the value of environmental education for all Ohioans. 54

ENVIRONMENTAL HAZARDS MANAGEMENT INSTITUTE (EHMI)

10 Newmarket Road P.O. Box 932 Durham, NH 03824 (800) 558-3464 (603) 868-1496 Fax: (603) 868-1547 E-Mail: msims@ehmi.org Web: www.ehmi.org

An independent, nonprofit environmental, health and safety education and research institute working to promote environmental responsibility at home, in the workplace, and in the community through education and relationship building.

Offers environmental, health and safety education and outreach materials for adults and children. Topics include recycling/buy recycled; energy efficiency/conservation and indoor air quality; household chemical product management; water quality; lead poisoning prevention; used oil recycling; composting; and more. The balanced, well-researched information is offered in a variety of formats, including enviro-wheels (slide-charts); tabloid publication for school children; book covers; color-in activity books; color-in posters; and videos. There is a fee for all educational materials. Discounts are available on bulk orders. Free price list. 55

EV MEDIA

1316 Third Street, Suite 103 Santa Monica, CA 90401 (310) 394-3980 Fax: (310) 394-3539

E-Mail: ab50@aol.com

Web: www.entfored.com (click on Electric Transportation button)

An educational publishing company providing electric vehiclerelated materials.

Provides publications and activity kits on electric vehicles (EV) for schools and the general public. Materials range from color booklets for secondary school students to teacher guides, electric vehicle model kits, and discussion leader guides free from many electric utilities with EV programs. Materials cover electric vehicles, electricity, energy efficiency and conservation. Titles include: Electric Car, a 16-page color booklet (for grades 7 through 12); the 148-page Teacher's Electric Car Book, everything a teacher needs to conduct a unit on electric vehicles; The Electric Flyer Model Kit, which includes everything needed to build a working, table-top size model electric vehicle; and The Electric Vehicle Classroom Kit, which includes a classroom set of color booklets; the Teacher's Electric Car Book; and five to eight Electric Flyer Model kits. The battery/charger option for the EV Classroom Kit includes five to eight rechargeable 1.5 volt AA Ni-cad batteries and a four-unit battery charger. Revised materials now include optional motor controller kits, with detailed assembly instructions included in the expanded Teacher's Electric Car Book. Contact your electric utility electric vehicle department for these materials, which are often offered at no cost to educators. Materials are also available directly from the publisher. Call the number above for latest pricing information. **56**

FIRSTENERGY CORP.

Community Initiatives Department 76 South Main Street Akron, OH 44308-1890 (330) 761-4247 Fax: (330) 761-4203

E-Mail: tgilman@firstenergycorp.com Web: www.firstenergycorp.com/education/

FirstEnergy Corp. is a registered holding company headquartered in Akron, Ohio. Its seven electric utility-operating companies comprise the Nation's 4th largest investor-owned electric system, serving 4.3 million customers within 36,100 square miles of Ohio, Pennsylvania, and New Jersey.

FirstEnergy's energy education program provides math, science and technology grants and free supplemental resources to educators, youth group leaders, and civic organizations in the communities served by FirstEnergy and our operating companies—Ohio Edison, The Illuminating Company, Toledo Edison, Penn Power, Met-Ed, Penelec, and Jersey Central Power & Light—and where we have facilities. These resources can be ordered on our website at www.firstenergycorp.com/education/.

Check out the latest additions to our site and take a virtual tour of one of our coal generating plants. Without leaving your home, school or computer, you can take an amazing journey through a typical FirstEnergy coal-fired generating plant. Using digitized computer animation, visitors can go behind steel walls and see the inner-workings of complex machinery and systems that generate the electricity that powers your homes, schools and future workplaces. And, take a look at the *Electric Avenue* section of our site. This interactive site—offering a world of information on electrical safety, energy sources and efficiency—is designed to be an excellent classroom resource. *Electric Avenue* also features fun energy games and facts geared to all grade levels. 57

FLORIDA POWER AND LIGHT COMPANY (FPL)

Energy Encounter

6501 South Ocean Drive Jensen Beach, FL 34957 (877) FPL-4FUN or (877) 375-4386 (toll free) Fax: (772) 467-7565

Web: www.fpl.com/encounter

A regulated investor-owned utility serving approximately four million customers in Florida.

FPL's Energy Encounter is a free energy information center that offers interactive exhibits featuring fun and entertaining information about energy, electricity, magnetism and nuclear power. Visitors embark on a treasure hunt exploring the riches of energy to discover that a souvenir awaits all who find the answers to the energy-related questions. Hands-on educational programs designed to meet state science curriculum are offered throughout the school year for grades 1 through 12 (by reservation only). Teacher workshops are offered focusing on science education, energy, and nuclear related topics. On selected days, the College of Turtle is also open. Turtle walks are available in June and July. For more information, call FPL's Energy Encounter toll-free at (877) FPL-4FUN or (877) 375-4386, or visit our website at www.fpl.com/encounter for directions, hours of operation, and upcoming special events. 58

FLORIDA SOLAR ENERGY CENTER (FSEC)

1679 Clearlake Road Cocoa, FL 32922 (321) 638-1000 Fax: (321) 638-1010

E-Mail: info@fsec.ucf.edu

Web: www.fsec.ucf.edu/ed/teachers and http://energywhiz.com

FSEC is a research institute of the University of Central Florida.

FSEC currently has several free downloadable curriculum units available on the website. The units include hands-on activities and PowerPoint presentations that align to science standards. The solar energy units include *Solar Matters I - III* for elementary and middle school students, *Understanding Solar Energy* for high school students, and *Solar Wonders*, a PowerPoint presentation on the uses of solar energy. The environmental unit, *Alternative Fuel Matters* is for middle school students, while the Planet Janitor video and coloring book (available on the Energy Whiz site) are for elementary students.

Several new energy units are also now available, *High Energy Hydrogen* includes units for upper elementary, middle and high school students, and *Building Performance Matters* is available for high school students. The Energy Whiz website features student projects and submissions that deal with energy as well as experiments and hands-on activities that can be performed at home. A lending library of classroom materials is available for Florida teachers. **59**

FOODSERVICE & PACKAGING INSTITUTE, INC. (FPI)

150 South Washington Street, Suite 204 Falls Church, VA 22046 (703) 538-2800 Fax: (703) 538-2817

E-Mail: fpi@fpi.org Web: www.fpi.org

A nonprofit trade association for manufacturers, suppliers and distributors of foodservice disposable products. These products consist of single-use cups, plates, bowls, bags, cutlery, trays, hinged-lid clamshell containers, and other paper, plastic, aluminum, and alternative materials products. Foodservice & Packaging Institute, Inc., supports the environmentally responsible manufacture, distribution, use, and disposal of foodservice disposables.

FPI offers a free teacher's kit (new version available on CD or FPI's website) that includes educational materials for middle school environmental science educators. This kit contains a full range of information and student activities, including a new interactive webpage. FPI also offers one-page issue sheets appropriate for middle and high school students on environment and sanitation. These explain the importance of foodservice disposable products to today's consumers. Single copies of these FPI publications are free to educators. Contact FPI for larger quantities. For additional information about other publications, visit the website. 60

FREY SCIENTIFIC

80 Northwest Boulevard Nashua, NH 03063 (800) 225-3739 Fax: (877) 256-3739

E-Mail: customercare@freyscientific.com

Web: www.freyscientific.com

A full-line supplier of educational materials, equipment and supplies for science, designed for students from kindergarten through college.

Offers a general science catalog that includes over 100 pages of products for earth science and ecology study. Product line consists of books, charts and posters, videos and video discs, software, kits, games, manipulatives, general supplies and equipment, and more. Products are available for a fee; catalog is free of charge. **61**

FUEL CELLS 2000

1100 H Street, N.W., Suite 800 Washington, DC 20005 (202) 785-4222 Fax: (202) 785-4313

E-Mail: info@fuelcells.org Web: www.fuelcells.org

Fuel Cells 2000 is a nonprofit program to educate people around the world about the potential benefits of fuel cells, an advanced energy generation technology. Fuel cells combine hydrogen and oxygen electrochemically to produce energy. The only byproducts are water and useful heat.

Produces fuel cell information brochures and sends free information packets in response to requests from students, teachers, and the general public. Some publications include the Fuel Cells in Transportation brochure, the Fuel Cell Quarterly, the free monthly Fuel Cell Technology Update, and comprehensive charts (Fuel Cell Vehicles, Fuel Cell Buses, Fuel Cell Specialty Vehicles, Worldwide Hydrogen Fueling Stations, Worldwide Fuel Cell Installations).

The Fuel Cells 2000 website provides basic fuel cell information, as well as extensive links; FAQs, a news group; an online bibliography of books and articles; and a gallery of fuel cell product images. Fuel Cells 2000 has a Fuel Cell Career and Education Center with company job pages for professionals and educational resources, lesson plans, and experiments for teachers and students, as well as the Fuel Cell Match Maker, an online message board. **62**

GENERAL ATOMICS SCIENCES EDUCATION FOUNDATION

3550 General Atomics Court San Diego, CA 92121-1194 (858)455-3335

Fax: (858) 455-3379 E-Mail: pat.winter@gat.com

Web: fusioned.gat.com

A high technology research and development center.

Offers information to middle and high school teachers and students regarding current U.S. and worldwide nuclear fusion research that is aimed at understanding plasma science and fusion technology and their roles in providing an energy resource for tomorrow's needs. Available materials include a 20-minute video (Spanish, French, or English), *Fusion: Creating a Star on Earth; STARPOWER*, an interactive learning adventure CD; and a teacher resource guide packed with experiments and a workbook on the electromagnetic spectrum, plasma, and radiation. Classroom posters on fusion, radiation, and the electromagnetic spectrum are also available. These items are free while supplies last. Order online at the above website. 63

GEOTHERMAL EDUCATION OFFICE

664 Hilary Drive Tiburon, CA 94920 (415) 435-4574 Fax: (415) 435-7737

E-Mail: geo@marin.org

Web: www.geothermal.marin.org

A nonprofit educational organization serving teachers and students to increase awareness and understanding of geothermal energy.

Available for a fee are high school-and elementary school-level videos; an activity-packed geothermal curriculum for grades 4 through 8; and a set of classroom activities for grades 6 through 12 (free with purchase of video). A geothermal slide show (PPT) CD containing 122 colorful graphics and photos is also available for sale. See www.geothermal.marin.org. 64

GEOTHERMAL HEAT PUMP CONSORTIUM

1050 Connecticut Avenue NW, Suite 1000 Washington, DC 20036 (888)ALL-4-GEO Fax: (202) 58-6759

E-Mail: info@ghpc.org Web: www.geoexchange.org

For more than a decade, the Geothermal Heat Pump Consortium has been working to increase the awareness and use of geoexchange technology throughout the United States and the world.

The Consortium, a nonprofit advocacy association, believes that the responsible use of energy resources is crucial to the nation's economy and our quality of life. Toward that end, increasing the use of geoexchange technology will not only dramatically reduce our national energy consumption and greenhouse gas emissions, but also will slash its users' energy costs, and our nation's dependence on fossil fuels. The Geothermal Heat Pump Consortium acts as a resource for anyone wishing to know more about geoexchange technology. Our information catalogue includes items specifically addressing geoexchange installations in schools, homes, and businesses, as well as more generalized topics. All full-color brochures, case studies, reports and documentaries are available for free download online at www.geoexchange.org.

In addition, we will mail out copies of any of our materials to teachers free of charge. Our full-time staff and industry allies can also provide one-on-one technical expertise, marketing research data and insight, and current industry activity status to interested parties via e-mail or over the phone. 65

HAWAIIAN ELECTRIC COMPANY, INC.

Education and Consumer Affairs Division 900 Richards Street Honolulu, HI 96813 (808) 543-7511 Fax: (808) 543-7412

Fax: (808) 543-7412 Web: www.heco.com

An investor-owned electric utility that serves the island of Oahu, in the State of Hawaii.

Hawaiian Electric Company (HECO) and its subsidiaries, Maui Electric Company and Hawaii Electric Light Company, provide free teaching materials to kindergarten through 12th grade educators located on the islands of Oahu, Maui and Hawaii. Services include free books and school-based presentations, as well as loaning of CD ROMs, DVDs and videos related to electrical safety, basic electricity, energy conservation, renewable energy, and careers in the electric utility industry; HECO also supports educational programs, such as the *Solar Sprint*—a miniature solar model car project for middle school students; *Sun Power for Schools*—schools are provided photovoltaic systems and curriculum based lessons on renewable energy and photovoltaics; *FIRST Lego League* where students build a non-remote robot using Legos and science and engineering skills to compete in a friendly robotics event and the Kids and Teachers webpage at www.heco.com that provides students and teachers alike with electrifying information. For details on these programs, visit www.heco.com and go to Generation e. 66

ILLINOIS DEPARTMENT OF COMMERCE AND ECONOMIC OPPORTUNITY

Office of Coal Development 620 East Adams Springfield, IL 62701 (217) 524-3820 Fax: (217) 558-2647

E-Mail: Linda.Dunbar@illinois.gov

Web: www.illinoiscoal.biz

A state coal education program committed to the continued and expanded use of Illinois' coal resources in environmentally safe and economically viable ways.

Provides coal curriculum on Illinois coal production, distribution, usage, research, development, and demonstration of clean coal technologies. From the Coal Mines to the Power Lines is a teaching resource manual covering the formation, history and uses of Illinois coal, Illinois coal mining and reclamation, as well as clean coal technologies. The curriculum manual contains lesson plans and hands-on activities for grade level sections K-4, 5-8, and 9-12. Included with each curriculum manual are age-appropriate booklets, handouts, and posters. The curriculum is free. Coal awareness and education efforts target the general public through the media, schools, and special programs in an attempt to diffuse myths regarding Illinois coal and to disseminate sound, scientific information. A CD-ROM accompanies each of the three grade level sections. Each CD deploys a PowerPoint presentation highlighting glossaries of terms through the use of captions, questions, photos, clip art, descriptions and music. 67

INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA

Information Services Department 1201 15th Street, N.W., Suite 300 Washington, DC 20005 (202) 857-4722

Fax: (202) 857-4799

E-Mail: flawrence@ipaa.org or govrel@ipaa.org

Web: www.ipaa.org

The national association represents independent crude oil and natural gas explorers/producers.

Provides, for a fee, an annual yearbook of statistics on the crude oiland natural gas-producing states. *The Oil & Natural Gas Producing Industry In Your State* (OPI) compiles exploration and production statistics for each producing state in a simple manner, suitable for junior and senior high school students. The new edition of the OPI is 2004-2005. In addition, the association provides a statistical brochure entitled *U.S. Petroleum Statistics* that contains 19 tables of statistical data for oil and natural gas. The latest edition contains data from 1986-2005. **68**

THE INSTITUTE FOR CHEMICAL EDUCATION (ICE)

Department of Chemistry University of Wisconsin—Madison 1101 University Avenue Madison, WI 53706-1396 (800) 991-5534 (608) 262-3033 Fax: (608) 265-8094

E-Mail: ICE@chem.wisc.edu Web: http://ice.chem.wisc.edu

A nonprofit educational organization providing chemistry resources and graduate-level workshops for kindergarten through grade 12 teachers to better integrate hands-on chemistry into their classrooms.

Provides chemistry education materials and workshops to kindergarten through grade 12 teachers throughout the world. The publications, kits, and workshops are designed to help teachers include hands-on science activities in their everyday classrooms.

ICE's *Topics in Chemistry* series provides background chemical and environmental information on everyday topics. Topics include: *Acid*

Rain—a brief history of acid precipitation; the sources of gases that cause acid rain and their conversion to acid in the atmosphere; details of the effects of acid precipitation on the environment; and available alternatives to reduce emissions that contribute to acid rain. Acid Rain, Experimental Supplement—five experiments showing the effects of acid rain on the environment, using easy-tofind materials; notes on presentation and curriculum integration are included. The Hole in the Ozone Layer—the chemistry, uses, and importance of ozone and chlorofluorocarbons; a history of theories involving their interactions in the atmosphere; the effect of ozone depletion on life; examination of changes in public policy; and the response of industry. Nanocrystaline Solar Kit—enough materials to make five solar cells (most of the materials can be reused) and a booklet with information on the origins of photosynthesis, use of fossil fuels and renewable energy sources and the effects on the environment. The solar cells use natural dyes from berries and a common paint pigment to generate electricity from light. The booklet contains detailed laboratory directions for assembling a solar cell and circuit set-ups to measure the electrical output of the cell. 69

INTERSTATE OIL AND GAS COMPACT COMMISSION

900 N.W. 23rd St. Oklahoma City, OK 73105 (405) 525-3556

Fax: (405) 525-3592

E-Mail: erica.smith@iogcc.state.ok.us

Web: www.iogcc.state.ok.us

The IOGCC is a multi-state government agency that champions the conservation and efficient recovery of domestic oil and natural gas resources while protecting health, safety and the environment. Established in 1935, it is the oldest, largest and most effective interstate compact in the nation.

The IOGCC publishes both technical and non-technical information on issues related to the production of natural gas and crude oil onshore the United States. The website includes information on careers in professions important to the vitality of the U.S. oil and gas industry; the importance of research and development in exploration, production and conservation; statistics and production information from low-volume wells that contribute significantly to the nation's energy supply; and various position statements reflected in resolutions adopted by the organization. A complete catalog of information is online at www.iogcc.state.ok.us. 70

JEA

21 West Church Street Jacksonville, FL 32202 (904) 665-6000 Fax: (904) 665-7386 E-Mail: smitrh@jea.com Web: www.jea.com

JEA is the eighth largest municipal utility in the country, providing electric, water, and sewer services to its customers. The JEA electric system currently serves more than 360,000 customers in Jacksonville and parts of three adjacent counties. JEA's water system serves more than 240,000 water customers and 186,000 sewer customers, or more than 80 percent of all water and sewer utility customers in northeast Florida.

JEA provides free energy, sewer and water educational booklets to schools within the JEA service area. Services include student and teacher materials for kindergarten through grade 12; speakers; teacher workshops and programs with affiliates Tree Hill Nature Center and the JEA Science Theatre and AquaExpo at the Museum of Science and History. This exhibit is made up of two parts - the JEA Science Theatre and the AquaExpo. Kids visiting the theatre will participate in interactive science shows and learn about scientific theories as they relate to electricity and electrical safety. The AquaExpo focuses on the scarce and precious nature of water and how we can do our part to conserve it. 71

JOHNSON CONTROLS, INC.

Academy of Energy Education 507 East Michigan Street Milwaukee, WI 53202 (414) 524-5574 Fax: (414) 347-0221

E-Mail: michelle.l.tanem@jci.com Web: www.johnsoncontrols.com

Johnson Controls is a global leader in interior experience, building efficiency and power solutions. The company provides innovative automotive interiors that help make driving more comfortable, safe and enjoyable. For buildings, it offers products and services that optimize energy use and improve comfort and security. Johnson Controls also provides batteries for automobiles and hybrid electric vehicles, along with systems engineering and service expertise.

Offers, in partnership with the National Energy Foundation, a curriculum-enhancing program that promotes energy education in kindergarten through grade 12-plus and expands into a school-to-work transition experience. Designed to encourage students to explore energy usage and its impact on the environment, the Academy of Energy Education programs include: *Energy Fun* for kindergarten through grade 3; *Energy Fundamentals* for grades 4 through 6; *Energy Action Patrol* for grades 5 through 8; *Energy Action Technology* for grades 9 through 12. For high school students, the Academy features career exploration. College students can participate in externships in exchange for college credits granted by Utah State University. For more information, call your local Johnson Controls office or (888) 214-0916. 72

KEEP AMERICA BEAUTIFUL, INC.

1010 Washington Boulevard Stamford, CT 06901 (203) 323-8987 Fax: (203) 325-9199

E-Mail: info@kab.org Web: www.kab.org

Keep America Beautiful is the nation's largest nonprofit public education and community improvement organization whose network of more than 560 city, county, statewide, and international affiliates engages individuals in programs that prevent litter and reduce, reuse, recycle, and properly manage waste materials. Through partnerships and strategic alliances with citizens, businesses, and government, Keep America Beautiful programs motivate millions of volunteers annually to clean up, beautify, and improve their neighborhoods, creating safer and more livable community environments.

Offers educational resources for teachers and students to provide a balanced perspective of waste and the options for its management in clear and user-friendly formats. The classroom curriculum supplement *Waste In Place*, for grades kindergarten through 6, builds critical thinking, processing, and problem-solving skills through imaginative, hands-on lessons. Lessons can be taught individually or in sequence. Developed and field-tested by professional educators and waste experts, the curriculum supplement is being used nationwide by thousands of teachers to influence positive behavior, foster social responsibility and respect for the environment, and enrich the learning experience. Learn more about Keep America Beautiful at *www.kab.org*.

In addition, Keep America Beautiful recently launched the website, *Clean Sweep U.S.A.* (www.kab.org/cleansweepusa), created through a grant from the U.S. Department of Education. The website shows six in-class lessons, which provide teachers with tips for web-directed research and class projects. *Clean Sweep* offers 22 web-based projects that require students to examine waste management issues at the national, state and local levels. All lessons on the website include two hands-on activities that focus on critical problem-solving, and each activity is supported by background information that correlate to *Guidelines for Excellence* from the North American Association for Environmental Education. 73

KIDWIND PROJECT

2093 Sargent Avenue St. Paul, MN 55105 (781) 354-2452

Fax: (208) 485-9419 Web: www.kidwind.org E-Mail: michael@kidwind.org

The KidWind Project is a team of teachers, students, engineers and practitioners exploring the science behind wind energy in classrooms around the US. Our goal is to introduce as many teachers and students as possible to the elegance of wind power through hands-on science activities that are challenging, engaging and incorporate science standards. While improving science education is our main goal, we also aim to help schools become important resources for students, and the general public, to learn about and see wind energy in action.

The KidWind Project website contains detailed information on wind energy, downloadable lesson plans, PowerPoint presentations, movies, animations in addition to kits and materials to build classroom sized wind turbines. 74

KISSIMMEE UTILITY AUTHORITY (KUA)

Office of Corporate Communications P.O. Box 423219 Kissimmee, FL 34742-3219 (407) 933-7777

Toll-free: (877) 582-7700 Fax: (407) 933-1761 E-Mail: cgent@kua.com Web: www.kua.com

Florida's sixth largest municipally owned utility providing electric, water, and telecommunication services to 170,000 residents in five Central Florida counties.

Provides free energy educational resources (coloring books, booklets, calendars, posters, kits, audiovisual materials, etc., for use in kindergarten through grade 12) to schools **within the KUA service area**. Services include student and teacher materials, speakers' bureau, power plant and energy control center tours. A free color brochure highlighting the services and materials is available upon request. **75**

LEARNONLINE, INC.

Thomas H. Frye Jr. 5286 Villa Mallorca Place Camarillo, CA 93012 -5329 (805) 383-3640

Fax: (805) 985-8541

E-Mail: tomfrye@learnonline.com Web: www.learnonline.com

Founded in 2002, LearnOnLine, Inc., a California for-profit company, is focused on project-based learning using the Internet and World Wide Web for courseware content and student/teacher collaboration. In project-based learning, students work in teams to explore real-world problems and create presentations to share what they have learned.

LearnOnLine continues to develop the *Renewable Energy Education Lab (REEL Power) Project*, which is designed as a K-12 and community college teaching aid offering hands-on techniques for learning math and science using renewable energy. *REEL Power* encourages students to learn to apply the math and science they are studying to simulated real-world renewable energy power generation systems. **76**

MIDWEST ENERGY EFFICIENCY ALLIANCE

645 N Michigan, Suite 990 Chicago, IL 60611 (312) 587-8390 www.mwalliance.org

The Midwest Energy Efficiency Alliance (MEEA) is a collaborative network whose purpose is to advance energy efficiency in the Midwest in order to support sustainable economic development and environmental preservation.

MEEA administers the Lights for Learning Program, a school fundraiser, which currently takes place in Illinois, and may expand to other Midwest states in the near future. MEEA also offers several rebates throughout the year on ENERGY STAR qualified products. Check for updates at www.mwwalliance.org. 77

MIDWEST RENEWABLE ENERGY ASSOCIATION

7558 Deer Road Custer, WI 54423 (715) 592-6595 Fax: (715) 592-6596

E-Mail: info@the-mrea.org Web: www.the-mrea.org

A grassroots private nonprofit educational organization dedicated to promoting renewable energy and energy efficiency through education and demonstration.

Offers special workshop series for teachers, children, and the general public. Hosts the Renewable Energy and Sustainable Living Fair every June in Central Wisconsin. This annual event features workshops, exhibits, speakers, a model home, renewable energy home tours, alternatively fueled vehicle showcase, entertainment, and more. Offers year-round workshops on renewable energy and energy efficiency. *ReNews*, a quarterly newsletter, is available for a minimal fee. **78**

MINERAL INFORMATION INSTITUTE (MII)

505 Violet Street Golden, CO 80401 (303) 277-9190 Fax: (303) 277-9198 E-Mail: mii@mii.org

Web: www.mii.org

A nonprofit educational organization providing free resources and contacts to support classroom teachers.

Provides mineral and energy information at no cost to classroom teachers. Companies and other organizations may purchase MII materials at a nominal cost. Materials include videos, posters, lessons, and activities. The purpose of all materials is to increase awareness that everything we have and everything we use comes from our natural resources. MII sponsored and continues to support revisions to the high school integrated science textbook, *Global Science: Energy, Resources, Environment.* Teachers should write on school letterhead to request free materials. Virtually all of MII's materials can be downloaded for free from the website. 79

MINNESOTA DEPARTMENT OF COMMERCE— ENERGY DIVISION

85 7th Place East, Suite 500 St. Paul, MN 55101 (651) 296-5175 1 (800) 657-3710 Fax: (651) 297-7891

E-Mail: energy.info@state.mn.us Web: www.commerce.state.mn.us

The State Energy Office provides a broad range of energy information to the general public. The State Energy Office also promotes energy efficiency and sustainable energy resource and technology development in Minnesota.

Provides a wide range of energy conservation materials for the general public. Educational materials are targeted to residential, commercial, and industrial audiences. This information is designed to encourage specific conservation practices and to increase public awareness of energy and energy-related issues. Some of these free materials may be appropriate for students in grades 6 through 12. The Department's Energy Information Center has a full-time staff to provide individualized responses to consumers' energy-related questions. All printed materials and software are available through our website. 80

National Aeronautics and Space Administration (NASA)

300 E Street, S.W., Code N Washington, DC 20546-0001 Web: http://education.nasa.gov

A Federal agency with programs to advance the nation's education goals through expanding and enhancing the scientific and technological competence of all students and educators.

NASA's Education Home Page serves as a cyber-gateway to information regarding educational programs and services offered by NASA for educators and students across the United States. This high-level directory of information provides specific details and points of contact for all of NASA's educational efforts and Field Center offices. Educators and students utilizing this site will have access to a comprehensive overview of NASA's educational programs and services, along with a searchable program inventory that has cataloged NASA's educational programs. NASA's online home pages, offered by NASA's four areas of research and development, include the Exploration Systems, Space Operations, Science, and Aeronautics Research. 81

NATIONAL ARBOR DAY FOUNDATION

211 N.12th Street Lincoln, NE 68508 (402) 474-5655 Fax: (402) 474-0820

E-Mail: Education@arborday.org

Web: www.arborday.org

A nonprofit education organization dedicated to tree planting, conservation, and environmental stewardship.

Provides free information on tree planting and care, including correctly planting windbreaks and shelterbelts, in the *Conservation Trees* and *Trees for America* brochures, as well as the *Celebrate Arbor Day Guidebook*. For elementary and middle school-aged children, the National Arbor Day Foundation also has available, for a nominal fee, curriculum kits that stress the contributions made by trees and the importance of environmental stewardship.

For samples of the free educational materials and to receive information about the curriculum kits, write or call to request an *Educational Resource Guide*. **82**

National Association of Conservation Districts (NACD)

509 Capitol Court, N.E. Washington, DC 20002-4949 (202) 547-6223

Fax: (202) 547-6450 Web: www.nacdnet.org

A nongovernmental nonprofit organization representing nearly 3,000 soil and water conservation districts and their state associations in the 50 states and U.S. territories. NACD serves its member districts as one voice, utilizing the force of local initiative and self-government, in the conservation and development of natural resources on America's private working land.

Sponsors conservation education recognition programs for primary and secondary school teachers, as well as a poster contest for students. Publishes and sells educational materials about conserving soil, water and other natural resources. 83

NATIONAL BIODIESEL BOARD

P.O. Box 104898 Jefferson City, Missouri 65110-4898 (800) 841-5849

Web: www.biodiesel.org

The National Biodiesel Board (NBB) is the nonprofit trade association representing the biodiesel industry as the coordinating body for biodiesel research and development in the U.S. The organization fills a vital role of public education for biodiesel, the fastest growing alternative fuel in the country. NBB is considered the leading source for biodiesel information in the U.S. State soybean commodity groups, who have funded biodiesel research and development programs for more than a decade, founded NBB in 1992. Since that time, NBB has developed into a comprehensive industry association, which coordinates and interacts with a broad range of cooperators including industry, government and academia. NBB's membership is comprised of state, national, and international feedstock and feedstock processor organizations, biodiesel suppliers, fuel marketers and distributors, and technology providers. NBB represents all feedstocks (sources for biodiesel).

To provide support to teachers and students wanting to learn more about biodiesel in the classroom, NBB, as part of a U.S. Department of Agriculture grant, partners with the National Energy Education

Development (NEED) Project to provide classroom activities, teacher training, and school district decision maker programs. 84

National Corn Growers Association (NCGA)

632 Cepi Drive Chesterfield, MO 63005 (636) 733-9004 Fax: (636) 733-9005

E-Mail: corninfo@ncga.com Web: www.ncga.com

A federation of 46 affiliated state corn grower organizations actively representing the interests of producers of the nation's top grain crop. Membership includes more than 32,000 growers in 48 states. NCGA's mission is to create and increase opportunities for corn growers.

The organization provides teachers with a downloadable web-based educational program, *Corn in the Classroom* that illustrates corn as a reservoir of energy and a renewable substitute for products made from expendable fossil fuels. Additionally, the NCGA website includes links to its affiliate state corn-growing organizations, many of which have online education programs. Also, *The World of Corn*, an annual resource publication, a statistical look at corn markets and trends, is available for download from the website. The publication, which is free up to 25 copies, can be requested by contacting the organization. Additional copies are \$3.00 per copy. **85**

NATIONAL COTTON COUNCIL OF AMERICA

Education Materials 1918 North Parkway Memphis, TN 38112 (901)274-9030 Fax: (901) 725-0510

Web: www.cotton.org

The National Cotton Council is a nonprofit commodity organization representing 25,000 producers and processors of raw cotton. The organization is dedicated to strengthening the cotton industry's ability to compete effectively and profitably in the raw cotton, oilseed, and manufactured product markets nationally and abroad.

The NCC provides a variety of downloadable and audiovisual materials on cotton (*www.cotton.org*), including a videotape about the highly successful and environmentally sound *National Boll Weevil Eradication Program*. The tape, primarily for grades 3

through 12, includes a 3-minute program aired on the *Today's Environment* television series on the Discovery Channel. The eradication program uses an integrated approach for eliminating one of the U.S. cotton industry's major pests, such as plowing down cotton stalks after harvest, the strategic placement of traps baited with pheromone (sex attractant), and the judicious application of crop protection products. **86**

NATIONAL COUNCIL ON ECONOMIC EDUCATION

1140 Avenue of the Americas New York, NY 10036 (800) 338-1192 Fax: (212) 730-1793

E-Mail: sales@ncee.net Web: www.ncee.net

The National Council on Economic Education is a nonprofit organization dedicated to educating students in the principles of economics and personal finance. Visit our website or contact us for information on teacher resource manuals, student activity books, and curriculum development materials to assist educators in the K-12 classroom.

The following lessons are offered for a nominal fee. They can be reviewed on the website:

Economics and the Environment—Helps high school students understand the crucial relationship between activity and environmental protection. Activities include courses in environmental studies, economics, natural sciences, social issues, and global issues. Classroom-tested lessons give students insight into a variety of environmental issues. Students learn key concepts — how natural resources are used and why, at times, misused, and how future economic activity can provide for environmental protection, as well as for economic growth. Selected by World Wild Life and North American Association for Environmental Education as an exemplary resource to help teach about biodiversity.

Economics and the Environment EcoDetectives—Applying economic reasoning to environmental problems for middle school students. Students learn about protecting endangered species, recycling, and resource depletion. Students solve persistent environmental mysteries. Materials highlighted by California Integrated Waste Management Board and California Department of Education, together with the Acron Group.

Energy, Economics, and the Environment: Case Studies and Teaching Activities for Elementary School—challenges upper elementary students to analyze energy and environment issues from an economics perspective. Updated with current information, EEE gives teachers and students the knowledge and tools they need to analyze important energy and environment issues. Students will develop a basic understanding of concepts relating to economics, energy, and the environment; learn effective decision-making skills; and be involved in meaningful activities.

Energy, Economics, and the Environment: Case Studies and Teaching Activities for High School—challenges high school students to analyze energy and environment issues from an economics perspective. Updated with current information, EEE gives teachers and students the knowledge and tools they need to analyze important energy and environment issues. Students will develop a basic understanding of concepts relating to economics, energy, and the environment; learn effective decision-making skills; and be involved in meaningful activities.

The Great Economic Mysteries Book—Students in grades 9–12 solve engaging mysteries about environmental issues, natural resources, recycling, waste management, and government issues.

The Wide World of Trade—Through trade simulations and activities, students discover how scarce resources are allocated in order to provide goods and services. 87

NATIONAL ENERGY EDUCATION DEVELOPMENT— THE NEED PROJECT

8408 Kao Circle Manassas, VA 20110 (800) 875-5029 Fax: (800) 847-1820 E-Mail: info@need.org Web: www.need.org

A national network of students, educators, and business, government and community leaders dedicated to the design and delivery of comprehensive, non-biased kindergarten through 12th grade energy education curriculum.

By meeting local, state, and national education standards, NEED programs provide students and teachers an opportunity to learn about energy through hands-on science, math, drama, social studies, art, and music.

Student leadership initiatives encourage students to work with their peers, teachers, family, and community to design energy education programming for their region. The curriculum package is a six- to nine-week unit and is widely adopted for use in the classroom.

Memberships are available to educators for little or no cost, based on availability of sponsorship, from NEED's partners and sponsors. Participating educators receive the NEED Energy Kit with teacher guides to a variety of activities and a full portfolio of free items to complete their units based on their grade level. The materials include *Energy Infobooks* on the nation's leading energy sources; curriculum guides that help teachers plan comprehensive units to include the science of energy, energy sources, electricity, efficiency and conservation; and many evaluation/assessment and reinforcement options.

New this year is a process technology activity completed in partnership with the Center for the Advancement of Process Technology to help students understand oil and natural gas exploration, production and refining.

An extensive selection of hands-on science kits to teach energy transformations, solar energy, energy efficiency, electricity, magnets, and hydrogen are available and often sponsored.

Workshops and conferences for teachers, students, and energy professionals are available throughout the year, and week-long summer training is offered annually. NEED's website has resources to teach an entire NEED unit available in PDF and other formats.

The extensive curriculum, including Science Fair Projects, Transportation Fuels activities, Biodiesel and Ethanol curriculum, Hydrogen activities, energy efficiency for schools and more are available from NEED's website, resource catalog, and at over 600 workshops each year. NEED's newsletter *Energy Exchange* and its career newsletter *Career Currents* are available on the website and via mail.

For information about NEED Project programs, go to www.need.org. Also visit our Energy Information Administration partnership project, the EIA Kid's Page, at www.eia.doe.gov/kids. 88

National Energy Foundation (NEF)

Resources for Education National Office 3676 California Avenue, Suite A117 Salt Lake City, UT 84104 (801) 908-5800 Fax: (801) 908-5400 E-Mail: info@nef1.org

E-Mail: info@nef1.or Web: www.nef1.org

A nonprofit educational organization providing educational resources and training services to educators.

Major initiatives include the *Igniting Creative Energy Challenge*, a national competition where K-12 students use their creativity to express their ideas related to being energy conscious. Entries include original art, music, literature, computer graphics, multimedia presentations, science projects, etc. NEF is also a Rebuild America strategic partner, working with school districts, state energy offices, and other partners nationwide to help bring down energy usage and costs at schools across the country. NEF continues to produce new energy-related instructional materials for K-12 teachers. New items include posters titled Electrical Generation, Renewable Energy Sources, Exploring Natural Resources and Their Uses, Oil, High Performance Schools, and Energy Management in and around Your School. NEF provides a wide array of posters, learning activity guides, videos, and instructional music that focus on energy. Other new items available currently include learning activities guides titled Energy Fun, Energy Fundamentals, and Energy Action Activities. NEF also distributes instructional materials nationwide through a "fulfillment" program with the natural gas industry, and the Foundation continues to provide in-service training support to school districts in many parts of the country. 89

NATIONAL GEOGRAPHIC SOCIETY

School Publishing

1145 17th Street, N.W. Washington, DC 20036 (800) 368-2728 Fax: (515) 362-3366

Web: www.ngschoolpub.org

A nonprofit organization.

Publishes supplemental curriculum materials for kindergarten through 12th grades on electricity, energy efficiency/energy conservation, environment, geosciences/earth sciences, recycling, and water. Materials include *GeoKits* (thematic, multimedia teaching kits); *Windows on Literacy* and *Reading Expeditions* nonfiction books; videos; atlases; *PicturePack* transparency sets; and *PictureShow* CD-ROMs. Free catalogs are available upon request at (800) 368-2728. Free lesson plans and resources, as well as additional information about products, are offered at *www.ngschoolpub.org* and *ww.nationalgeographic.com/education*. **90**

THE NATIONAL HYDROPOWER ASSOCIATION (NHA)

One Massachusetts Avenue, N.W., Suite 850 Washington, DC 20001 (202)682-1700 Fax: (202) 682-9478

E-Mail: help@hydro.org Web: www.hydro.org

An association dedicated to building greater public awareness of the advantages of hydropower as our nation's most plentiful renewable energy source.

Offers a variety of materials on the production of hydropower, hydro's economic and environmental benefits, and the issues facing the hydropower industry. Posters and educational curriculum are available at nominal cost. An annual conference is held every spring. NHA works closely with the Hydro Research Foundation, the U.S. Hydropower Council for International Development, and other organizations dedicated to hydropower and other forms of renewable energy. Staff is available to answer specific questions and to help identify sources of additional information. 91

NATIONAL OILHEAT RESEARCH ALLIANCE

600 Cameron Alexandria, VA 22314 (703) 340-1660 Fax: (703) 340-1661

E-Mail: info@nora-oilheat.org Web: www.oilheatamerica.com

An independent, nonprofit organization dedicated to oilheating.

Publishes a variety of books, reports, consumer guides, and fact sheets. Material covers energy use and efficiency, technical papers, and educational materials for technical training. Prepares video educational materials concerning the oilheating industry. There is a catalog of materials available at www.norastore.org. All materials are distributed at the cost of production. 92

NATIONAL PROPANE GAS ASSOCIATION (NPGA)

1150 17th Street, N.W., Suite 310 Washington, DC 20036-4623 (202) 466-7200 Fax: (202) 466-7205

E-Mail: info@npga.org Web: www.npga.org

NPGA is the national trade association of the propane industry.

Propane Education & Research Council (PERC)

1140 Connecticut Ave., N.W., Suite 1075 Washington, DC 20036 (202) 452-8975

Fax: (202) 452-9054

E-Mail: propanesupport@propanecouncil.org

Web: www.usepropane.com

PERC promotes the safe, efficient use of propane as a preferred energy source. Fact sheets, consumer safety brochures with a scratch and sniff feature, coloring books, and industry safety videos are available online at www.propanecatalog.com. Additional information is available on both organizations' websites. Homeowners can compare the cost of energy prices on www.usepropane.com. 93

NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

Youth Programs 4301 Wilson Boulevard Arlington, VA 22203 (703) 907-5500

E-Mail: nreca@nreca.coop

Web: www.nreca.org or www.nreca.coop

A service organization representing the nation's more than 900 nonprofit consumer-owned cooperative electric systems, which provide electric service to more than 36 million people in 47 states.

NRECA publishes both a weekly newspaper and a monthly magazine covering electric co-op and industry issues. Congressional testimony, regulatory filings, press releases, and other public records are available online on the website at www.nreca.coop. 94

National Science Teachers Association (NSTA)

1840 Wilson Boulevard Arlington, VA 22201 (800) 277-5300 (888) 433-0526

E-Mail: pubsales@nsta.org Web: http://store.nsta.org

The largest science teachers association in the United States, NSTA is working to improve the quality of science education nationwide.

Publishes resources for K-12 science teachers. A free book catalog is available upon request. Call 800-277-5300. **95**

NATIONAL WILDLIFE FEDERATION

11100 Wildlife Center Drive Reston, VA 20190 (800) 822-9919 Fax: (703) 438-6468

E-Mail: wildlife@nwf.org Web: www.nwf.org

The nation's largest nonprofit conservation education organization.

The mission of the National Wildlife Federation (NWF) is to inspire Americans to protect wildlife for our children's future. NWF publishes the magazines *Wild Animal BabyTM, Your Big Backyard,* and *Ranger Rick* for children, and *National Wildlife*; produces a free monthly electronic educator newsletter including activities and tips for creating Schoolyard Habitats; produces curriculum units and facilitates training workshops around the country and produces online resources, such as the *Ranger Rick Educators' Guide* for use with *Ranger Rick* magazine in the classroom. Visit *www.nwf.org/education* for more information and to receive an educator information packet. **96**

Natural Gas Supply Association (NGSA)

805 15th Street, N.W., Suite 510 Washington, DC 20005 (202) 326-9300 Fax: (202) 326-9330

E-Mail: Scrockett@ngsa.org

Web: www.ngsa.org or www.naturalgas.org

A national, nonprofit trade association representing integrated and independent companies that produce and market domestic natural gas. Established in 1965, NGSA encourages expanded use of natural gas and regulatory and legislative actions that foster competitive markets.

All materials provided by NGSA are available at www.ngsa.org, which features information about public policy issues of concern to natural gas consumers, as well as to those employed in and interested in the industry. Issues covered include supply issues (exploration and production, challenges and barriers to producing natural gas), issues related to the Federal Energy Regulatory Commission (including the transmission and gathering of natural gas and the rates and regulations of interstate natural gas pipelines), distribution issues (the market pressure on natural gas prices and how it affects the retail price of natural gas), and demand issues (environmental regulations that prevent natural gas from being used to improve air quality and the use of natural gas to generate electricity). An annotated list of natural gas associations is included. NGSA also provides an educational primer about natural gas and the natural gas industry at www.naturalgas.org. 97

NEBRASKA PUBLIC POWER DISTRICT

Energy Education Team P.O. Box 499 Columbus, NE 68602-0499 (402) 586-5960 Fax: (402) 586-5166

E-Mail: webeditor@nppd.com

Web: www.nppd.com

A public utility servicing the electric needs of its customers, with a chartered territory including all or parts of 91 of Nebraska's 93 counties.

Provides educational services free of charge to schools and civic groups in the utility's service area. Services include electrical safety assemblies, *Louie the Lightning Bug* presentations, classroom programs and speakers, films/videos, tours of power plants and

other facilities, and literature for students and teachers in all grades. Also provides information on Nebraska Public Power District's Environmental and Energy management/conservation issues.

Materials are available upon request for groups and individuals in the utility's service area. 98

New York State Energy Research and Development Authority (NYSERDA)

17 Columbia Circle Albany, NY 12203-6399 (518) 862-1090, ext 3303 (800) 658-5753 or (866) NYSERDA, ext 3303 Fax: (518) 862-1091

E-Mail: tat@NYSERDA.org or Trogers@NEED.org

Web: www.GetEnergySmart.org

NYSERDA's holistic approach to energy-efficient schools invests in students, teachers, staff and school buildings and vehicles. Our goal is to create energy-aware students, teachers and facility managers, while creating an efficient, healthy and safe learning environment.

The Energy Smart Students Program provides K-12 curriculum materials in energy literacy, energy efficiency at home and school, and energy conservation. Materials are classroom-tested and aligned with New York State Learning Standards. Training workshops introduce teachers to the lesson plans and curriculum; free curriculum is available to teachers attending the workshops. A summer conference trains teachers to be Energy Educators for the program. Teachers may register for workshops and also download free material from NYSERDA's website at www.GetEnergySmart.org. Mini-grants for teachers are available along with a free program newsletter: Energy Smarts.

School Power...Naturally provided working photovoltaic and data collection systems to 50 New York schools. Solar data collected from these 50 schools can be used in conjunction with 60 interdisciplinary lessons for students in grades 5-12. Both the solar data and the lessons are **free** and available to everyone at *www.SchoolPowerNaturally.org*.

Energy Smart Schools provides objective technical and financial assistance to eligible K-12 schools in New York. NYSERDA assists New York's school administrators and facility managers to build and maintain school buildings that provide a safe, healthy and energy-efficient environment for learning. More information is available at www.nyserda.org/programs/school/. 99

New York State Geological Survey/State Museum

3140 Cultural Education Center Albany, NY 12230 (518) 474-5816 Fax: (518) 486-2034

E-Mail: wkelly@mail.nysed.gov

Web: www.nysm.nysed.gov/research/geology/

The mission of the New York State Geological Survey is to make services available to all agencies and people of New York State; conduct geological research; and cooperate with agencies of other states, federal government, educational institutions, and industry in the discovery, analysis, and dissemination of geologic information.

Provides free educational leaflets for both students and teachers for kindergarten through grade 12. Conducts workshops and classes in geological sciences through the New York State Museum in Albany, New York. Produces geological maps and reports for both professionals and the general public. A catalog of publications is available at www.nysm.nysed.gov/publications/geolpub.html. 100

THE NOODLEHEAD NETWORK

10 Colbert Street Essex Junction, VT 05452 (800) 639-5680 or (802) 862-8675 Fax: (802) 764-5848

E-Mail: kidpower@noodlehead.com

Web: www.noodlehead.com

An educational video producer and distributor that creates videos from a kid's viewpoint.

Produces and distributes educational videos for kids. Specializes in energy-related videotapes for utilities and the kindergarten through grade 12 school market. Kids play an integral role in the creation of each tape — from scriptwriting to acting to editing. Titles include: Simple Things You Can Do To Save Energy, Simple Things You Can Do To Save Energy In Your School, and KnuckleHead's Electrical Safety Series. Videos are available for purchase in VHS format or with duplication and broadcast rights. Free catalogs and preview copies of the videos are available upon request. 101

North Carolina Solar Center

Box 7401 North Carolina State University Raleigh, NC 27695 (919) 515-7085 (800) 33NC-SUN (for North Carolina only)

Fax: (919) 515-5778 E-Mail: ncsun@ncsu.edu Web: www.ncsc.ncsu.edu

The North Carolina Solar Center serves as the state's clearinghouse for solar energy programs, research information, education and technical assistance.

The North Carolina Solar Center is affiliated with the College of Engineering at North Carolina State University. The Center seeks to advance the use of solar energy through information and education programs and services. The NCSU Solar House, which is the education headquarters for the Center, is open to the public and provides educational resources for teachers and students. A computer displaying renewable energy CDs and other Solar Center resources is located in the Solar House demonstration and library area. Adjacent to the Solar House is the Alternative Fuels Garage, where ongoing research is being done on Photovoltaics, Hydrogen and Bio-Fuels. Our website provides a listing of our programs, workshops, special events, state and federal tax credits, fact sheets and other Solar Center resources. 102

NORTHEAST SUSTAINABLE ENERGY ASSOCIATION (NESEA)

50 Miles Street, Suite 3 Greenfield, MA 01301 (413) 774-6051 Fax: (413) 774-6053 E-Mail: edu@nesea.org

Web: www.nesea.org

The nation's leading regional education and advocacy association that aims to accelerate the deployment and use of renewable energy, green buildings, and energy efficiency. NESEA produces major events that inspire and motivate large numbers of people to get involved and make a difference. Focus is on the northeastern United States (from Washington, DC to Maine).

Offers educational programs and resources that enable teachers and students to explore the science, technology, and potential of lowpolluting, environmentally friendly, and secure energy options such as renewably-produced electricity, clean transportation fuels, alternative transportation systems, and healthy, efficient buildings. Several free publications are available from the website or can be ordered for the cost of shipping and handling. These include three middle school lesson sets, *Getting Around Without Gasoline*, *Getting Around Clean & Green*, and *Travel Solutions to Global Warming*; a high school unit on alternative fuels, *Cars of Tomorrow and the American Community*; and several elementary-level resources, *Choose Your Future Adventure Game, Trip Tally: Discovering Environmental Solutions*, and *Totally Tree-Mendous Activities*.

NESEA also develops resources for other organizations. For example, a middle school science unit on transportation and global warming and lessons that use mini solar-electric panels for hands-on inquiry of scientific principals. Both can be accessed from www.nesea.org. In addition, NESEA runs educational programs for teachers and students as follows:

- 1. Northeast Regional Junior Solar Sprint that invites middle school students to participate in a miniature solar car competition run by area coordinators from the mid-Atlantic, New England, and New York States;
- 2. Tour de Sol: The Great American Green Transportation Festival, the clean-vehicle championship that invites high school students to build an electric or hybrid vehicle and enter the event and also invites students of all ages to take a field trip to the event and receive a guided tour of the vehicles; and
- training workshops, conferences, and summer institutes for teachers. 103

NORTHEAST UTILITIES

Community Relations-Educational Programs P.O. Box 270 Hartford, CT 06141-0270 (800) 286-5000, ext. 4105 Fax: (860) 721-4331

Web: www.nu.com

An investor-owned electric utility serving Connecticut, western Massachusetts, and New Hampshire.

Conducts electrical school safety programs in all fourth/fifth grade classrooms in areas served by Northeast Utilities system companies. Booklets and posters on electric safety are available to students and organizations in areas served by Northeast Utilities. Approximately 35,000 students are reached each year. *Money Matter\$* workshops and conservation workshops are presented to customers in Northeast Utilities service area to assist customers with bill payment assistance and conservation efforts. Additional pamphlets on hypothermia, heat stress, home safety, energy conservation and weatherization are also available to customers and organizations in areas served by Northeast Utilities System.

Operating Companies of the Northeast Utilities System:

The Connecticut Light and Power Company (CL&P)

P.O. Box 270 Hartford, CT 06141-0270 Web: www.cl-p.com Western Massachusetts Electric Company

WMECO Customer Service Center

P.O. Box 2010 West Springfield, MA 01090-2010 Web: www.wmeco.com

Public Service of New Hampshire (PSNH)

P.O. Box 330 Manchester, NH 03105-0330 Web: www.psnh.com

Yankee Gas Service Company (Yankee Gas)

P.O. Box 2249 Hartford CT 06145

Web: www. yankeegas.com 104

Nuclear Energy Institute (NEI)

1776 I Street, N.W., Suite 400 Washington, DC 20006-3708 (202) 739-8000 Fax: (202) 785-4019

E-Mail: publications@nei.org

Web: www.nei.org

The nuclear energy industry's Washington-based policy organization.

Provides a variety of publications on nuclear energy issues, including the benefits of electricity generated by nuclear power, public opinion data on nuclear energy, and statistical data on nuclear energy. Complimentary packets of material on nuclear energy are available for students and teachers. For more information, contact the NEI Publications Office. **105**

Nuclear Information and Resource Service (NIRS)

6930 Carroll Avenue, Suite 340 Takoma Park, MD 20912 (301) 270-6477 Fax: (301) 270-4291

E-Mail: nirsnet@nirs.org Web: www.nirs.org

A nonprofit information and networking center for citizens and environmental organizations concerned about nuclear power, radioactive waste, radiation, and sustainable energy issues.

Furnishes fact sheets on nuclear waste, safety, general information, and alternative energy. Single copies are available. The NIRS Energy Audit Manual: How to Audit Campus & City Buildings is available for postage and handling; includes chapters on lighting efficiency, heating, and air conditioning designed to help students calculate energy and cost savings for their school (high school and above). Current information on the nuclear industry and events is available, as well as a catalog of related articles. 106

OFFSHORE ENERGY CENTER

200 North Dairy Ashford, Suite 6220 Houston, TX. 77079 (281) 679-8040 Fax: (281) 544-2441

E-Mail: oeceducation@aol.com Web: www.oceanstaroec.com

The Offshore Energy Center is a nonprofit organization dedicated to expanding the awareness of the vast energy resources beneath the world's oceans and to chronicling the unique heritage and technological accomplishments of the industry that discovers, produces, and delivers these resources in a safe and environmentally responsible way. The Offshore Energy Center is committed to providing education about the offshore energy industry through education outreach programs, chronicling offshore history, and operating the:

Ocean Star Offshore Drilling Rig and Museum

Pier 19 Galveston, TX (409) 766-STAR Fax: (409) 766-1242

E-Mail: osmuseum@aol.com

The Ocean Star is a retired offshore jack up rig that has been refurbished as a museum, enabling visitors to tour three floors of more than 70 models, interactive displays, and imaginative exhibits telling the amazing story of the offshore oil and gas industry. While enjoying the comfort, ambiance and accessibility of a quality museum, the Ocean Star offers the unique opportunity to learn about the inner workings of an offshore rig through viewing educational exhibits about the sciences and technology involved in the offshore industry. Group tour discounts are available. For Grades 3-12 student field trips, a selection of educational presentations aligned to the Texas Essential Knowledge and Skills (TEKS) about various offshore topics are available. Through an active weekend schedule, the museum offers a Guest Speakers Series on the first Saturday of the month, followed by its Family Day Program on the second Saturday of the month, Boy and Girl Scout Badge Days on the third Saturday of the month, and an Overnight Program on the 4th weekend of the month. The museum is open daily 10 a.m. to 5 p.m. Closed Thanksgiving and Christmas.

Through its education outreach program, the Offshore Energy Center offers a wide array of energy education for teachers and students in Grades K–12. Teacher workshops are offered for *Project*

E³: Expanding Energy Education, the Knowledge Box, and the Playing with Petroleum Kit. Aligned with National Education Standards and designed for Grades K-12, *Project E*³: *Expanding* Energy Education is a multi-disciplined, hands-on discovery curriculum of 24 activities based on energy-related themes. The Knowledge Box, a classroom exhibit showcasing the many aspects of the oil and gas industry through interactive lessons and handson activities, is available free on loan for Grades 6-12 teachers who have completed the Project E³ training. The Playing with Petroleum Kit, a classroom exhibit of age-appropriate materials and hands-on activities about energy for Grades K-5, is available free on loan to teachers who have completed the *Project E*³ training. *The Science of* Offshore Drilling: Earth's Energy, a student curriculum designed to introduce students in Grades 5-12 to the scope of science associated with offshore energy is available for classroom use through the Houston Chronicle's Chronicle in Education Program. 107

OHIO ENERGY PROJECT (OEP)

670 Enterprise Drive, Suite A Lewis Center, OH 43035 (614) 785-1717

Fax: (614) 785-1731

E-Mail: oep@ohioenergy.org Web: www.ohioenergy.org

A nonprofit energy education organization whose mission is to promote an energy-educated society and to facilitate youth leadership through effective partnerships with schools, businesses, government, and communities. OEP provides the complete energy education picture through hands-on, minds-on activities for teachers and students.

With a philosophy of *Kids Teaching Kids*, OEP facilitates workshops for elementary and middle school students led by high school student teams. These workshops focus on current, interdisciplinary, unbiased energy information and hands-on, authentic activities. Other workshop opportunities include: teacher professional development workshops including four-day Energy Sources Tours of Ohio's energy sites; customized energy education programs featuring the science of energy; and new activities covering fuel cells and solar and nuclear energy.

An affiliate of the National Energy Education Development (NEED) Project, OEP offers a free partnership for Ohio educators. This partnership provides energy education materials, access to most workshops, and periodic updates on OEP information. 108

OHIO OIL & GAS ENERGY EDUCATION PROGRAM (OOGEEP)

1718 Columbus Road, S.W. P.O. Box 187 Granville, OH 43023-0535 (740) 587-0444

Fax: (740) 587-0446 E-Mail: rreda@ooga.org Web: www.oogeep.org

The Ohio Oil and Gas Energy Education Program (OOGEEP) is a nonprofit educational program funded by Ohio's oil and gas producers and royalty owners through a voluntary assessment on all crude oil and natural gas produced in Ohio.

OOGEEP offers the following materials: Educational posters— Productions of Oil and Gas, an Ohio Oil and Gas Activity Map and Information, and a safety poster; educational packets, including hands-on activities; puzzles; free teacher workshop materials; Science Fair information; and videos. For information on these materials, go to www.oogeep.org/EdMaterials/default.htm. 109

OKLAHOMA ENERGY RESOURCES BOARD

3555 N.W. 58th, Suite 430 Oklahoma City, OK 73112 (800) 664-1301 (405) 942-5323

Fax: (405) 942-3435 Web: www.oerb.com

An oil and natural gas industry-funded state agency dedicated to energy education and restoring environmentally damaged, orphaned and abandoned oil and natural gas production and exploration sites.

Provides to Oklahoma educators, free of charge, the following: teachers' guides with classroom activities for *Fossils to Fuel* and *Petro Active*, two science-based energy curriculum units for elementary and middle schools. *Core Energy* high school curriculum offers teachers' guides covering the disciplines of math, science, social studies and language arts. Also sponsors one-day training in the use of the curricula and reimburses school districts for substitute pay during workshops. Offers, free of charge, a statewide coordinated program entitled *Petro Pros (Petroleum Professionals in the Classroom)*. This interactive hands-on program is presented by oil and natural gas industry volunteers who bring energy facts to the classroom in 45-minute presentations.

Also free of charge is an oil field safety video, What's the Risk?, available in VHS and DVD format. Geared toward elementary and middle school students, the video explains the dangers of playing around oil field equipment. It features extreme stunts by BMX and skateboard riders. What's the Risk? safety folders, which include tips on well site safety, are available for classroom use.

The Energy Behind Finding Energy, a two-part video that explains the various stages of petroleum production, is free to educators. Produced in conjunction with Marathon Oil, the video includes information on exploration, drilling, extraction and refining. Copies are available in VHS and DVD format. 110

OMAHA PUBLIC POWER DISTRICT

Consumer Relations Department 444 South 16th Street, 3E/EP1 Omaha, NE 68102-2247 (402) 636-3751 Fax: (402) 636-3922

E-Mail: sjefferson@oppd.com

Web: www.oppd.com

A public utility serving the electric needs of customers in eastern Nebraska.

Provides educational services free of charge to schools in the utility's service area. Services include classroom programs and speakers, career planning information, films/videos, tours of power plants and other facilities, and literature for students and teachers in all grades. Also provides information on Omaha Public Power District's Buddy Alert and Safetysaurus Programs. All materials are available upon request. 111

PACIFIC GAS & ELECTRIC COMPANY (PG&E)

Customer Energy Management Department 245 Market Street, Room1017D, Mail Code N6G P.O. Box 770000 San Francisco, CA 94177 (415) 972-5416 Fax: (415) 973-4961

E-Mail: PMW2@pge.com Web: www.pge.com

An investor-owned utility serving more than four million residential customers.

Provides the Energenius Educational Series, several complete curriculum programs focusing on energy efficiency and gas and electric safety education for kindergarten through grade 8. Curriculum materials are provided at no cost to schools within the service territory. Energenius Educational Series comes complete with teacher curriculum guide and student activities for each student. The core of the series consists of multi-lesson classroom programs designed to engage students in active, age-appropriate learning and to relate to pace-setting curriculum standards such as those of the California Content Standards. Games and activities can be used inside or outside the classroom and involve both young people and their families. Order materials by going to PG&E's website and click on the icon for teachers. 112

PEPCO

701 Ninth Street, N.W. Washington, DC 20068 (202) 833-7500

Web: www.pepco.com

Pepco is a regulated electric utility that provides transmission and distribution services and is a wholly owned subsidiary of Pepco Holdings, Inc. Pepco delivers electricity at regulated rates to more than 700,000 customers in Washington, DC, and major portions of Prince George's and Montgomery counties in suburban Maryland.

Provides speakers for classroom presentations on the importance of electricity, electricity as an energy resource, electric safety, how electricity is delivered to homes, transmission and distribution lines, and energy management to schools in Pepco's service area. Pepco's website — www.pepco.com — provides a wealth of information and customer services online. A popular feature is Megawatt U, a fun site that teaches children about electricity and electrical safety. There's even a section with safety tips for adults. 113

POLYSTYRENE PACKAGING COUNCIL (PSPC)

1300 Wilson Boulevard Arlington, VA 22209 (703) 741-5649 Fax: (703) 741-5651

Web: www.polystyrene.org

The Polystyrene Packaging Council (PSPC) is a business unit of the American Plastics Council. PSPC represents the major resin suppliers of polystyrene and the fabricator companies that use the resin to manufacture polystyrene products. Working in concert with its global partners, the PSPC's mission is to promote and defend the polystyrene industry by providing a forum to address issues of importance to the industry; to keep markets free by eliminating or amending anti-PS legislation/regulation; and to serve as the industry's voice to select audiences and the general public.

Offers general information brochures on polystyrene and solid waste management, which are available online at www.polystyrene.org. 114

Propane Education & Research Council (PERC)

1140 Connecticut Ave., NW, Suite 1075 Washington, DC 20036 (202)452-8975 Fax: (202)452-9054

Web: www.usepropane.com

The purpose of the Propane Education & Research Council is to promote the safe, efficient use of propane as a preferred energy source. With the passing of the Propane Education and Research Act (PERA) in 1996 by Congress, the industry conducted a referendum among propane producers and marketers, who overwhelmingly approved the formation of the Council. Through the Council, the propane industry is committed to improve consumer and employee safety, to fund research and development of new and more efficient propane equipment, and to expand public awareness of propane and its many uses and environmental advantages. The direction of the Council is guided by several documents, including the Propane Education and Research Act, the Council's Policies, Rules, and Procedures, By-laws, and Strategic Plans. These documents and all Council documents are located in the Resource Library, at www.propanecouncil.org. You can also visit www.usepropane.com for information on the many uses of propane.

PERC develops a wide-range of materials for propane customers. Samples of the materials PERC produces are available for teachers to use. Teachers can learn more at www.propanecatalog.com.

Materials that may be of particular interest to educators are: *Play it Safe Around Propane* coloring book (item #0090), *Be safe by Being Careful with your LP-Gas* brochure (item #0008), *Safety Tips for Users of Small Propane Cylinders* brochure (item #0007), *How's Your Nose* brochure (item #003120), *Safe Grilling Tips* bill stuffer (item #008501), *Propane and Your Home: Understanding Propane Prices* and *Tips to Lower Your Energy Costs* brochure (item #8005), and *2005 Consumer* brochure (item #008014). **115**

RAILROAD COMMISSION OF TEXAS

P.O. Box 12967 Austin, TX 78711-2967

(512) 463-7110 (Alternative Energy materials)

Fax: (512) 463-7292 (Alternative Energy materials)

E-Mail: dan.kelly@rrc.state.tx.us

Web: www.rrc.state.tx.us

A state energy agency that regulates the oil and gas, alternative fuels, and surface mining industries in Texas. The Commission serves Texans by: its stewardship of natural resources and the environment, its concern for personal and community safety, and its support of enhanced development and economic vitality.

Provides educational materials free to Texas teachers (kindergarten through grade 10). Materials for primary grades are available on the Commission's website (click on "Kids' World"). These materials include interactive activities for younger children on energy and safety at home, at school, and outdoors.

The Commission's *Alternative Energy* curriculum supplement for 6th through 10th grade science is available on the Commission's website (click on "Energy Curriculum"). Free workshops for teachers using *Alternative Energy* are available from the Texas State Energy Conservation Office at *www.seco.cpa.state.tx.us.* 116

RENEWABLE ENERGY POLICY PROJECT (REPP)

1612 K Street, N.W., Suite 202 Washington, DC 20006 (202) 293-2898 Fax: (202) 293-5857 E-Mail: info2@repp.org

Web: www.repp.org

REPP is a 501(c)(3) nonprofit organization dedicated to accelerating the use of renewable energy by providing credible information, insightful policy analysis, and innovative strategies amid changing energy markets and mounting environmental needs by researching, publishing, and disseminating information, creating policy tools, and hosting highly active, online, renewable energy discussion groups.

REPP supports the advancement of renewable energy technology through policy research. REPP seeks to define growth strategies for renewables that respond to competitive energy markets and environmental needs. Since its inception in 1995, REPP has investigated the relationship among policy, markets and public demand in accelerating the deployment of renewable energy, which include biomass, hydropower, geothermal, photovoltaic, solar thermal, wind and renewable hydrogen. The organization offers a platform from which experts in the field can examine issues of medium- to long-term importance to policymakers, green energy entrepreneurs, and environmental advocates. 117

RENEWABLE FUELS ASSOCIATION

One Massachusetts Avenue, N.W., Suite 820 Washington, DC 20001 (202)289-3835 Fax: (202) 289-7519

E-Mail: info@ethanolrfa.org Web: www.ethanolRFA.org

A national nonprofit association promoting domestically produced renewable ethanol as an alternative to imported energy sources.

Provides general information and an Industry Annual on ethanol, a clean-burning, renewable transportation fuel produced from agricultural feedstocks and wastes. Additional information is available free of charge by visiting the website or calling the number above. 118

SAN DIEGO MIRAMAR COLLEGE

Advanced Transportation Technology Center 10440 Black Mountain Road San Diego, CA 92126 619-388-7673 Fax: (619) 388-7905

E-Mail: gnewhous@sdccd.edu Web: www.transportationtech.com

The Advanced Transportation Technology (ATT) Center at Miramar College was initiated in 1996. It is one of ten centers throughout California dedicated to transforming the workforce in the rapidly developing, technology-driven transportation industry, while improving the environment and stimulating the economy. Such a transformation includes education and programs in transportation-related areas that are developed and provided to elementary, middle, and high school students.

At San Diego Miramar College, the ATT Center works to integrate new technologies and information on new fuels into the curriculum of the college's diesel, aviation, and automotive programs, as well as working to integrate those programs with the academic offerings of the school. In turn, these programs are adapted to provide education to younger students in a variety of outreach activities and information. An example of this is our booklet *Introduction to Alternative Fuels and Alternative Fueled Vehicles*. This booklet is free upon request or can be downloaded from our website. **119**

SCIENCE SCREEN REPORT (SSR)

1000 Clint Moore Road Boca Raton, FL 33487-2806 1 (800) ASK-INFO

Fax: 1 (888) FAX-3737 E-Mail: 2scott@ssrvideo.com Web: www.ssrvideo.com

The award-winning videotape series made available to schools free of charge through corporate support.

Science Screen Report is an ongoing series of secondary and elementary videos that focus on the most recent developments in technology, chemistry, engineering, energy, medicine, and the environment. Produced since 1970, SSR is a proud participant in the National Science Foundation's Presidential Awards for Excellence in Mathematics and Science Teaching. SSR is designed to stimulate student interest in the challenges, opportunities, and rewards of

pursuing science-related careers. The programs are used nationwide by more than 7,000 school districts. The donated materials become the permanent property of the school system. Available on VHS, DVD, or streaming video. Visit www.ssrvideo.com to request a corporate sponsor. 120

SCIENCE SERVICE

1719 N Street, N.W. Washington, DC 20036 (202) 785-2255 Fax: (202) 785-1243

E-Mail: sciedu@sciserv.org Web: www.sciserv.org

The mission of Science Service is to advance the understanding and appreciation of science among people of all ages through publications and educational programs. In addition to our educational programs. Science Service publishes the weekly news magazine, Science News, and the online www.sciencenewsforkids.org.

Science Service administers three educational programs. The *Intel* International Science and Engineering Fair (ISEF) is a competition for students in grades 9 through 12. Students participate in their regional and/or state ISEF-affiliated fair. Two individual student projects and one team project of up to three students (per fair) are chosen to participate in the Intel ISEF. Participants are eligible for scholarships, scientific field trips, summer research internships, and equipment. The Intel Science Talent Search is America's oldest and most highly regarded science contest for high school seniors. To be eligible students must submit an individually researched project to enter this science competition. From the 300 semifinalists, 40 finalists will be chosen to attend the Science Talent Institute in Washington, DC, where students exhibit their research at the National Academy of Sciences and compete for the top prize of a \$100,000 four-year scholarship. Deadline for the 2006-2007 program is November 15, 2006.

The Discovery Channel Young Scientist Challenge is a national science competition for 5th through 8th graders. Students win a nomination at their local, regional and/or state science fair and are eligible to complete a written entry in the national competition. Four hundred semifinalists are chosen and announced in August and the finalists are announced in September. In October the finalists travel to Washington, DC, for an all-expense-paid trip to compete for over \$60,000 in scholarships and trips. For more information, please visit our website at www.sciserv.org. 121

Society of Automotive Engineers (SAE)

SAE Foundation 400 Commonwealth Drive Warrendale, PA 15096-0001 (800)457-2946 Fax: (724) 776-0890

E-Mail: awim@sae.org Web: www.sae.org/students

The SAE Foundation is dedicated to supporting the development of educational programs to improve mathematics, science, and engineering education, from the elementary grades through graduate school.

Provides A World In Motion: The Design Experience (AWIM), a series of four specially adapted engineering design challenges for grades 4 through 10. AWIM is a multidisciplinary curriculum, which includes math, science, social studies, and technology education. The program is an integrated curriculum built upon a real-life scenario. The goals of AWIM are to improve the teaching and learning of science, mathematics, and technology education through the integration of the disciplines. AWIM is a program based on an engineering design experience, suitable for elementary and middle school students and teachers, to strengthen the collaboration between students in design teams and teachers in teaching teams, and to mobilize members of the community as classroom volunteers in support of a curriculum experience. Please e-mail or write to SAE to obtain information on how to receive a free copy of A World in Motion for your local school. 122

THE SOCIETY OF THE PLASTICS INDUSTRY, INC. (SPI)

1667 K Street NW, Suite 1000 Washington, DC 20006 (202)974-5200

Web: http://plasticsindustry.org

Founded in 1937, The Society of the Plastics Industry, Inc., is the trade association representing one of the largest manufacturing industries in the United States. SPI's members represent the entire plastics industry supply chain, including processors, machinery, and equipment manufacturers, and raw material suppliers. The U.S. plastics industry employs 1.4 million workers and provides nearly \$310 billion in annual shipments. For more information, visit SPI at www.plasticsindustry.org.

SPI provides educational resources for elementary and middle school educators and information for consumers to increase public understanding of the facts related to plastic bags. *Don't Let a Good Thing Go to Waste* is an environmental education program for students in grades 2 through 5. *An Ounce of Prevention* is a middle school curriculum. Its poster-lesson plan on the *Life of a Hambur*ger comprises a complete resource for teaching the elements of waste generation and prevention. The full nine-activity curriculum, developed with the National Science Teachers Association and Dow Chemical Company, helps students see how many resources are consumed and how much waste is generated in daily-life activities, such as eating a hamburger and choosing plastic or paper at the supermarket checkout counter. These activities help them realize the value of prevention when it comes to waste.

Through the *Fantastic Plastics Works*, SPI's 5,000-plus sq.-ft. plastics industry showcase at INNOVENTIONS at Epcot® at the Walt Disney World® Resort in Lake Buena Vista, Florida, SPI teaches children of all ages about the full scope of the plastics industry, from chemistry to design to manufacturing and products, with a healthy nod to human ingenuity and creativity. Anchored by SPI and supported by contributions from many other companies, the exhibit seeks to improve the public's understanding and appreciation of the plastics industry and to encourage children to pursue careers in the industry. The exhibit is housed at INNOVENTIONS, a unique attraction filled with hands-on, interactive exhibits, where guests discover how the latest in science and technology can simplify and enhance their lives. To learn more, visit our website at *www.plasticsworks.com.* 123

SOLAR ELECTRIC POWER ASSOCIATION (SEPA)

805 15th Street NW, Suite 510 Washington, DC 20005 (202) 857-0898 Fax: (202) 682-0556

E-Mail: info@solarelectricpower.org Web: www.SolarElectricPower.org

SEPA is a unique network of more than 100 companies, including 50 utilities and 25 solar companies that are sharing experiences, knowledge, and lessons learned about solar programs, policies, and technologies. If you are looking to expand your understanding about solar electric power and how it can be used by electric utilities and their customers, you've come to the right place.

SEPA's mission is to facilitate the use and integration of solar electric power by utilities, electric service providers, and their customers. To achieve this mission, SEPA strives to:

- 1. Provide tools to utilities and electric service providers supporting the use and integration of solar.
- 2. Foster business-to-business networking.
- 3. Share information on solar electric technologies, applications, and programs.
- 4. Evaluate and report on policies, regulations, and legislation.

SEPA helps to establish standards for solar electricity systems and their connection to the utility grid, hosts cross-industry workshops, and manages educational and outreach campaigns. Publications include: Schools Going Solar, Volumes I & II: a guide to schools enjoying the power of solar energy; the SEPA Record, a solar energy newspaper about current projects and events in the industry; Community PV (CD-ROM) How you can use solar power, solar programs in North America, describes successful solar energy projects and includes a "solar town meeting" (available for a nominal fee); Solar Power—Making the Dream Real is a 10-minute videocassette tape (available for a nominal fee); 4.5 Megawatts & Counting: Technology and Business Perspectives on TEAM-UP; and Large and Small Solar Systems Cost Reports, detailing the costs of residential and large solar electricity projects installed as part of a Department of Energy and SEPA collaboration (available for a nominal fee). 124

Solar Energy Industries Association

805 15th Street NW, Suite 510 Washington, DC 20005 (202) 682-0556 Fax: (202) 682-0559

E-Mail: info@seia.org Web: www.seia.org

A nonprofit national trade association that represents the photovoltaic, concentrating solar, and thermal manufacturers, distributors, installers, and all other solar advocating groups.

Up-to-date information on solar thermal and electric costs, market size, technologies, and performance available by phone or e-mail. 125

Solar Now, Inc.

The Sunroom 100 Sohier Road Beverly, MA 01915 (978) 927-9SUN Fax: (978) 927-9191

E-Mail: solarnow@comcast.net

Web: www.solarnow.org

A national nonprofit organization providing education about all forms of renewable energy to teachers, students, environmentalists, and sustainability enthusiasts.

Solar Now's field study center is based at one of the nation's oldest and largest photovoltaic sites, which also hosts a 10-kW windmill and interactive classroom. The site is undergoing major enhancements and opened in June 2005 as *GREENERGY PARK*, a Renewable Energy Technology Eco-Tourist Destination. (See website for details.) Field trips may be arranged by calling the above number. Solar Now provides programs for students and educators seeking hands-on renewable energy education, including: comprehensive teacher education workshops, summer internships for college students, student conferences, and a library of renewable energy activities. A desktop publication, *A Curriculum Framework for Education in Environmental and Renewable Energy Science: Grades Pre-Kindergarten through 1st Year College*, is available for a small fee. **126**

STEEL RECYCLING INSTITUTE

680 Andersen Drive Pittsburgh, PA 15220-2700 (800) 876-7274 Fax: (412) 922-3213

E-Mail: sri@recycle-steel.org Web: www.recycle-steel.org

An industry association dedicated to promoting and sustaining steel recycling across the country.

Provides materials for primary, middle, and secondary school educators. Materials include: *Nature's for ME*, a preschool teacher's guide filled with nature-related interactive exercises; *YES I CAN!*, a video and teacher's guide for grades 1 through 3; and *Earth Cycles*, a cross-age teaching program for grades 8 through 12 and grades 3 through 5. The guide outlines three hands-on activities: *Roscoe's Totally Cycled World*, a middle school CD-ROM with interactive

missions in science, language arts, math, and social studies; *Cycles for Science*, high school curriculum supplements for biology, chemistry, physics, and earth/life science; and a community volunteer activities guide to support the program.

Information and prices are available through order forms. Additional materials, such as activity sheets and a coloring poster, are available. Please indicate grade level(s) for which materials or order forms are needed. 127

THE WILDS

14000 International Road Cumberland, OH 43732 (740) 638-5030, ext. 2301 Fax: (740) 638-2287

E-Mail: lbusby@thewilds.org Web: www.thewilds.org

The Wilds is a nonprofit organization working to advance conservation through education, science and personal experience.

With a remarkable 14-square miles of grassland, forest, lake and wetland habitats to explore, The Wilds can offer one of the most comprehensive conservation education programs in the region. The previously impacted landscape also presents an outdoor laboratory for ecology and ecosystem restoration like no other. Here students see the impacts of our lifestyles on the environment and yet can be instilled with a sense of hope for the future as they learn about the ways we can improve degraded habitats and get involved personally with wildlife and our shared environment. The wildlife research facilities, veterinary clinic, unique animal handling procedures, worldwide wildlife focus, and 'out-in-it' residential camps of *The* Wilds gives each student a holistic view of their responsibility for stewardship. The Wilds also prepares students to understand new technologies in the natural resource field and equips them to make wise decisions in the future use of our planet and its living resources. 128

Union of Concerned Scientists (UCS)

Two Brattle Square Cambridge, MA 02238-9105 (617) 547-5552 Fax: (617) 864-9405

Web: www.ucsusa.org

The Union of Concerned Scientists is the leading science-based nonprofit working for a healthy environment and a safer world. UCS combines independent scientific research and citizen action to develop innovative, practical solutions and to secure responsible changes in government policy, corporate practices, and consumer choices.

Established in 1969, we seek to ensure that all people have clean air, energy, and transportation, as well as feed that is produced in a safe and sustainable manner. We strive for a future that is free from the threats of global warming and nuclear war and a planet that supports a rich diversity of life. Sound science guides our efforts to secure changes in government policy, corporate practices, and consumer choices that will protect and improve the health of our environment globally, nationally, and in communities throughout the United States. In short, UCS seeks a great change in humanity's stewardship of the earth. Materials for educators can be found at www.ucsusa.org/global_environment/global_warming/page.cfm?pageID=883. Reports and fact sheets can be downloaded from our website. 129

University of Illinois at Urbana—Champaign

School of Architecture — Building Research Council 1 East St. Mary's Road Champaign, IL 61820 (800) 336-0616 or (217) 333-7551

Fax: (217) 244-2204 E-Mail: jshiffer@uiuc.edu

Web: www.arch.uiuc.edu/programs

A nonprofit information clearinghouse and research center.

Publishes 8, 12, and 16-page booklets on how to make homes comfortable, healthy, and energy efficient that are appropriate for homeowners and seniors in high school. BRC offers the following publications at a nominal fee: *Home Inspection*, which examines each home system—plumbing, electrical, etc.—and provides a checklist for buying a home; *Lighting*, which focuses on task, security, and general lighting; *Energy Management*, which outlines

practical management plans for summer and winter; *Insulating*, which focuses on how to know what type and how much insulation is needed; *Heating*, which is about the various kinds of heating systems and how to select a system; *Selecting Windows*, which explains window options and energy savings by selecting wisely; and *Moisture Condensation*, which discusses how to keep moisture from making a home chilly and prone to water damage.

A free publications catalog is available upon request. A complete set of 27 booklets is available for instructors and homeowners. Bulk rates are available. A limited number of publications are available for viewing at the website in PDF format. Landscaping, passive solar house plans, noise control and a multitude of additional topics are also covered in our publications. 130

University of Washington-KidsZone

Jim Disbrow, IPT Chair (540) 547-3140

E-Mail: jdisbrow22701@earthlink.net

Gregory J. Crowther

Department of Chemical Engineering, University of Washington Box 352125

Seattle WA 98195-2125

(206) 290-8826

E-Mail: crowther@u.washington.edu

Web: faculty.washington.edu/crowther/KidsZone/index.html

The KidsZone is a destination for both teachers of science and young people with energy, science, and technology homework.

From the perspective of energy as a "unifying concept", the KidsZone offers information in an array of learning styles, including kid-friendly features like personas, games, quizzes, contests, knowledge trees, and a history of the greatest events and people in science. For both teachers-without-science-teacher-training and full-time science teachers, the age-graded instructional materials, index and topics are hot-linked. Knowledge strands for different levels of development (in the Knowledge Tree portion) and integrating topics (e.g., watersheds) put the various strands of science into an organized perspective. 131

U.S. DEPARTMENT OF AGRICULTURE—NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

Legislative & Public Affairs Division P.O. Box 2890 Washington, DC 20013 (202) 720-3210

Fax: (202) 720-1564 Web: www.nrcs.usda.gov

Since 1935, NRCS, formerly the Soil Conservation Service, has been the nation's leading federal conservation agency working with private landowners to help them protect their natural resources. NRCS—Helping People Help the Land.

Through its national system of state and county-level offices, NRCS emphasizes voluntary science-based conservation technical assistance, partnerships, incentive-based programs, and cooperative problem solving at the community level. Natural resource conservation programs are designed to reduce pollution, improve soil and water quality, increase wildlife habitat, and provide many other environmental benefits in an energy-efficient manner. NRCS assists and maintains working relationships with numerous educational, youth, civic, environmental, and conservation organizations on resource conservation issues and materials development. Limited quantities of free materials about natural resource conservation topics are available from NRCS.

Many of these materials have been designed for the educational audience and are adaptable to fit educators' curricular needs. They include the *Water Cycle: Nature's Recycling System* poster, *Conquest of the Land Through 7,000 Years, Conservation Buffers Work–Economically and Environmentally*, plus the popular *Backyard Conservation* booklet and related materials. Soil surveys, normally prepared on a countywide basis, are available from the local NRCS office. Soil surveys provide detailed descriptions of local soils, their location, genesis, characteristics, and suggested best uses. Snow survey and water supply forecasts provide western states and Alaska with vital information and forecasts of seasonal variable water supplies.

Plant Material Centers offer information on the usefulness of plant species for biomass production, carbon sequestration, erosion reduction, wetland restoration, water quality improvement, streambank and riparian area protection, coastal dune stabilization, and to meet other special conservation treatment needs. To contact your local NRCS office, look in the local telephone directory under U.S. Government, U.S. Department of Agriculture,

Natural Resources Conservation Service, or online at http://offices.usda.gov. To order publications, go to www.nrcs.usda.gov and look for the "Publications" in the Quick access links on the left or telephone (888) LANDCARE (toll-free). Visit the NRCS website, www.nrcs.usda.gov, to review materials and resources available through the agency's various institutes and centers. 132

U.S. DEPARTMENT OF COMMERCE—NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION (NOAA)

NOAA Education Outreach Unit 1305 East West Highway, #1W514 Silver Spring, MD 20910 (301)713-1208

Web: www.education.noaa.gov or www.NOAA-Outreach@noaa.gov

A Federal agency with programs that advance the Nation's science education goals by expanding and enhancing the scientific competence of all students, teachers, and the general public.

Provides information free of charge to students, teachers, librarians, and the general public about the earth's oceans and atmosphere, including the topics of endangered marine mammals, severe and hazardous weather, El Niño/La Niña, NOAA weather radio, coastal management, weather satellites, and global warming. Information about NOAA's educational programs, like the Teacher at Sea, is also available from this office. Additional information can be found at www.education.noaa.gov. 133

U.S. DEPARTMENT OF ENERGY—ARGONNE NATIONAL LABORATORY (ANL)

Division of Educational Programs 9700 South Cass Avenue Argonne, IL 60439 (630) 252-4114 Fax: (630) 252-3195

Fax: (630) 252-3195 Web: www.dep.anl.gov

A DOE-funded, multi-purpose national laboratory providing programs to promote science careers and improve science education.

Provides continuing programs for teachers as follows:

 The Argonne Community of Teachers, a local organization of teachers who have participated in Argonne programs in the past and who continue to work with the Laboratory to improve science education for schools in the Chicago area;

- 2. The laboratory Science Teacher Professional Development Program provides simulated research opportunities and curriculum development and networking for twenty teachers during the summer. The program is of four weeks duration and held at Argonne National Laboratory; and
- 3. NEWTON, The Science Teachers Bulletin Board, which offers a place where teachers and students can discuss education and ask questions of practicing scientists. The bulletin board is at www.newton.dep.anl.gov. Website for all three programs: www.dep.anl.gov. See section Science, Technology and Education Precollege Programs. 134

U.S. DEPARTMENT OF ENERGY—BONNEVILLE POWER ADMINISTRATION (BPA)

Community Education Program-DR-7 P.O. Box 3621 Portland, OR 97208 (503) 230-5341 Fax: (503) 230-4576

E-Mail: clbenson@bpa.gov

Web: www.bpa.gov/corporate/education/

Bonneville Power Administration is both an electric utility and a Federal agency within DOE. Established in 1937, BPA markets electric power from Federal dams and other energy resources in the Pacific Northwest. BPA employs approximately 3,100 persons in Idaho, Montana, Oregon, and Washington. The majority of the agency's work is in the Portland-Vancouver metropolitan area headquarters and control center. BPA works with several business, school, and government agency partnerships. Many employees volunteer each year for various programs.

Participates in a variety of education programs for K-12 in the BPA four-state service area. Programs include science competitions, mentoring and tutoring, environmental education, summer science camps, worksite visits, and others. Educational materials designed for K through 12th grade on the topics of electricity, energy efficiency/conservation, and fish and wildlife are loaned or given free of charge to teachers in BPA's service territory (Oregon, Washington, Idaho, and Western Montana). Educational resources include curricula, hands-on activities, storybooks, posters, and videotapes. The following link is to the BPA teachers' resources: www.bpa.gov/Corporate/KR/ed/page6.htm. 135

U.S. DEPARTMENT OF ENERGY—CARBON DIOXIDE INFORMATION ANALYSIS CENTER (CDIAC)

MS-6335, Building 1509 Oak Ridge National Laboratory P.O. Box 2008 Oak Ridge, TN 37831 (865) 574-0390 Fax: (865) 574-2232

E-Mail: cdiac@ornl.gov Web: http://cdiac.ornl.gov/

A DOE-funded program that provides information support to the international research, policy, and education communities for evaluation of issues related to climate change.

Provides data and information materials that would be of value to users concerned with the greenhouse effect and climate change. Data and information materials suitable for middle and high school students include, but are not limited to, the newsletter, CDIAC Communications Virtual Newsletter (http://cdiac.ornl.gov/ newsletr/virtual/virtual cdiac.html), which describes CDIAC, DOE, and other initiatives in global change research; Trends Online: A Compendium of Data on Global Change (http://cdiac.ornl.gov/ trends/trends.htm), a quick source of frequently requested data. CDIAC also offers a computer model on global energy - CO₂ emissions, The IEA/ORAU Long-Term Global Energy CO, Model, that is suitable for high school and college students. This computer model package utilizes variables to interactively produce CO, and CH₄ emission scenarios for 1975 through 2100. A complete listing of CDIAC data and informational products is available from the CDIAC website (http://cdiac.ornl.gov/pns/pns_main.html). 136

U.S. DEPARTMENT OF ENERGY—ENERGY EFFICIENCY AND RENEWABLE ENERGY INFORMATION CENTER (EERE IC)

P.O. Box 43165 Olympia, WA 98504 (877) 337-3463 Fax: (360) 236-2023

Web: www.eere.energy.gov/kids and www.eere.energy.gov/education

A DOE-funded energy information service responding to public inquiries on the use of renewable energy and energy conservation.

The EERE Information Center provides general information on DOE's Energy Efficiency and Renewable Energy Program.

Information Center Staff direct the public to resources and publications available on the website at *www.eere.energy.gov*, which has easily accessible energy-related consumer information and an ordering catalog for publication requests. 137

U.S. DEPARTMENT OF ENERGY—HYDROGEN PROGRAM

1000 Independence Avenue, SW Washington, DC 20585 (202) 586-1885 Fax: (202) 586-9811

Email: christy.cooper@ee.doe.gov Web: www.hydrogen.energy.gov

The DOE Hydrogen Program supports the President's Advanced Energy Initiative and seeks to advance the vision of a hydrogen economy.

The program is working with the automotive and energy industries, universities, national laboratories, international partners, and others to overcome critical technical barriers to developing commercially viable, emissions-free hydrogen fuel cell vehicles and the infrastructure needed to support their widespread use.

The program integrates hydrogen-related activities in the DOE Offices of Energy Efficiency and Renewable Energy; Fossil Energy; Nuclear Energy, Science, and Technology; and Science. Available educational resources, which are most appropriate for middle school and high school students, include teacher background information, lesson plans, hands-on classroom activities, and an animation to show how fuel cells work.

The program website also includes links to other hydrogen and fuel cell educational resources, as well as information about hydrogen and fuel cell programs at colleges and universities, for high school students interested in getting involved in the development of the hydrogen economy. 138

U.S. DEPARTMENT OF ENERGY—LOS ALAMOS NATIONAL LABORATORY

Science Education Program Office P.O. Box 1663, MS M709 Los Alamos, NM 87545 (505) 667-8680

Fax: (505) 665-6871

E-Mail: angela_m@lanl.gov

Web: http://education.lanl.gov/EPO/

A DOE-funded national laboratory.

Los Alamos National Laboratory offers elementary- through university-level educational programs for students, teachers, and the public. They include teacher programs, student programs, internships, and postdoctoral appointments. Topics include: educational technology, curriculum and resources, public understanding of science, and diversity programs. Some programs are national in scope, while others are regional or local. Each of the programs is described on our website listed above.

Available products include:

- 1. Science at Home, a book of science experimental activities for elementary and middle school students and parents to complete together using commonly available materials. (The Billerica, MA 01862, phone (508) 667-8000, fax (508) 667-5706, toll free (800) 225-0248, the book was published in 1997 and its ISBN is 0-7609-0236-4);
- 2. Hydrogen and the Materials of a Sustainable Energy Future, a notebook of experiments and demonstrations for teachers that were presented at the National Educator's Workshop: UPDATE 96;
- 3. Model Nets, a National Study of Computer Networking in K-12 Education and Model Nets Guide, a guide to implementing networking technology in K-12 education;
- 4. Seventh Generation, Environment, Safety, and Health at Los Alamos National Laboratory: A Report to Our Communities; and
- 5. Fuel Cells Green Power. 139

U.S. DEPARTMENT OF ENERGY—NATIONAL ENERGY INFORMATION CENTER (NEIC)

Energy Information Administration 1000 Independence Avenue, S.W., EI-30, Room 1E-238 Washington, DC 20585 (202) 586-8800

Fax: (202) 586-0727

E-Mail: infoctr@eia.doe.gov

Web: www.eia.doe.gov/kids/

NEIC is the information dissemination service of DOE's Energy Information Administration, which is responsible for developing energy data, analyses, and forecasts that help enhance public understanding of energy issues.

Available free of charge is the *Energy INFOcard*, a quick reference providing the most recent annual domestic and international energy data; *Energy Education Resources: Kindergarten through 12th Grade*; a series of primers on topical energy subjects: propane prices, residential heating oil prices, residential natural gas prices, gasoline prices, greenhouse gases, global climate change, and the restructuring of the electric power industry; and a **free** mini CD-ROM business card. All products are available on EIA's website, which also features the EIA Kid's Page (*www.eia.doe.gov/kids/*); hundreds of links to other energy-related sites; an email subscription and notification service for EIA press releases; a series of energy watches, synopses, summaries, and briefs; an energy quiz; an energy calendar listing schedules for future EIA publications and other energy events; and EIA publications and databases covering the various energy sources. **140**

U.S. DEPARTMENT OF ENERGY—NATIONAL ENERGY TECHNOLOGY LABORATORY (NETL)

P.O. Box 10940

Pittsburgh, PA 15236-0940

(412)386-5034

Fax: (412) 386-4810

E-Mail: rjones@netl.doe.gov or mnowak@netl.doe.gov

Web: www.netl.doe.gov

P.O. Box 880

Morgantown, WV 26507-0880

(304) 285-4348

Fax: (304) 285-4403

E-Mail: jcyzic@netl.doe.gov Web: www.netl.doe.gov

A Federal fossil energy research facility.

The National Energy Technology Laboratory (NETL) is one of the U.S. Department of Energy's major field organizations. NETL has two sites—one in Pittsburgh, Pennsylvania, and one in Morgantown, West Virginia. NETL provides science-related educational kits, videos, and resource materials to local elementary schools. Check the above website for ordering information.

NETL sponsors the West Virginia Regional Science Bowl and the Southwestern Pennsylvania Regional Science Bowl. Approximately ten science teachers spend four weeks at NETL learning about its research programs. The teachers, in cooperation with the NETL staff, prepare lesson plans describing the research for use in science classes. NETL sponsors two-day multidisciplinary seminars covering energy and the environment. Check the above website for dates and registration.

NETL scientists and engineers serve as math and science resource volunteers, teacher consultants, classroom lecturers, demonstrators, or research advisors to teachers and students. 141

U.S. DEPARTMENT OF ENERGY—NATIONAL RENEWABLE ENERGY LABORATORY (NREL)

Office of Education Programs 1617 Cole Boulevard, MS 1713 Golden, CO 80401 (303) 275-3010

Fax: (303) 275-3076

E-Mail: Cynthia_Howell@nrel.gov Web: www.nrel.gov/education

NREL is a Department of Energy national laboratory that develops renewable energy and energy efficiency technologies and practices; advances related science and engineering; and transfers knowledge and innovations to address the nation's energy, security, and environmental goals.

NREL's Office of Education Programs develops and implements science programs that engage the young minds of our future leaders, scientists, and engineers encouraging all to use and develop renewable energy resources. In addition, NREL's undergraduate internship programs connect research to science and technology education, which inspires students to explore sustainable energy solutions to meet our future needs.

NREL supports kindergarten through 12th grade science education and undergraduate research focusing on energy efficiency and renewable energy, including managing and supporting numerous local and national science programs for both students and teachers. Programs include an after school 4th grade science literacy program, middle school junior solar sprint/hydrogen fuel cell model car competition, high school science bowl, science teacher professional development, summer research programs for pre-service and practicing teachers, and assistance for students and teachers looking for information, project ideas, lessons, and reference materials on renewable energy and energy efficiency topics. 142

U.S. DEPARTMENT OF ENERGY—NATIONAL RENEWABLE ENERGY LABORATORY—ALTERNATIVE FUELS DATA CENTER (AFDC)

1617 Cole Boulevard, MS 1633
Golden, CO 80401
(303) 275-4000
Fax: ((303) 275-4415
E-Mail: webmaster_afdc@nrel.gov
Alternative Fuels Data Center Web: www.eere.energy.gov/afdc/
Clean Cities Web: www.eere.energy.gov/cleancities/

The Alternative Fuels Data Center, sponsored by the Department of Energy (DOE), provides information about the alternative fuels and vehicles and advanced technology vehicles, as well as regulatory requirements, refueling locations, emissions, idle reduction technology, fuel economy and fuel blends.

Provides implementation and technical information on DOE's Clean Cities Program, alternative fuel vehicles, and advanced technology vehicles. Provides information and technical assistance to both technical and casual users about a broad range of transportation topics. 143

U.S. DEPARTMENT OF ENERGY—OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

Las Vegas Yucca Mountain Information Center 4101B Meadows Lane Las Vegas, NV 89107 (702) 295-1312 (800) 225-6972 Fax: (702) 295-5222

Web: www.ocrwm.doe.gov

The Office of Civilian Radioactive Waste Management (OCRWM) is a Federal program established to manage and dispose of the Nation's spent nuclear fuel and high-level radioactive waste.

Furnishes an online curriculum, "Science, Society, and America's Nuclear Waste," at www.ocrwm.doe.gov/pm/program_docs/curriculum.shtml. The four-unit curriculum is currently being updated. It is designed for use in grades 8 through 12. Also available online is general information, including fact sheets and brochures, on the Civilian Radioactive Waste Management Program and the Yucca Mountain Project. To forward a question, use the "questions and remarks" page at www.ocrwm.doe.gov/contact/comments.shtml. 144

U.S. DEPARTMENT OF ENERGY—OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY— REBUILD AMERICA ENERGYSMART SCHOOLS

241 West Washington Street (Distribution Center) Nashville, NC 27856 (252) 459-4664

Fax: (252) 459-6997

E-Mail: rebuildorders@rebuild.org

Web: www.rebuild.gov

Rebuild America EnergySmart Schools, a program of the U.S. Department of Energy (DOE), works with all members of the schools community to provide information, support and technical assistance about energy efficiency and renewable energy. Rebuild America is a national network of over 685 partnerships that are dedicated to saving energy, improving building performance, reducing air pollution, and enhancing the quality of life through energy efficiency. Created by DOE in 1994, Rebuild America serves as a tool for community revitalization and job creation in many U.S. communities.

Rebuild America EnergySmart Schools is dedicated to improving learning and teaching environments through energy-efficient design and energy education. Several resources are available through the program for K through 12 school decision-makers, teachers, students, facility managers, and design professionals at no cost. The EnergySmart Schools *Get Smart About Energy* CD-ROM contains over 250 inquiry- and non-inquiry-based energy activities aligned with national and state science education standards. The CD-Rom is used in classrooms nationwide to increase student interest in energy efficiency and conservation in school and at home.

Also available through the program are the climate-specific *Energy Design Guidelines for High Performance Schools* and the *National Best Practices Manual for Building High Performance Schools*. The guidelines and manual provide information about on-site school design, daylighting and windows, energy-efficient building shells, lighting and electrical systems, mechanical and ventilation systems, renewable energy systems, water conservation, recycling systems and waste management, transportation and resource-efficient building products. **145**

U.S. DEPARTMENT OF ENERGY—OFFICE OF Nuclear Energy

Nuclear Facilities Management, NE- 40 19901 Germantown Road Germantown, MD 20874 Fax: (301) 903- 0180

E-Mail: ne.webmaster@hq.doe.gov

Web: http://nuclear.gov

Public Information Office for the Office of Nuclear Energy. Responds to public inquiries about the commercial nuclear energy industry and DOE's nuclear research and development programs.

Offers energy educational materials, including historical and current factual data, on nuclear energy. Pamphlets discuss such issues as the nuclear fuel cycle and civilian uses of nuclear energy. Available publications include: *The History of Nuclear Energy, Atoms to Electricity, The Harnessed Atom*—both student and teacher versions for grades 7 through 9—and several others. Also provides an educational videotape on nuclear power. All publications are free. **146**

U.S. DEPARTMENT OF ENERGY—OFFICE OF SCIENTIFIC AND TECHNICAL INFORMATION (OSTI)

P.O. Box 62 Oak Ridge, TN 37831 (865) 576-8401 Fax: (865) 576-5728 Web: www.osti.gov

OSTI collects, preserves, and disseminates the scientific and technical information resulting from the Department of Energy's (DOE) research and development activities, as well as environmental programs. The scientific and technical information produced through DOE and its predecessor agencies includes the bulk of recorded knowledge about nuclear energy as well as other energy and science disciplines related to DOE's broad R&D missions.

OSTI provides access to energy, science, and technology information through publicly available Web-based systems, with supporting tools and technologies to enable information search, retrieval and re-use. The *Energy Citation Database (www.osti.gov/energycitations)* offers over 2 million bibliographic records of DOE scientific and technical information from 1948 to the present, with links to full text when available.

The DOE Information Bridge (www.osti.gov/bridge) provides access to over 121,000 fully searchable, full-text technical reports documenting the results of DOE-sponsored research. The E-print Network: Research Communications for Scientists and Engineers (www.osti.gov/eprints) provides single query searching of over 750,000 manuscripts, scholarly papers, and other scientific documents residing on approximately 20,000 Web sites, as well as a deep Web search across 52 major e-print databases. DOE R&D Project Summaries (http://www.osti.gov/rnd) contains information on more than 22,000 active DOE-sponsored research projects. EnergyFiles (www.osti.gov/EnergyFiles), the Energy Science and Technology Virtual Library, provides single-query access to over 500 databases and Web sites containing information and resources pertaining to science and technology of interest to DOE, with an emphasis on the physical sciences.

OSTI also hosts the FirstGov science portal, *Science.gov* (www.science.gov), in partnership with 16 organizations within 12 Federal science agencies. Science.gov provides a gateway to over 1,800 Web sites and offers deep Web searching of 30 databases containing R&D information. OSTI's entire line of electronic products may be accessed through its home page at www.osti.gov, where users may search multiple databases with one query. 147

U.S. DEPARTMENT OF ENERGY—PACIFIC NORTHWEST NATIONAL LABORATORY (PNNL)

Science & Engineering Education (S.E.E.) P.O. Box 999, Mail Stop K6-63 Richland, WA 99352 (509) 375-2800

Fax: (509) 375-2576

Web: science-ed.pnl.gov/index.stm

A DOE-funded, multi-program national laboratory, Pacific Northwest National Laboratory (PNNL) puts science and technology to work to solve energy and environmental problems. PNNL focuses on research and development related to waste management, environmental restoration, global environmental change, energy, and national security.

Offers a variety of university and science programs that integrate research and education and support science education reform. Our education partnerships connect the human and technical resources of the Laboratory with students and teachers in elementary, middle, and high schools; technical/community colleges; and students and faculty at the university undergraduate and graduate levels.

Provides opportunities for students and faculty to:

- participate in hands-on science and technology research as it is conducted in a research laboratory;
- participate in projects that investigate scientific and technological challenges; update technical skills and understanding, as well as renew enthusiasm for chosen scientific or engineering research; and
- work with Laboratory scientists and engineers in an interdisciplinary team environment; and use state-of-the-art equipment not commonly found in most schools or colleges/ universities. 148

U.S. DEPARTMENT OF ENERGY—WESTERN AREA POWER ADMINISTRATION (WAPA)

P.O. Box 281213 Lakewood, CO 80228 (720) 962-7423 Fax: (720) 962-7427

E-Mail: manion@wapa.gov Web: www.es.wapa.gov

A DOE power marketing administration encompassing all or parts of 15 western states.

Provides contact points with WAPA's customers regarding ongoing energy educational efforts on conservation and renewable energy for students from kindergarten through grade 12. For information, call Randy Manion, Manager, Renewable Resource Program, (720) 962-7423 or e-mail manion@wapa.gov. 149

U.S. DEPARTMENT OF THE INTERIOR-BUREAU OF LAND MANAGEMENT (BLM)

1849 C Street, N.W. Washington, DC 20240 (202) 452-5078 (Environmental Education)

Fax: (202) 452-5199 Web: www.blm.gov/

An agency responsible for managing over 261 million surface acres, and 700 million acres of sub-surface mineral estate. BLM's multiple-use mission is to sustain the health, diversity, and productivity of the public lands. The agency manages recreation, wildlife habitat, cultural and historic sites, scenic and wilderness areas, wild horse and burros, livestock grazing, timber harvesting, and energy and mineral development.

Offers a variety of educational energy-related programs and materials. Visit the website for programs available in your area, as well as educational products and presentations. 150

U.S. DEPARTMENT OF THE INTERIOR-MINERALS MANAGEMENT SERVICE (MMS)

Office of Public Affairs 1849 C Street, N.W. Washington, DC 20240 (202) 208-3985

Fax: (202) 208-3918

Web: www.mms.gov/mmskids/

The MMS, part of the U.S. Department of the Interior, oversees 1.76 billion acres of the Outer Continental Shelf, managing offshore energy and mineral resources while protecting the human, marine, and coastal environments through advanced science and technology research. The OCS provides 30 percent of oil and 23 percent of natural gas produced domestically, and sand used for coastal restoration. MMS collects, accounts for, and disburses mineral revenues from Federal and American Indian lands, with Fiscal Year 2004 disbursements of approximately \$8 billion and more than \$143 billion since 1982. The Land and Water Conservation Fund, which pays for cooperative conservation, grants to states, and federal land acquisition, gets nearly \$1 billion a year.

Provides K-12 educational materials related to energy, minerals, and the environment on America's offshore public lands. Materials based on MMS science and research in geosciences; physical

oceanography; engineering; marine biology; deep-sea ecosystems; marine archeology; and social sciences.

Materials include *Ocean Energy*, a resource and experiment booklet; *Watts It To You?*, a role-play on consumption, conservation, and renewable and nonrenewable energy sources; science-based educational posters and teacher companions; curricula based on real scientific application; inquiry-based classroom activities to promote critical thinking; and fun coloring activity pages. Most material is free upon request and/or available from the MMS Kids Page at *www.mms.gov/mmskids*. **151**

U.S. Environmental Protection Agency (EPA)

Headquarters Library, 3404T 1200 Pennsylvania Avenue, N.W. Washington, DC 20460 (202) 566-0556 Fax: (202) 566-0562

E-Mail: public-access@epamail.epa.gov

Web: www.epa.gov

The Headquarters Library provides research assistance to EPA staff.

A limited amount of reference assistance is provided to the public about environmental issues and EPA programs. Members of the public are encouraged to submit their requests via e-mail to *public-access@epa.gov*. **152**

U.S. GENERAL SERVICES ADMINISTRATION— FEDERAL CITIZEN INFORMATION CENTER (FCIC)

1800 F Street, N.W., G 142
Washington, DC 20405
(800) FED INFO
Fax: (202) 501-4281
Web: www.kids.gov; www.FirstGov.gov; www.espanol.gov; www.pueblo.gsa.gov; www.ConsumerAction.gov; www.consumidor.gov; www.info.gov

Helps Federal agencies develop, promote, and distribute consumer information to the public through the Consumer Information Catalog and website.

The Federal Citizen Information Center offers the free quarterly *Consumer Information Catalog* via the web, phone, or by writing to: Free Catalog, Pueblo, CO 81009. It contains listings of over 200 free

and low-cost Federal consumer publications on topics such saving energy while trimming expenses; family health and safety issues; money management for kids; the importance of play, classic books; "going wild" activities for exploring America's public lands; evaluating technology needs for college; education, food and nutrition, and more. Bulk copies are available to schools and nonprofit groups able to distribute ten or more copies.

On the award-winning website, www.pueblo.gsa.gov, you can read, print out, or save the current Catalog and the text of all the publications it lists. Click on the Scams and Recalls pages for the latest product updates. Check out www.kids.gov with more than 400 kid-friendly links in one easy-to-find place. Look for the timely consumer News and Notes feature from various Federal agencies, and a calendar of consumer-related events. For answers to your questions about international travel, the President's pets, and other fascinating insights, enter the "doorway" to all Federal agencies by going to www.FirstGov.gov. Or if you prefer information in Spanish, visit FirstGov en espanol at www.espanol.gov, where you can access all of the U.S. government's Spanish language websites in one central location.

In addition, the celebrated 2006 Consumer Action Handbook offers tips on topics such as buying and leasing cars, identity theft protection, health care, and shopping from home. Updated annually, it includes a sample complaint letter to use as a guide. The Handbook offers thousands of accurate names, addresses, phone numbers, and e-mail addresses for Better Business Bureaus, corporate consumer contacts, and state, county, and city government consumer protection offices. You can access the Handbook at www.ConsumerAction.gov and use the links provided to register your complaint directly. The website is also available in Spanish at www.consumidor.gov. 153

WATER ENVIRONMENT FEDERATION (WEF)

601 Wythe Street Alexandria, VA 22314 (800) 666-0206 (703) 684-2400 Fax: (703) 684-2492

E-Mail: PublicEducation@wef.org

Web: www.wef.org

Founded in 1928, the Water Environment Federation is a not-forprofit technical and educational organization with members from varied disciplines who work toward the WEF vision of preservation and enhancement of the global water environment. The WEF network includes more than 100,000 water quality professionals from 77 member associations in 31 countries.

Facilitates the U.S. Stockholm Junior Water Prize, regional, state and national awards for high school, water related science research; organizes WEFTeach, a full day teacher workshop on water; and publishes *The Water Sourcebook*, with over 60 hands-on classroom activities; many of the water quality experts act as classroom resources through the WEF Adopt-A-School program. Local members choose to adopt schools by providing guest speakers, presentations, and tours of water treatment plants, plus videos and other special resources. Visit www.wef.org for more information. **154**

WATT WATCHERS

University of Texas at El Paso P.O. Box 68660 El Paso, TX 79968 (888) USWATTS (toll-free) Fax: (915) 747-5317

E-Mail: info@wattwatchers.org Web: www.wattwatchers.org

Watt Watchers is a FREE energy efficiency program for schools. The program is designed for kindergarten through grade 12 classrooms, and it is so simple! Students patrol the halls of the schools reducing energy waste by turning off lights and leaving tickets for those who leave their lights on while no one is in the room. By doing this, a school could save \$50 per classroom. That's right, it costs \$50 per year to light an empty classroom for two hours each school day.

Watt Watchers is available throughout the United States. In Texas, Watt Watchers is sponsored by the Texas State Energy Conservation Office/Comptroller of Public Accounts. Watt Watchers provides schools across the United States with free energy conservation materials. We assist schools in lowering their utility bills by getting everyone involved in the program. Students patrol for lights on in unoccupied classrooms and teachers use our curriculum supplement to teach the students how to conserve energy and the importance of conservation efforts. Through Watt Watchers, administrators are given information on how to implement the Watt Watchers program district wide and free energy saving programs like *Sleep is Good*, the EPA's Monitor Power Management program. 155

WAVERLY LIGHT AND POWER

1002 Adams Parkway P.O. Box 329 Waverly, IA 50677 (319) 352-6251 Fax: (319) 352-6254

Web: www.waverlyia.com

A municipal utility serving electric needs of the community.

Provides educational services free to educators within its service territory. Services include generating plant tours, classroom presentations, and purchased reference materials for kindergarten through grade 12. 156

WESTINGHOUSE ELECTRIC COMPANY

Employee Communications and Community Relations P.O. Box 355, Mail Stop 5-20 Pittsburgh, PA 15230 (412) 374-2092

Fax: (412) 374-3244

E-Mail: kendrolm@westinghouse.com Web: www.westinghousenuclear.com

A company dedicated to providing high-quality products, services, technology, systems and management in nuclear energy.

Provides energy-related materials to all who are interested, especially to teachers and students who will make our energy decisions in the future. Materials available are: a simulated uranium fuel pellet; *Nuclear Energy Basics booklet; Electricity from Nuclear Energy booklet; Nuclear Energy Glossary;* and *N-Vision Brochure.* One copy of each booklet is available free of charge; however, there is a minimal fee for larger quantities. For more information, please contact Westinghouse Electric Company Employee Communications and Community Relations. 157

WISCONSIN PUBLIC SERVICE CORP. (WPSC)

700 North Adams Street P.O. Box 19001 Green Bay, WI 54307 (920)433-1002 Fax: (920)433-5741

E-Mail: kpalmer@wpsr.com Web: www.wpsr.com

Provides electricity, natural gas, and energy products to more than 499,000 customers in an 11,000 square-mile area of Northeast Wisconsin and Upper Michigan. In addition to our corporate headquarters in Green Bay, we operate fossil and hydroelectric generating plants and have 19 customer centers throughout our service territory.

Provides an array of FREE energy-related presentations, publications, and web links for kindergarten through grade 12 educators **in the WPSC service area**. The materials emphasize electric and gas safety, energy management, protecting the environment, and renewable energy. Some of the special features include teacher and student tours, scholarship information, career exploration opportunities, energy fairs, speaker's bureau, teacher workshops, and electric car demonstrations. Contact WPSC for a complete list of educational offerings. Please visit our website at www.wpsr.com. 158

Women in Mining Education Foundation (WIMEF)

Lakewood, CO 80226 (303) 298-1535 (message only) E-Mail: wimef@womeninmining.org Web: www.womeninmining.org

P.O. Box 260246

A nonprofit organization dedicated to educating students, teachers, and the general public about the importance of minerals.

WIMEF's mission is accomplished through the development and distribution of hands-on classroom activities, games, and information, as well as hosting training workshops for teachers. Distribution is accomplished through booths at various conventions and meetings, direct mailings, the Internet, and workshops. A list of workshops can be found on our website. Many links to other earth science sites are available. Teachers who do not have Internet access can request free educational packets from the Women in Mining Education Foundation by sending their requests on school letterhead, indicating the grade(s) taught. 159

XCEL ENERGY

Community Affairs
800 Nicollet Mall–29
Minneapolis, MN 55402
(651) 748-3329 Electric Safety Demonstrations
(612) 215-4621 Energy Safety Calendars
(800) 880-8463 Nuclear Energy Speakers
(303) 308-6111 Renewables and Wind Energy Speakers
(303) 671-3806 Classroom Connection
Web: www.xcelenergy.com

Xcel Energy, Minneapolis (formerly Northern States Power Company and New Century Energy), is a major combination electricity and natural gas company in the U.S., operating in 10 states—Colorado, Kansas, Michigan, Minnesota, New Mexico, North Dakota, Oklahoma, South Dakota, Texas and Wisconsin.

Xcel Energy provides FREE online energy education resources for grades 3–6 at www.xcelenergy.com (search for 'education initiatives'). Energy Classroom (www.energyclassroom.com) includes games, activities and experiments on power sources, the environment, energy conservation, careers in energy and a virtual power plant tour. Other offerings include the Energy Safety Calendar and Art Contest and the Classroom Connection program for grades K–12 (available to educators in CO, TX, KS, NM, OK). 160

Subject Index

The subject index is arranged alphabetically by specific energy terminology. The number that follows each entry references the number of the organization in the booklet. Energy terminologies include: Alternative Fuels, Coal, Electricity, Energy Efficiency/Energy Conservation, Environment, Geosciences/Earth Sciences, Hydrogen, Natural Gas, Nuclear Energy, Petroleum, Recycling, Renewable Energy, Waste Management, and Water.

ALTERNATIVE FUELS

Air & Waste Management Association (A&WMA), 2

Alliance to Save Energy, 3

American Chemical Society, 5

American Chemistry Council (ACC), 6

American Electric Power, 9

American Forest Foundation, 10

American Plastics Council (APC), 15

American Solar Energy Society (ASES), 17

City Utilities of Springfield, Missouri, 35 Colorado Energy Science Center

(CESC),36

Culver Company, 39

EcoSoul/National Fuel Cell Education Program (NFCEP), 44

Edison Electric Institute (EEI), 45

Education Development Specialists, 47

eesmarts, 49

Energy Education Group, 50

EnergyTeacher.org, 52

Environmental Education Council of Ohio, 54

FirstEnergy Corporation, 57

Florida Solar Energy Center (FSEC), 59

Fuel Cells 2000, 62

General Atomics Sciences Education Foundation, 63

Geothermal Heat Pump Consortium, 65

Midwest Energy Efficiency Alliance, 77

National Biodiesel Board, 84

National Corn Growers Association (NCGA),85

National Cotton Council of America, 86

National Energy Education Development Project (NEED), 88

National Geographic Society, 90

New York State Energy Research & Development Authority (NYSERDA), 90

North Carolina Solar Center, 102

Northeast Sustainable Energy Association (NESEA), 103

Ohio Energy Project (OEP), 108

Propane Education & Research Council (PERC), 115

Railroad Commission of TX, 116

Renewable Fuels Association, 118

Science Service, 121

The Wilds, 128

Union of Concerned Scientists (UCS), 129

University of Washington - KidsZone, 131

U.S. Department of Energy - Energy Efficiency & Renewable Energy Information Center (EERE IC), 137

U.S. Department of Energy - Hydrogen Program, 138

U.S. Department of Energy - Alternative Fuels Data Center, 143

U.S. Department of Energy - Office of Scientific & Technical Information (OSTI), 147

U.S. Department of Energy - Pacific Northwest National Laboratory (PNNL), 148

U.S. Department of the Interior - Bureau of Land Management (BLM), 150

U.S. Department of the Interior -Minerals Management Service (MMS), 151

U.S. Environmental Protection Agency (EPA), 152

Westinghouse Electric Company, 157 Xcel Energy, 160

COAL

Air & Waste Management Association (A&WMA), 2

Alliance to Save Energy, 3

American Chemical Society, 5

American Coal Foundation, 7

American Electric Power, 9

American Forest Foundation, 10

American Geological Institute (AGI), 11

American Public Power Association (APPA), 16

Bullfrog Films, 25

California Energy Commission, 26

Cape Light Compact, 29

Center for Energy & Economic Development, 30

Channing Bete Company, 32

City Utilities of Springfield, Missouri, 35

Colorado Energy Science Center (CESC), 36

Culver Company, 39

Edison Electric Institute (EEI), 45

eesmarts, 49

Energy Education Group, 50

EnergyNet U.S., 51

EnergyTeacher.org, 52

Enterprise for Education, Inc., 53

Environmental Education Council of Ohio, 54

FirstEnergy Corporation, 57

General Atomics Sciences Education Foundation, 63

Geothermal Education Office, 64

Illinois Department of Commerce & Economic Opportunity, 67

JEA, 71

Midwest Energy Efficiency Alliance, 77

Mineral Information Institute (MII), 79

National Energy Education Development Project (NEED), 88

National Energy Foundation (NEF), 89

National Propane Gas Association (NPGA), 93

National Rural Electric Cooperative Association, 94

Nebraska Public Power District, 98

New York State Energy Research & Development Authority (NYSERDA), 99

Ohio Energy Project (OEP), 108

Railroad Commission of Texas, 116

Science Screen Report (SSR), 120

Science Service, 121

The Wilds, 128

Union of Concerned Scientists (UCS),

University of Washington - KidsZone, 131

U.S. Department of Energy - Hydrogen Program, 138

U.S. Department of Energy - National Energy Information Center (NEIC), 140

U.S. Department of Energy - National Energy Technology Laboratory (NETL), 141

U.S. Department of Energy - National Renewable Energy Laboratory (NREL), 142

U.S. Department of Energy - Office of Scientific & Technical Information (OSTI), 147

U.S. Department of Energy - Pacific Northwest National Laboratory (PNNL), 148

U.S. Department of the Interior - Bureau of Land Management (BLM), 150

U.S. Department of the Interior -Minerals Management Service (MMS), 151

U.S. Environmental Protection Agency (EPA), 152

Waverly Light & Power, 156

Westinghouse Electric Company, 157

Wisconsin Public Service Corporation (WPSC), 158

Women in Mining Education Foundation (WIMEF), 159

Xcel Energy, 160

ELECTRICITY

Alliance to Save Energy, 3

American Chemical Society, 5

American Coal Foundation, 7

American Council for an Energy-Efficient Economy (ACEEE), 8

American Electric Power, 9

American Forest Foundation, 10

American Geological Institute (AGI), 11

American Nuclear Society, 12

American Public Power Association (APPA), 16

American Solar Energy Society (ASES), 17

American Wind Energy Association (AWEA), 19

Baltimore Gas & Electric Company (BGE), 22

Bullfrog Films, 25

California Energy Commission, 26

Cape Light Compact, 29

Center for Energy & Economic Development (CEED), 30

CenterPoint Energy, 31

Channing Bete Company, 32

Charles Edison Fund, 33

City Utilities of Springfield, Missouri, 35

Colorado Energy Science Center (CESC),36

Culver Company, 39

Disney Educational Productions, 41

Dominion Resources, Inc., 42

EcoSoul/National Fuel Cell Education Program (NFCEP), 44

Edison Electric Institute (EEI), 45

Edison Museum, 46

Education Development Specialists, 47

eesmarts, 49

Energy Education Group, 50

EnergyNet U.S., 51

EnergyTeacher.org, 52

Enterprise for Education, Inc., 53

Environmental Education Council of Ohio, 54

Environmental Hazards Management Institute (EHMI), 55

EV Media, 56

FirstEnergy Corporation, 57

Florida Power & Light Company (FPL),

Frey Scientific, 61

Fuel Cells 2000, 62

General Atomics Sciences Education Foundation, 63

Geothermal Education Office, 64

Geothermal Heat Pump Consortium, 65

Hawaiian Electric Company, 66

JEA, 71

Johnson Controls, Inc., 72

KidWind Project, 74

Kissimmee Utility Authority (KUA), 75

Midwest Energy Efficiency Alliance, 77

Mineral Information Institute (MII), 79

Minnesota Department of Commerce -Energy Division, 80

National Energy Education

Development Project (NEED), 88

National Energy Foundation (NEF), 89

National Geographic Society, 90

National Hydropower Association (NHA), 91

National Propane Gas Association (NPGA), 93

National Rural Electric Cooperative Association, 94

National Science Teachers Association (NSTA), 95

Nebraska Public Power District, 98

New York State Energy Research & Development Authority (NYSERDA), 99

NoodleHead Network, 101

North Carolina Solar Center, 102

Northeast Sustainable Energy Association (NESEA), 103

Northeast Utilities, 104

Nuclear Energy Institute (NEI), 105

Nuclear Information & Resource Service (NIRS), 106

Offshore Energy Center, 107

Ohio Energy Project (OEP), 108

Oklahoma Energy Resources Board, 110

Omaha Public Power District, 111

Pepco, 113

Polystyrene Packaging Council (PSPC), 114

Railroad Commission of Texas, 116

Renewable Energy Policy Project (REPP), 117

San Diego Miramar College, 119

Science Screen Report (SSR), 120

Science Service, 121

Solar Electric Power Association (SEPA), 124

Solar Now, Inc., 126

The Wilds, 128

Union of Concerned Scientists (UCS), 129

University of Illinois at Urbana/ Champaign, 130 University of Washington - KidsZone,

U.S. Department of Energy - Argonne National Laboratory, 134

U.S. Department of Energy - Bonneville Power Administration (BPA), 135

U.S. Department of Energy - Hydrogen Program, 138

U.S. Department of Energy - National Energy Information Center (NEIC), 140

U.S. Department of Energy - National Renewable Energy Laboratory (NREL), 142

U.S. Department of Energy - Alternative Fuels Data Center, 143

U.S. Department of Energy - Office of Civilian Radioactive Waste Management, 144

U.S. Department of Energy - Office of Scientific & Technical Information (OSTI), 147

U.S. Department of Energy - Pacific Northwest National Laboratory (PNNL), 148

U.S. Department of Energy - Western Area Power Administration (WAPA), 149

U.S. Department of the Interior - Bureau of Land Management (BLM), 150

U.S. Department of the Interior -Minerals Management Service (MMS), 151

U.S. Environmental Protection Agency (EPA), 152

U.S. General Services Administration -Federal Citizen Information Center (FCIC), 153

Waverly Light & Power, 156

Westinghouse Electric Company, 157

Wisconsin Public Service Corporation (WPSC), 158

Xcel Energy, 160

ENERGY EFFICIENCY/ENERGY CONSERVATION

A1 Cable Solutions, Inc., 1

Air & Waste Management Association (A&WMA), 2

Alliance to Save Energy, 3

American Chemical Society, 5

American Chemistry Council (ACC), 6

American Coal Foundation, 7

American Council for an Energy-Efficient Economy (ACEEE), 8

American Electric Power, 9

American Forest Foundation, 10

American Geological Institute (AGI), 11

American Nuclear Society, 12

American Petroleum Institute (API), 14

American Plastics Council (APC), 15

American Public Power Association (APPA), 16

American Solar Energy Society (ASES), 17

American Water Works Association (AWWA), 18

Arizona Department of Commerce Energy Office, 20

Aseptic Packaging Council (APC), 21

Baltimore Gas & Electric Company (BGE),22

BP, 22

Bullfrog Films, 25

California Energy Commission, 26

Cape Light Compact, 29

Channing Bete Company, 32

Charles Edison Fund, 33

City Utilities of Springfield, MO, 35

Colorado Energy Science Center (CESC),36

Culver Company, 39

Denver Earth Science Project, 40

Disney Educational Productions, 41

Dominion Resources, Inc., 42

EcoSoul/National Fuel Cell Education Program (NFCEP), 44

Edison Electric Institute (EEI), 45

Educational Development Specialists,

Educational Dividends, 48

eesmarts, 49

Energy Education Group, 50

EnergyNet U.S., 51

EnergyTeacher.org, 52

Enterprise for Education, Inc., 53

Environmental Education Council of Ohio, 54

Environmental Hazards Management Institute (EHMI), 55

EV Media, 56

FirstEnergy Corporation, 57

Florida Power & Light Company, 58

Florida Solar Energy Center (FSEC), 59

Frey Scientific, 61

Fuel Cells 2000, 62

General Atomics Sciences Education Foundation, 63

Geothermal Education Office, 64

Geothermal Heat Pump Consortium, 65

Hawaiian Electric Company, Inc., 66

Interstate Oil & Gas Compact Commission, 70

JEA, 71

Johnson Controls, Inc., 72

Kissimmee Utility Authority (KUA), 75

Midwest Renewable Energy Association, 78

Minnesota Department of Commerce -Energy Division, 80

National Aeronautics & Space Administration (NASA), 81

National Arbor Day Foundation, 82

National Corn Growers Association (NCGA),85

National Energy Education Development Project (NEED), 88 National Energy Foundation (NEF), 89

National Geographic Society, 90

National Oilheat Research Alliance, 92

National Propane Gas Association (NPGA), 93

National Rural Electric Cooperative Association, 94

Nebraska Public Power District, 98

New York State Energy Research & Development Authority (NYSERDA), 99

NoodleHead Network, 101

North Carolina Solar Center, 102

Northeast Sustainable Energy Association (NESEA), 103

Northeast Utilities, 104

Nuclear Energy Institute (NEI), 105

Ohio Energy Project (OEP), 108

Oklahoma Energy Resources Board, 110

Pacific Gas & Electric Company (PG&E), 112

Pepco, 113

Polystyrene Packaging Council (PSPC), 114

Propane Education & Research Council (PERC), 115

Railroad Commission of TX, 116

Renewable Energy Policy Project (REPP), 117

Renewable Fuels Association, 118

Science Screen Report (SSR), 120

Science Service, 121

Solar Electric Power Association (SEPA), 124

Solar Now, Inc., 126

The Wilds, 128

Union of Concerned Scientists (UCS), 129

University of Illinois at Urbana/ Champaign, 130

University of Washington - KidsZone, 131

U.S. Department of Energy - Argonne National Laboratory, 134

U.S. Department of Energy - Bonneville Power Administration (BPA), 135

U.S. Department of Energy - Energy Efficiency & Renewable Energy Information Center (EERE IC), 137

U.S. Department of Energy - Hydrogen Program, 138

U.S. Department of Energy - Los Alamos National Laboratory, 139

U.S. Department of Energy - National Renewable Energy Laboratory (NREL), 142

U.S. Department of Energy - Alternative Fuels Data Center, 143

U.S. Department of Energy - Rebuild America EnergySmart Schools, 145

U.S. Department of Energy - Office of Scientific & Technical Information (OSTI), 147

U.S. Department of Energy - Pacific Northwest National Laboratory (PNNL), 148

U.S. Department of Energy - Western Area Power Administration (WAPA),

U.S. Department of the Interior - Bureau of Land Management (BLM), 150

U.S. Department of the Interior -Minerals Management Service (MMS), 151

U.S. Environmental Protection Agency (EPA), 152

U.S. General Services Administration -Federal Citizen Information Center (FCIC), 153

Watt Watchers, 155

Waverly Light & Power, 156

Westinghouse Electric Company, 157

Wisconsin Public Service Corporation (WPSC), 158

Women in Mining Education Foundation (WIMEF), 159

Xcel Energy, 160

ENVIRONMENT

Air & Waste Management Association (A&WMA), 2

Alliance to Save Energy, 3

American Chemical Society, 5

American Chemistry Council (ACC), 6

American Coal Foundation, 7

American Council for an Energy-Efficient Economy (ACEEE), 8

American Electric Power, 9

American Forest Foundation, 10

American Geological Institute (AGI), 11

American Nuclear Society, 12

American Petroleum Institute (API), 14

American Plastics Council (APC), 15

American Solar Energy Society (ASES), 17

American Water Works Association (AWWA), 18

American Wind Energy Association (AWEA), 19

Arizona Department of Commerce Energy Office, 20

Aseptic Packaging Council (APC), 21

Baltimore Gas & Electric Company (BGE),22

BP, 23

Bronx Zoo/Wildlife Conservation Park,

Bullfrog Films, 25

California Energy Commission, 26

California Foundation for Agriculture in the Classroom (CREEC), 27

California Regional Environmental Education Community Project, 28

Cape Light Compact, 29

Channing Bete Company, 32

Charles Edison Fund, 33

The Chlorine Chemistry Council (CCC), 34

City Utilities of Springfield, MO, 35

Colorado Energy Science Center (CESC), 366

Consumer Aerosol Products Council, 37

Creative Teaching Press, Inc., 38

Culver Company, 39

Denver Earth Science Project, 40

Disney Educational Productions, 41

Dominion Resources, Inc., 42

Earth Foundation, 43

EcoSoul/National Fuel Cell Education Program (NFCEP), 44

Edison Electric Institute (EEI), 45

Educational Development Specialists,

eesmarts, 49

Energy Education Group, 50

EnergyNet U.S., 51

EnergyTeacher.org, 52

Enterprise for Education, Inc., 53

Environmental Education Council of Ohio, 54

Environmental Hazards Management Institute (EHMI), 55

EV Media, 56

FirstEnergy Corporation, 57

Florida Power & Light Company, 58

Florida Solar Energy Center (FSEC), 59

Foodservice & Packaging Institute, Inc., 60

Frey Scientific, 61

Fuel Cells 2000, 62

General Atomics Sciences Education Foundation, 63

Geothermal Education Office, 64

Geothermal Heat Pump Consortium, 65

Hawaiian Electric Company, Inc., 66

The Institute for Chemical Education (ICE), 69

Interstate Oil & Gas Compact Commission, 70

JEA, 71

Johnson Controls, Inc., 72

Keep America Beautiful, Inc., 73

Kissimmee Utility Authority (KUA), 75

Midwest Energy Efficiency Alliance, 77

Mineral Information Institute (MII), 79

Minnesota Department of Commerce -Energy Division, 80

National Aeronautics & Space Administration (NASA), 81

National Arbor Day Foundation, 82

National Association of Conservation Districts (NACD), 83

National Corn Growers Association (NCGA),85

National Cotton Council of America, 86

National Council on Economic Education, 87

National Energy Education Development Project (NEED), 88

National Energy Foundation (NEF), 89

National Geographic Society, 90

National Hydropower Association (NHA), 91

National Propane Gas Association (NPGA), 93

National Rural Electric Cooperative Association, 94

National Science Teachers Association (NSTA), 95

National Wildlife Federation (WEF), 96

Nebraska Public Power District, 98

New York State Energy Research & Development Authority (NYSERDA), 99

NoodleHead Network, 101

North Carolina Solar Center, 102

Northeast Sustainable Energy Association (NESEA), 103

Northeast Utilities, 104

Nuclear Energy Institute (NEI) (NEI), 105

Nuclear Information & Resource Service (NIRS), 106

Offshore Energy Center, 107

Ohio Energy Project (OEP), 108

Ohio Oil & Gas Energy Education Program, 109

Oklahoma Energy Resources Board, 110

Polystyrene Packaging Council (PSPC), 114

Propane Education & Research Council (PERC), 115

Railroad Commission of Texas, 116

Renewable Energy Policy Project (REPP), 117

Renewable Fuels Association, 118

San Diego Miramar College, 119

Science Screen Report (SSR), 120

Science Service, 121

Society of the Plastics Industry, Inc. (SPI), 123

Solar Electric Power Association (SEPA), 124

Solar Energy Industries Association, 125

Solar Now, Inc., 126

The Wilds, 128

Union of Concerned Scientists (UCS),

University of Illinois at Urbana/ Champaign, 130

University of Washington - KidsZone,

U.S. Department of Agriculture - Natural Resources Conservation Service (NRCS),132

U.S. Department of Commerce - National Oceanic & Atmospheric Administration (NOAA), 133

U.S. Department of Energy - Argonne National Laboratory, 134

U.S. Department of Energy - Carbon Dioxide Information Analysis Center (CDIAC), 136

- U.S. Department of Energy Energy Efficiency & Renewable Energy Information Center (EERE IC), 137
- U.S. Department of Energy Hydrogen Program, 138
- U.S. Department of Energy Los Alamos National Laboratory, 139
- U.S. Department of Energy National Renewable Energy Laboratory (NREL), 142
- U.S. Department of Energy Alternative Fuels Data Center, 143
- U.S. Department of Energy Office of Civilian Radioactive Waste Management, 144
- U.S. Department of Energy Rebuild America EnergySmart Schools, 145
- U.S. Department of Energy Office of Scientific & Technical Information (OSTI), 146
- U.S. Department of Energy Pacific Northwest National Laboratory (PNNL), 148
- U.S. Department of the Interior Bureau of Land Management (BLM), 150
- U.S. Department of the Interior -Minerals Management Service (MMS), 151
- U.S. Environmental Protection Agency (EPA), 152
- U.S. General Services Administration -Federal Citizen Information Center (FCIC), 153

Waverly Light & Power, 156

Westinghouse Electric Company, 157

Wisconsin Public Service Corporation (WPSC), 158

Women in Mining Education Foundation (WIMEF), 159

Xcel Energy, 160

GEOSCIENCES/EARTH SCIENCES

Alliance to Save Energy, 3

American Chemical Society, 5

American Coal Foundation, 7

American Electric Power, 9

American Forest Foundation, 10

American Geological Institute (AGI), 11

American Nuclear Society, 12

American Oil & Gas Historical Society, 13

American Petroleum Institute (API), 14

American Plastics Council (APC), 15

American Solar Energy Society (ASES), 17

American Water Works Association (AWWA), 18

Arizona Department of Commerce Energy Office, 20

BP.23

Bullfrog Films, 25

California Energy Commission, 26

Cape Light Compact, 29

Chlorine Chemistry Council (CCC), 34

Colorado Energy Science Center (CESC), 36

Consumer Aerosol Products Council, 37

Creative Teaching Press, Inc., 38

Culver Company, 39

Denver Earth Science Project, 40

Disney Educational Productions, 41

Dominion Resources, Inc., 42

eesmarts, 49

EnergyNet U.S., 51

EnergyTeacher.org, 52

Enterprise for Education, Inc., 53

Environmental Education Council of Ohio, 54

Frey Scientific, 61

General Atomics Sciences Education Foundation, 63

- Geothermal Education Office, 64 Geothermal Heat Pump Consortium, 65 Hawaiian Electric Company, Inc., 66 Interstate Oil & Gas Compact Commission, 70
- Midwest Energy Efficiency Alliance, 77 Mineral Information Institute (MII), 79
- Minnesota Department of Commerce -Energy Division, 80
- National Cotton Council of America, 86 National Council on Economic
- National Council on Economic Education, 87
- National Energy Education Development Project (NEED), 88
- National Energy Foundation (NEF), 89
- National Geographic Society, 90
- National Propane Gas Association (NPGA), 93
- National Rural Electric Cooperative Association, 94
- National Science Teachers Association (NSTA), 95
- New York State Energy Research & Development Authority (NYSERDA), 99
- New York State Geological Survey/ State Museum, 100
- Northeast Sustainable Energy Association (NESEA), 103
- Offshore Energy Center, 107
- Ohio Oil & Gas Energy Education Program, 109
- Oklahoma Energy Resources Board, 110
- Polystyrene Packaging Council (PSPC), 114
- Railroad Commission of Texas, 116 Science Screen Report (SSR), 120
- Science Service, 121
- Solar Electric Power Association, 115 The Wilds, 128
- University of Washington KidsZone, 131

- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS),132
- U.S. Department of Commerce National Oceanic & Atmospheric Administration (NOAA), 133
- U.S. Department of Energy Argonne National Laboratory, 134
- U.S. Department of Energy Bonneville Power Administration (BPA), 135
- U.S. Department of Energy Carbon Dioxide Information Analysis Center (CDIAC), 136
- U.S. Department of Energy Energy Efficiency & Renewable Energy Information Center (EERE IC), 137
- U.S. Department of Energy Hydrogen Program, 138
- U.S. Department of Energy Los Alamos National Laboratory, 139
- U.S. Department of Energy National Renewable Energy Laboratory (NREL), 142
- U.S. Department of Energy Alternative Fuels Data Center, 143
- U.S. Department of Energy Office of Civilian Radioactive Waste Management, 144
- U.S. Department of Energy Office of Scientific & Technical Information (OSTI), 147
- U.S. Department of Energy Pacific Northwest National Laboratory (PNNL), 148
- U.S. Department of the Interior Bureau of Land Management (BLM), 150
- U.S. Department of the Interior -Minerals Management Service (MMS), 151
- U.S. General Services Administration Federal Citizen Information, 153
- Westinghouse Electric Company, 157
- Women in Mining Education Foundation (WIMEF), 159

HYDROGEN

American Chemical Society, 8

American Coal Foundation, 10

American Electric Power, 9

American Forest Foundation, 10

American Solar Energy Society (ASES), 17

Colorado Energy Science Center (CESC), 36

EcoSoul/National Fuel Cell Education Program (NFCEP), 44

Edison Electric Institute (EEI), 45

Energy Education Group, 50

Environmental Education Council of Ohio, 54

FirstEnergy Corporation, 57

Florida Solar Energy Center (FSEC), 59

Frey Scientific, 61

Fuel Cells 2000, 62

General Atomics Sciences Education Foundation, 63

Midwest Energy Efficiency Alliance, 77

National Energy Education Development Project (NEED), 88

National Geographic Society, 90

New York State Energy Research & Development Authority (NYSERDA), 99

North Carolina Solar Center, 102

Northeast Sustainable Energy Association (NESEA), 103

Ohio Energy Project (OEP), 108

Railroad Commission of Texas, 116

Science Service, 121

The Wilds, 128

University of Washington - KidsZone,

U.S. Department of Energy - Energy Efficiency & Renewable Energy Information Center (EERE IC), 137

U.S. Department of Energy - Hydrogen Program, 138

U.S. Department of Energy - National Renewable Energy Laboratory (NREL), 142

U.S. Department of Energy - Alternative Fuels Data Center, 143

U.S. Department of Energy - Pacific Northwest National Laboratory (PNNL), 148

U.S. Department of the Interior - Bureau of Land Management (BLM), 150

U.S. Department of the Interior -Minerals Management Service (MMS), 151

U.S. Environmental Protection Agency (EPA), 152

Westinghouse Electric Company, 157 Xcel Energy, 160

NATURALGAS

Alliance to Save Energy, 3

American Chemical Society, 5

American Chemistry Council (ACC), 6

American Council for an Energy-Efficient Economy (ACEEE), 8

American Electric Power, 9

American Forest Foundation, 10

American Geological Institute (AGI), 11

American Oil and Gas Historical Society, 13

American Petroleum Institute (API), 14

American Plastics Council (APC), 15

American Solar Energy Society (ASES), 17

Baltimore Gas & Electric Company (BGE), 22

BP, 23

California Energy Commission, 26

CenterPoint Energy, 31

Channing Bete Company, 32

City Utilities of Springfield, MO, 35

Colorado Energy Science Center (CESC), 36

Culver Company, 39

Denver Earth Science Project, 40

Edison Electric Institute (EEI), 45

Educational Development Specialists, 47

Energy Education Group, 48

eesmarts, 49

EnergyNet U.S., 51

EnergyTeacher.org, 52

Enterprise for Education, Inc., 53

Environmental Education Council of OHIO.54

FirstEnergy Corporation, 57

Fuel Cells 2000, 62

General Atomics Sciences Education Foundation, 63

Geothermal Education Office, 64

Independent Petroleum Association of America, 68

Interstate Oil & Gas Compact Commission, 70

Midwest Energy Efficiency Alliance, 77

Minnesota Department of Commerce
— Energy Division, 80

National Council on Economic Education, 87

National Energy Education Development Project (NEED), 88

National Energy Foundation (NEF), 89

National Propane Gas Association (NPGA),93

National Rural Electric Cooperative Association, 94

Natural Gas Supply Association (NGSA), 97

New York State Energy Research & Development Authority (NYSERDA), 99

New York State Geological Survey/ State Museum, 100

Offshore Energy Center, 107 Ohio Energy Project (OEP), 108 Ohio Oil & Gas Energy Education

Program, 109

Oklahoma Energy Resources Board, 110

Railroad Commission of Texas, 117

San Diego Miramar College, 119

Science Screen Report (SSR), 120

Science Service, 121

The Wilds, 128

Union of Concerned Scientists (UCS), 129

University of Washington - KidsZone,

U.S. Department of Energy - Hydrogen Program, 138

U.S. Department of Energy - National Energy Information Center (NEIC), 140

U.S. Department of Energy - National Renewable Energy Laboratory (NREL), 142

U.S. Department of Energy - Alternative Fuels Data Center, 143

U.S. Department of Energy - Office of Scientific & Technical Information (OSTI), 147

U.S. Department of Energy - Pacific Northwest National Laboratory (PNNL), 148

U.S. Department of the Interior - Bureau of Land Management (BLM), 150

U.S. Department of the Interior -Minerals Management Service (MMS), 151

U.S. Environmental Protection Agency (EPA), 152

Westinghouse Electric Company, 157

Wisconsin Public Service Corporation (WPSC), 158

Xcel Energy, 160

NUCLEARENERGY

Alliance to Save Energy, 3

American Chemical Society, 5

American Electric Power, 9

American Forest Foundation, 10

American Geological Institute (AGI), 11

American Nuclear Society, 12

Bullfrog Films, 25

California Energy Commission, 26

Charles Edison Fund, 33

Culver Company, 39

Denver Earth Science Project, 40

Disney Educational Productions, 41

Dominion Resources, Inc., 42

Educational Development Specialists, 47

Energy Education Group, 50

EnergyNet U.S., 51

Enterprise for Education, Inc., 53

Environmental Education Council of Ohio, 54

FirstEnergy Corporation, 57

Florida Power & Light Company, 58

General Atomics Sciences Education Foundation, 63

Hawaiian Electric Company, Inc., 66

Midwest Energy Efficiency Alliance, 77

Minnesota Department of Commerce -Energy Division, 80

National Energy Education Development Project (NEED), 88

National Energy Foundation (NEF), 89

National Propane Gas Association (NPGA), 93

National Rural Electric Cooperative Association, 94

Nebraska Public Power District, 98

New York State Energy Research & Development Authority (NYSERDA), 99

Northeast Utilities, 103

Nuclear Energy Institute (NEI), 105

Nuclear Information & Resource Service (NIRS), 106

Ohio Energy Project (OEP), 108

Omaha Public Power District, 111

Railroad Commission of TX, 116

Science Screen Report (SSR), 120

Science Service, 121

Solar Now, Inc., 126

Union of Concerned Scientists (UCS), 129

University of Washington - KidsZone, 131

U.S. Department of Energy - Argonne National Laboratory, 134

U.S. Department of Energy - Hydrogen Program, 138

U.S. Department of Energy - Los Alamos National Laboratory, 139

U.S. Department of Energy - National Energy Information Center (NEIC), 140

U.S. Department of Energy - National Renewable Energy Laboratory (NREL), 142

U.S. Department of Energy - Alternative Fuels Data Center, 143

U.S. Department of Energy - Office of Civilian Radioactive Waste Management, 144

U.S. Department of Energy - Office of Nuclear Energy, Science & Technology, 146

U.S. Department of Energy - Office of Scientific & Technical Information (OSTI), 147

U.S. Department of Energy - Pacific Northwest National Laboratory (PNNL), 148

U.S. Environmental Protection Agency (EPA), 152

Wisconsin Public Service Corporation (WPSC), 158

Xcel Energy, 160

PETROLEUM

Alliance to Save Energy, 3

American Chemical Society, 5

American Chemistry Council (ACC), 6

American Council for an Energy-Efficient Economy (ACEEE), 8

American Forest Foundation, 10

American Geological Institute (AGI), 11

American Oil & Gas Historical Society, 13

American Petroleum Institute (API), 14

American Plastics Council (APC), 15 BP,23

Bullfrog Films, 25

California Energy Commission, 26

Culver Company, 39

Denver Earth Science Project, 40

Edison Electric Institute (EEI), 45

Educational Development Specialists, 47

Energy Education Group, 50

EnergyNet U.S., 51

EnergyTeacher.org, 52

Enterprise for Education, Inc., 53

Environmental Education Council of Ohio, 54

Environmental Hazards Management Institute (EHMI), 55

General Atomics Sciences Education Foundation, 63

Geothermal Education Office, 64

Hawaiian Electric Company, Inc., 66

Independent Petroleum Association of America, 68

Interstate Oil & Gas Compact Commission, 70

Midwest Energy Efficiency Alliance, 77

Minnesota Department of Commerce -Energy Division, 80

National Council on Economic Education, 87

National Energy Education Development Project (NEED), 88 National Energy Foundation (NEF), 89

National Oilheat Research Alliance, 92

National Propane Gas Association (NPGA), 93

Nebraska Public Power District, 98

New York State Energy Research & Development Authority (NYSERDA), 99

New York State Geological Survey/State Museum, 100

Offshore Energy Center, 107

Ohio Energy Project (OEP), 108

Ohio Oil & Gas Energy Education Program, 109

Oklahoma Energy Resources Board, 110

Railroad Commission of Texas, 116

Renewable Fuels Association, 118

San Diego Miramar College, 119

Science Screen Report (SSR), 120

Union of Concerned Scientists (UCS),

University of Washington - KidsZone, 131

U.S. Department of Energy - National Energy Information Center (NEIC), 140

U.S. Department of Energy - Alternative Fuels Data Center, 143

U.S. Department of Energy - Office of Scientific & Technical Information (OSTI), 147

U.S. Department of Energy - Pacific Northwest National Laboratory (PNNL), 148

U.S. Department of the Interior - Bureau of Land Management (BLM), 150

U.S. Department of the Interior -Minerals Management Service (MMS), 151

U.S. Environmental Protection Agency (EPA), 152

Westinghouse Electric Company, 157

Women in Mining Education Foundation (WIMEF), 159

RECYCLING

Air & Waste Management Association (A&WMA), 2

Alliance to Save Energy, 3

Aluminum Association, Inc., 4

American Chemical Society, 5

American Chemistry Council (ACC), 6

American Electric Power, 9

American Forest Foundation, 10

American Geological Institute (AGI), 11

American Petroleum Institute (API), 14

American Plastics Council (APC), 15

American Solar Energy Society (ASES), 17

Arizona Department of Commerce Energy Office, 20

Aseptic Packaging Council (APC), 21

Bullfrog Films, 25

California Energy Commission, 26

CenterPoint Energy, 31

Channing Bete Company, 32

Consumer Aerosol Products Council, 37

Culver Company, 39

Disney Educational Productions, 41

Edison Electric Institute (EEI), 45

Educational Development Specialists, 47

eesmarts, 49

EnergyNet U.S., 51

EnergyTeacher.org, 52

Enterprise for Education, Inc., 53

Environmental Education Council of Ohio, 54

Environmental Hazards Management Institute (EHMI), 55

Foodservice & Packaging Institute, Inc.,

Frey Scientific, 61

General Atomics Sciences Education Foundation, 63

Hawaiian Electric Company, Inc., 66 Keep America Beautiful, Inc., 73 National Council on Economic Education, 87

National Energy Education Development Project (NEED), 88

National Energy Foundation (NEF), 89

National Geographic Society, 90

National Propane Gas Association (NPGA), 93

New York State Energy Research & Development Authority (NYSERDA), 99

NoodleHead Network, 101

Offshore Energy Center, 107

Science Screen Report (SSR), 120

Science Service, 121

Society of Automotive Engineers (SAE), 122

Solar Now, Inc., 126

Steel Recycling Institute, 127

The Wilds, 128

University of Washington - KidsZone,

U.S. Department of Energy - Argonne National Laboratory, 131

U.S. Department of Energy - Hydrogen Program, 138

U.S. Department of Energy - National Renewable Energy Laboratory (NREL), 142

U.S. Department of Energy - Alternative Fuels Data Center, 143

U.S. Department of Energy - Office of Scientific & Technical Information (OSTI), 147

U.S. Department of Energy - Pacific Northwest National Laboratory (PNNL), 148

U.S. Department of the Interior -Minerals Management Service (MMS), 151

U.S. Environmental Protection Agency (EPA), 152

Westinghouse Electric Company, 157

RENEWABLEENERGY

Air & Waste Management Association (A&WMA), 2

Alliance to Save Energy, 3

American Chemical Society, 5

American Chemistry Council (ACC), 6

American Electric Power, 9

American Forest Foundation, 10

American Geological Institute (AGI), 11

American Nuclear Society, 12

American Petroleum Institute (API), 14

American Plastics Council (APC), 15

American Solar Energy Society (ASES), 17

American Wind Energy Association (AWEA), 19

Arizona Department of Commerce Energy Office, 20

Aseptic Packaging Council (APC), 21 BP.23

Bullfrog Films, 25

California Energy Commission, 26

Cape Light Compact, 29

Charles Edison Fund, 33

City Utilities of Springfield, MO, 35

Culver Company, 39

Disney Educational Productions, 41

EcoSoul/National Fuel Cell Education Program (NFCEP), 44

Edison Electric Institute (EEI), 45

eesmarts, 49

Energy Education Group, 50

EnergyNet U.S., 51

EnergyTeacher.org, 52

Enterprise for Education, Inc., 53

Environmental Education Council of Ohio, 54

FirstEnergy Corporation, 57

Florida Power & Light Company, 58

Florida Solar Energy Center (FSEC), 59

Frey Scientific, 61

Fuel Cells 2000, 62

General Atomics Sciences Education Foundation, 63

Geothermal Education Office, 64

Geothermal Heat Pump Consortium, 65

Hawaiian Electric Company, Inc., 66

JEA, 71

KidWind Project, 74

LearnOnLine, Inc., 76

Midwest Renewable Energy Association, 78

Minnesota Department of Commerce -Energy Division, 80

National Biodiesel Board, 84

National Corn Growers Association (NCGA), 85

National Council on Economic Education, 87

National Energy Education Development Project (NEED), 88

National Energy Foundation (NEF), 89

National Hydrogen Association, 90

National Hydropower Association (NHA), 91

National Propane Gas Association (NPGA), 93

National Rural Electric Cooperative Association, 94

Nebraska Public Power District, 98

New York State Energy Research & Development Authority (NYSERDA),

North Carolina Solar Center, 102

Northeast Sustainable Energy Association (NESEA), 103

Ohio Energy Project (OEP), 108

Omaha Public Power District, 111

Polystyrene Packaging Council (PSPC), 114

PPL Corporation, 115

Railroad Commission of Texas, 116

Renewable Energy Policy Project

(REPP), 117

Renewable Fuels Association, 118

San Diego Miramar College, 119

Science Screen Report (SSR), 120

Science Service, 121

Solar Electric Power Association (SEPA), 124

Solar Energy Industries Association, 125

Solar Now, Inc., 127

The Wilds, 128

Union of Concerned Scientists (UCS), 129

University of Illinois at Urbana/ Champaign, 130

University of Washington - KidsZone, 131

U.S. Department of Commerce - National Oceanic & Atmospheric Administration (NOAA), 133

U.S. Department of Energy - Argonne National Laboratory, 134

U.S. Department of Energy - Bonneville Power Administration (BPA), 135

U.S. Department of Energy - Energy Efficiency & Renewable Energy Information Center (EERE IC), 137

U.S. Department of Energy - Hydrogen Program, 138

U.S. Department of Energy - Los Alamos National Laboratory, 139

U.S. Department of Energy - National Energy Information Center (NEIC), 140

U.S. Department of Energy – National Renewable Energy Laboratory (NREL), 142

U.S. Department of Energy - Alternative Fuels Data Center, 143

U.S. Department of Energy - Office of Scientific & Technical Information (OSTI), 147

U.S. Department of Energy - Pacific Northwest National Laboratory (PNNL), 148

U.S. Department of Energy - Western Area Power Administration (WAPA), 149 U.S. Department of the Interior - Bureau of Land Management (BLM), 150

U.S. Department of the Interior - Mineral Management Services, 151

U.S. Environmental Protection Agency (EPA), 152

Waverly Light & Power, 156

Westinghouse Electric Company, 157

Wisconsin Public Service Corporation (WPSC), 158

Women in Mining Education Foundation (WIMEF), 159

Xcel Energy, 160

WASTEMANAGEMENT

Air & Waste Management Association (A&WMA), 2

American Chemical Society, 5

American Chemistry Council (ACC), 6

American Electric Power, 9

American Forest Foundation, 10

American Geological Institute (AGI), 11

American Nuclear Society, 12

American Petroleum Institute (API), 14

American Plastics Council (APC), 15

American Solar Energy Society (ASES), 17

Aseptic Packaging Council (APC), 21

Bullfrog Films, 25

Channing Bete Company, 32

Disney Educational Productions, 41

Edison Electric Institute (EEI), 45

Educational Development Specialists, 47

EnergyNet U.S., 51

Enterprise for Education, Inc., 53

Environmental Education Council of Ohio, 54

Environmental Hazards Management Institute (EHMI), 55

Florida Power & Light Company, 58

Foodservice & Packaging Institute, Inc. (FPI),60

Frey Scientific, 61

General Atomics Sciences Education Foundation, 63

Interstate Oil & Gas Compact Commission, 70

Keep America Beautiful, Inc., 73

Midwest Energy Efficiency Alliance, 77

National Council on Economic Education, 87

National Energy Education Development Project (NEED), 88

National Energy Foundation (NEF), 89

National Geographic Society, 90

New York State Energy Research & Development Authority (NYSERDA), 99

Ohio Energy Project (OEP), 108

Polystyrene Packaging Council (PSPC), 114

Science Screen Report (SSR), 120

Science Service, 121

Society of the Plastics Industry, Inc. (SPI), 123

The Wilds, 128

University of Washington - KidsZone, 131

U.S. Department of Commerce -National Oceanic & Atmospheric Administration (NOAA), 133

U.S. Department of Energy - Los Alamos National Laboratory, 139

U.S. Department of Energy - National Renewable Energy Laboratory (NREL), 142

U.S. Department of Energy - Alternative Fuels Data Center, 143

U.S. Department of Energy - Office of Civilian Radioactive Waste Management, 144

U.S. Department of Energy - Rebuild America/EnergySmart Schools, 145

U.S. Department of Energy - Office of Scientific & Technical Information (OSTI), 147 U.S. Department of Energy - Pacific Northwest National Laboratory (PNNL), 148

U.S. Department of the Interior - Bureau of Land Management (BLM), 150

U.S. Department of the Interior -Minerals Management Service (MMS), 151

U.S. Environmental Protection Agency (EPA), 152

Water Environment Federation (WEF), 154

Westinghouse Electric Company, 157

WATER

Air & Waste Management Association (A&WMA), 2

Alliance to Save Energy, 3

American Chemical Society, 5

American Chemistry Council (ACC), 6

American Electric Power, 9

American Forest Foundation, 10

American Geological Institute (AGI), 11

American Petroleum Institute (API), 15

American Solar Energy Society (ASES), 17

American Water Works Association (AWWA), 18

Bullfrog Films, 25

Channing Bete Company, 32

Chlorine Chemistry Council (CCC), 34

City Utilities of Springfield, MO, 35

Culver Company, 39

Denver Earth Science Project, 40

Disney Educational Productions, 41

Edison Electric Institute (EEI), 45

Educational Development Specialists, 47

Energy Education Group, 50

EnergyNet U.S., 52

Enterprise for Education, Inc., 53

- Environmental Education Council of Ohio, 54
- Environmental Hazards Management Institute (EHMI), 55
- Frey Scientific, 61
- General Atomics Sciences Education Foundation, 63
- Geothermal Education Office, 64 JEA, 71
- Midwest Energy Efficiency Alliance, 77
- National Council on Economic Education, 87
- National Energy Education Development Project (NEED), 88
- National Energy Foundation (NEF), 89
- National Geographic Society, 90
- National Hydropower Association (NHA), 91
- National Rural Electric Cooperative Association, 94
- National Science Teachers Association (NSTA), 95
- National Wildlife Federation (WEF), 96
- Nebraska Public Power District, 98
- New York State Energy Research & Development Authority (NYSERDA), 99
- Polystyrene Packaging Council (PSPC), 114
- Science Screen Report (SSR), 120
- Science Service, 121
- The Wilds, 128
- University of Illinois at Urbana/ Champaign, 130
- University of Washington KidsZone, 131
- U.S. Department of Commerce National Oceanic & Atmospheric Administration (NOAA), 133
- U.S. Department of Energy Bonneville Power Administration (BPA), 135
- U.S. Department of Energy Hydrogen Program, 138

- U.S. Department of Energy Los Alamos National Laboratory, 139
- U.S. Department of Energy National Renewable Energy Laboratory (NREL), 142
- U.S. Department of Energy Alternative Fuels Data Center, 143
- U.S. Department of Energy -Rebuild America EnergySmart Schools, 145
- U.S. Department of Energy Office of Scientific & Technical Information (OSTI), 147
- U.S. Department of Energy Pacific Northwest National Laboratory (PNNL), 148
- U.S. Department of the Interior -Bureau of Land Management (BLM), 150
- U.S. Department of the Interior -Minerals Management Service (MMS), 151
- U.S. Environmental Protection Agency (EPA), 152
- U.S. General Services Administration - Federal Citizen Information, 153
- Water Environment Federation (WEF), 154
- Westinghouse Electric Company, 157 Xcel Energy, 160