

National Renewable Energy Laboratory

# Information Resources Catalogue

A Collection of Energy Efficiency and  
Renewable Energy Information Resources

**1994**

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## About the Catalogue

NREL's first annual *Information Resources Catalogue* is intended to inform anyone interested in energy efficiency and renewable energy technologies of NREL's outreach activities, including publications and services. For ease of use, all entries are categorized by subject.

The catalogue is separated into six main sections. The first section lists and describes services that are available through NREL and how they may be accessed. The second section contains a list of documents that are published by NREL on a regular or periodic basis. The third section highlights NREL's series publications written for specific audiences and presenting a wide range of subjects. NREL's General-Interest Publications constitute the fourth section of the catalogue and are written for nontechnical audiences. Descriptions are provided for these publications. The fifth section contains Technical Reports that detail research and development projects. The section on Conference Papers/Journal Articles/Book Chapters makes up the sixth and final section of the catalogue. **Publications marked with an asterisk (\*) were published in the fourth quarter (July-September) of fiscal year 1994.**

Order forms are provided in the center of the catalogue for your publication requests. To obtain additional copies of this catalogue, please contact NREL's Document Distribution Service (see page 5).

## About the National Renewable Energy Laboratory (NREL)

NREL is the nation's premier national laboratory for research and development in renewable energy and energy efficiency. The Laboratory is a national resource committed to leadership, excellence, and innovation in renewable energy and related technologies.

Our research activities span several scientific and technical areas and are intended for application in the private sector. We foster cooperation with industry through subcontracts and cost-shared studies. We also collaborate with university and other researchers. Our world-class laboratories are available for experiments, analyses, and proprietary studies.

NREL is a U.S. Department of Energy (DOE) national laboratory managed by Midwest Research Institute.

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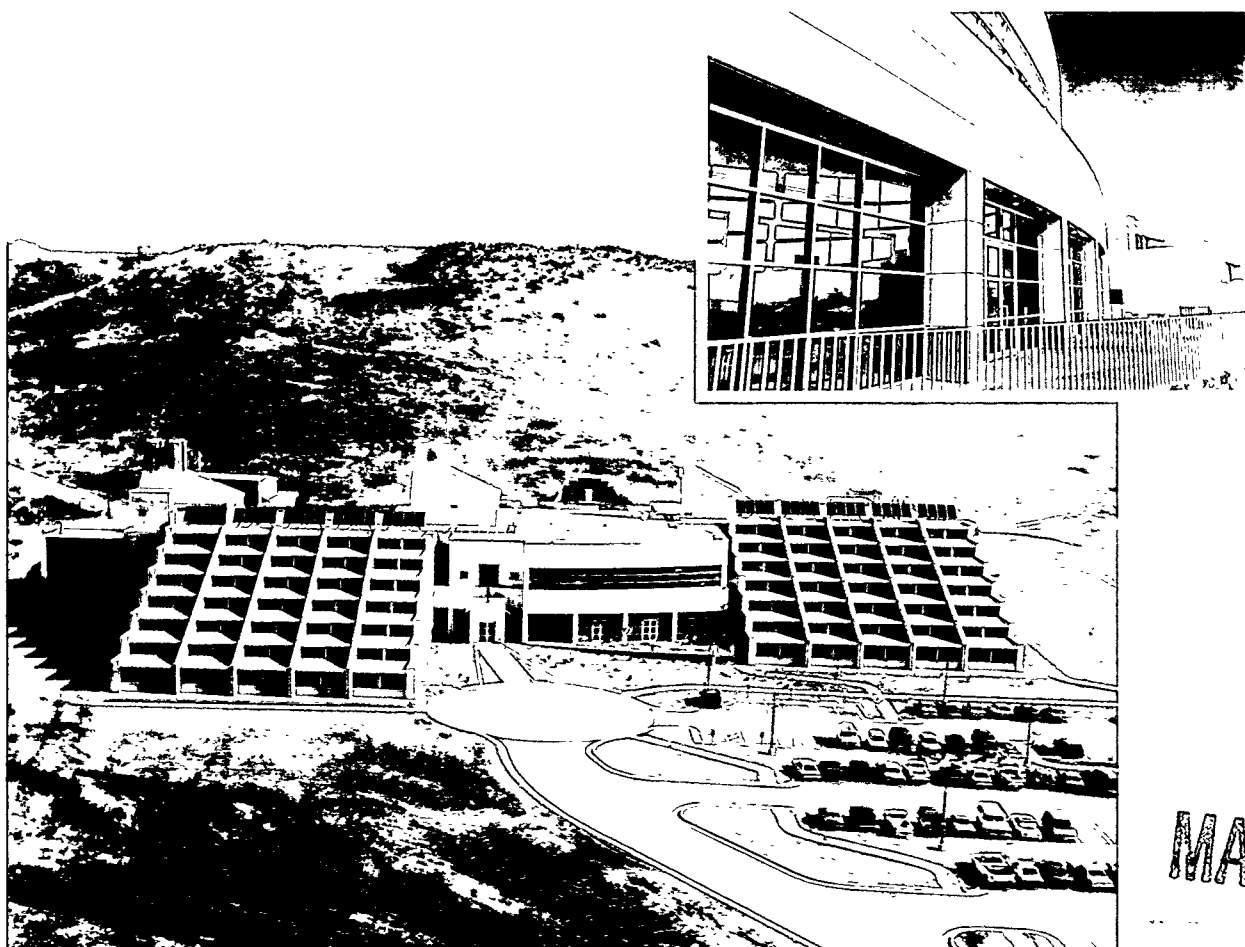
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MASTER

**About the Cover.** The cover is a representation of the main entrance and reception area of the Solar Energy Research Facility, or SERF, one of NREL's newest laboratory buildings. Completed in September 1993, the SERF represents a blend of leading energy efficiency and renewable energy technologies and cost-conscious design. The SERF houses laboratories and offices of scientists involved in photovoltaics, superconductivity, photoconversion, and materials sciences. Research in these and other technologies will ensure that sustainable, clean energy resources will be available tomorrow. To find out more about the SERF, call NREL's Public Affairs Office at (303) 275-4090.

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## NREL Services

NREL offers a number of outreach services to its various audiences. These services range from consumer information clearinghouses to electronic bulletin boards. The following descriptions will tell you how to reach these informative resources.

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### **Biofuels Information Center's Biofuels Data Base**

This is a technical data base consisting of abstracted citations of all U.S. Department of Energy (DOE) and National Renewable Energy Laboratory (NREL) publications from 1980 to the present that are relevant to the production of transportation fuels from biomass. The data base will soon be available through the Internet. Immediate inquiries should be directed to the Biofuels Information Center.

For questions on alternative fuels in general, legislative actions relevant to alternative fuels, and industry-related information, inquiries should be directed to the DOE National Alternative Fuels Hotline.

Biofuels Information Center  
Phone: (303) 275-4347

Alternative Fuels Hotline  
Phone: (800) 423-1DOE

### **Center for Science Education**

NREL and DOE believe it is important to cultivate and inspire a new generation of innovative scientists to discover and invent better ways of using our natural resources. The Center for Science Education in the Education Office at NREL is dedicated to supporting the system that produces our future scientists and engineers by strengthening education programs in science, mathematics, and technology. A wide range of education programs reaches students and teachers from kindergarten to graduate studies with special attention to women and other underrepresented populations in the scientific disciplines.

Phone: (303) 275-3044  
Fax: (303) 275-3076  
E-mail: [lunl@tcplink.nrel.gov](mailto:lunl@tcplink.nrel.gov)

### **Document Distribution Service**

NREL's Document Distribution Service is the central repository for current and some archived documents published by NREL. It is a source for both general interest and technical documents. This service is most useful to those who know which specific documents they need by order number, title, and/or author. You may phone, fax, or mail in your publication requests.

NREL  
Document Distribution Service  
1617 Cole Boulevard, 15/1  
Golden, CO 80401



Phone: (303) 275-4363  
Fax: (303) 275-4053  
E-mail: [evanss@tcplink.nrel.gov](mailto:evanss@tcplink.nrel.gov)

### **Electronic Information Service**

NREL has an electronic information service that provides general information about the Laboratory and technical information and data from its research divisions. This service may be accessed through Gopher at [gopher.nrel.gov](http://gopher.nrel.gov) or through the World Wide Web at <http://info.nrel.gov>, or via modem at (303) 275-INFO.

### **Energy Efficiency and Renewable Energy Clearinghouse (EREC)**

EREC provides information and technical assistance on a large variety of subjects related to energy efficiency and renewable energy technologies. This information is available to the general public including consumers, homeowners, students, educators, business people, utility professionals, farmers, members of the media, building professionals, energy innovators, and government agencies.

EREC receives public inquiries through a nationwide, toll-free telephone service, and a post office mailbox. EREC also maintains a toll-free Bulletin Board System (BBS) and a Telecommunications Device for the Deaf (TDD) number. In addition, EREC has an Internet address to which inquiries can be posted.

EREC is operated by NCI Information Systems, Inc., for DOE under contract to NREL.

Energy Efficiency and Renewable Energy Clearinghouse (EREC)  
P.O. Box 3048  
Merrifield, VA 22116

Phone: (800) 363-3732  
TDD: (800) 273-2957  
BBS: (800) 273-2955  
E-mail: [energyinfo@delphi.com](mailto:energyinfo@delphi.com)

### **Energy Efficiency and Renewable Energy Network (EREN)**

EREN is an electronic service on the Internet's World Wide Web that serves as a gateway and repository of multimedia information on energy efficiency and renewable energy technologies. EREN was developed for DOE's Office of Energy Efficiency and Renewable Energy by Argonne National Laboratory, the National Renewable Energy Laboratory, and Oak Ridge National Laboratory. EREN delivers state-of-the-art information and technical assistance to DOE Headquarters and support offices, State Energy Offices, other federal and state agencies, and the general public. EREN is a DOE program managed by NREL. Please direct inquiries about EREN to the Energy Efficiency and Renewable Energy Clearinghouse.

Phone: (800) 363-3732  
URL: <http://www.eren.doe.gov> (Uniform Resource Locator)

## **Technical Inquiry Service (TIS)**

The mission of NREL's Technical Inquiry Service is to inform key audiences, including the scientific, industrial and business communities, about NREL's research and development (R&D) activities and those of NREL subcontractors.

The information is provided in a timely and consistent manner to assist the inquirer in making informed decisions about renewable energy options. TIS also responds to requests for technical information from research organizations, academic institutions, consulting firms, and investment/financial organizations.

General renewable energy information requests from consumers (including homeowners and students) should be addressed to EREC (listed above).

Phone: (303) 275-4065  
Fax: (303) 275-4091  
E-mail: rubin@tcplink.nrel.gov

## **Technology Transfer Office**

NREL's Technology Transfer Office is the place to start if you are contemplating a business partnership with NREL. NREL offers a variety of mechanisms to help you acquire Laboratory-developed science and technology and benefit from the resources of the Laboratory. NREL works with private industry, government agencies, and educational institutions through both formal and informal partnerships. Access to collaborative research, cost-shared subcontracts, NREL facilities, visiting researcher programs, cooperative research and development agreements, and sponsored research is available to you or your business through NREL's Technology Transfer Office.

NREL  
Technology Transfer Office  
1617 Cole Boulevard, 17/3  
Golden, CO 80401

Phone: (303) 275-3008  
Fax: (303) 275-3097  
E-mail: pomeroym@tcplink.nrel.gov

## Visitors Center

Step into the future at NREL's new Visitors Center. The Visitors Center provides an interactive environment in which people of all ages can learn about renewable energy. You can explore how solar, wind, and other types of renewable resources can provide energy to your home, workplace, and community without harming the environment.

Through an interactive computer program, farm animals explain how trees and wastepaper are transformed into fuel for your car. A model of NREL's Solar Energy Research Facility, or SERF, highlights the technologies that make it one of the most energy-efficient federal buildings. Solar technologies are also used to heat and light the Visitors Center.

The Visitors Center is located in Golden, Colorado, just west of Denver, at 14869 Denver West Parkway (take Exit 263 off of I-70). Hours of operation are Monday through Friday, 8:00 a.m. to 5:00 p.m. Summer hours include Saturday and Sunday, 10:00 a.m. to 4:00 p.m. For group visits or more information, contact the Visitors Center.

Phone: (303) 384-6566

E-mail: [lynne@tcplink.nrel.gov](mailto:lynne@tcplink.nrel.gov)

## NREL Periodicals

NREL publishes several newsletters and journals on a regular basis. These periodicals address a wide range of energy efficiency and renewable energy technologies and are written for diverse audiences.

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### ***AFDC Update: News of the Alternative Fuels Data Center***

The AFDC newsletter is intended for current and prospective users of the Alternative Fuels Data Center, as well as other stakeholders in the alternative fuels arena. It covers new and ongoing data center activities, pertinent legislation, and industry activities in alternative fuels.

Phone: (800) 423-1DOE

### ***Biofuels Update***

This quarterly newsletter covers DOE research, related activities, and legislation in biofuels technologies.

Phone: (800) 423-1DOE

### ***NREL In Review: Science and Technology at the National Renewable Energy Laboratory***

NREL's news magazine is intended to promote the flow of technology from the Laboratory to the private sector. *NREL In Review* addresses a readership ranging from scientific professionals to business people. It is distributed without charge to those involved in renewable energy and related fields.

Phone: (303) 275-4097

### ***PV Working with Industry***

The purpose of this quarterly report is to encourage cooperative R&D by providing the U.S. photovoltaics (PV) industry with information on the activities and capabilities of the laboratories and researchers at NREL.

Phone: (303) 384-6570

### ***Solar 2000 Update***

*Solar 2000 Update* is a publication that provides information to prospective end users of photovoltaic, solar thermal electric, and biomass electric technologies in electric utility applications.

Phone: (303) 384-6492

### ***Solar Detox Update***

*Solar Detox Update* informs the research community of advances in NREL's work in photocatalytic and photolytic destruction of environmental contaminants. Each issue includes feature-length articles on major research or application-oriented advances, brief updates on related research, and a bibliography of recent publications. *Solar Detox Update* is published twice a year.

Phone: (303) 275-3658

## NREL Series Publications

NREL series publications address a variety of energy efficiency and renewable energy information geared toward particular audiences. All published titles in each series are listed here for your convenience, although only those published in FY 1994 are included in the main publication listings by subject.

### Analytic Studies Briefs

NREL's Analytic Studies Briefs summarize the latest results of NREL analyses of renewable energy markets, renewable resource characteristics, and environmental and technology performance data.

#### Analysis Examines Recent Projections of Electric Power Demand

(August 1994; 2 pp.; Order no. MK-463-5787)

#### National Projects Link Energy-Efficient Mortgages with Home Energy Ratings

(July 1994; 2 pp.; Order no. MK-461-5861)

#### NREL Examines Environmental, Health, and Safety Issues Concerning Nickel Metal Hydride Batteries

(July 1994; 2 pp.; Order no. MK-463-5863)

#### NREL Examines Methods to Forecast the Market Penetration of New Energy Technologies

(March 1993; 2 pp.; Order no. MK-462-5221)

#### Report Clarifies and Explains Integration of Intermittent Renewable Electric Technologies

(July 1994; 2 pp.; Order no. MK-463-5786)

#### Study Shows Trends in Support for Clean Energy and the Environment

(June 1993; 2 pp.; Order no. MK-461-5431)

### Cities and Counties Project

Learn how your city or county government can save energy dollars through innovative projects. Aimed at decision and policy makers, managers, and staff in local governments, the Cities and Counties Tomorrow's Energy Today Fact Sheet series showcases successful energy-saving projects currently in use in America's cities and counties. As part of the project, the *Cities and Counties Resource Guide* will further help you locate information to encourage similar projects in your community.

#### Alternative Wastewater Treatment: Advanced Integrated Pond Systems

(October 1993; 6 pp.; Order no. DOE/CH10093-246)

#### Buildings that Save Money with Efficient Lighting

(November 1993; 4 pp.; Order no. DOE/CH10093-212)

#### Catch a Cleaner Bus

(February 1994; 6 pp.; Order no. DOE/CH10093-263)

#### Cities Cut Water System Energy Costs

(February 1994; 4 pp.; Order no. DOE/CH10093-262)

#### The Clean Air Act: What It Means for Municipal Fleets

(March 1993; 4 pp.; Order no. DOE/CH10093-171)

#### Cooling Our Cities

(November 1993; 4 pp.; Order no. DOE/CH10093-211)

#### Energy Dollars Relieve Municipal Budgets

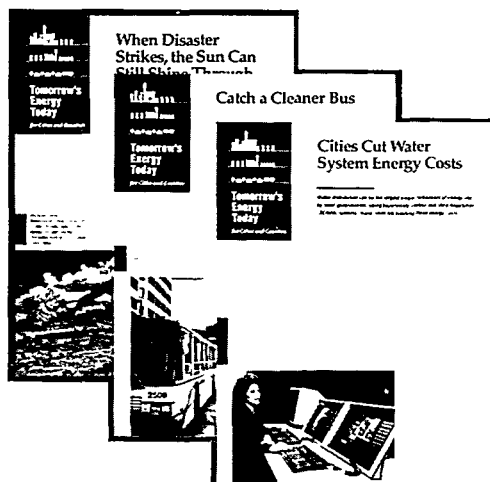
(December 1992; 4 pp.; Order no. DOE/CH10093-170)

#### Energy Efficiency Strengthens Local Economies

(March 1993; 4 pp.; Order no. DOE/CH10093-172)

#### Financing Local Energy Efficiency Projects

(June 1994; 4 pp.; Order no. DOE/CH10093-346)



## Cities and Counties Project (Continued)

### **The Jobs Connection: Energy Use and Local Economic Development**

(July 1994; 6 pp.; Order no. DOE/CH10093-368)

### **Linking Energy Use and City Planning**

(December 1993; 4 pp.; Order no. DOE/CH10093-255)

### **Procurement Works Hand In Hand with Energy Efficiency**

(July 1994; 4 pp.; Order no. DOE/CH10093-347)

### **Solar Access: A Winning Strategy**

(December 1993; 4 pp.; Order no. DOE/CH10093-256)

### **Traffic Flow: Keeping It Moving**

(May 1994; 4 pp.; Order no. DOE/CH10093-322B)

### **Using Landfill Gas for Energy: Projects that Pay**

(May 1994; 6 pp.; Order no. DOE/CH10093-322A)

### **When Disaster Strikes, the Sun Can Still Shine Through**

(March 1994; 6 pp.; Order no. DOE/CH10093-282)

### **Cities and Counties Resource Guide**

(September 1994; 68 pp.; Order no. DOE/CH10093-287)

## Energized Fact Sheets

The Energized family of two-page fact sheets describes specific projects within NREL's Solar Industrial, Buildings, and Geothermal research programs. They are written for those with technical knowledge, but little familiarity with the specific technologies discussed.

### **Building America**

(June 1994; Order no. TP-470-5776J)

### **Direct Contact Condensers: Advanced Designs for Geothermal Power Plants**

(April 1994; Order no. TP-470-5776P)

### **Electronics and the Sun: Metallizing Ceramics Using Solar Energy**

(April 1994; Order no. TP-470-5776F)

### **Manufacturing with the Sun**

(December 1993; Order no. TP-470-5776E)

### **Solar Heat: Business and Government Warm Up to a Proven Technology**

(January 1994; Order no. TP-470-5776C)



## Energy Efficiency and Renewable Energy Clearinghouse (EREC) Fact Sheets

The new EREC series is designed to provide information to the general public about energy efficiency and renewable energy technologies. This informative and educational series is written for students, teachers, consumers, building contractors, do-it-yourselfers, and potential investors in renewable technologies, among others. The first fact sheets of the series are listed here, but many more are planned and will address topics as varied as energy-efficient windows and water heating, passive solar energy systems, and wind energy systems.

## **Energy Efficiency and Renewable Energy Clearinghouse (EREC) Fact Sheets (Continued)**

### **Cooling Your Home Naturally**

(October 1994; 8 pp.; Order no. DOE/CH10093-221)

### **A Guide to Making Energy-Smart Purchases**

(April 1994; 8 pp.; Order no. DOE/CH10093-271)

### **Solar Heating and You**

(August 1994; 8 pp.; Order no. DOE/CH10093-272)

## **Federal Energy Management Programs (FEMP) Bulletins**

This series describes the various programs and projects within the Office of Federal Energy Management Programs. The primary aim is to inform readers of the U.S. government's innovative efforts to reach the goals of the Energy Policy Act of 1992 and Executive Order 12902 of reducing energy use in federal buildings and to encourage government-industry partnerships in the process. The series is written primarily for decision makers and building managers in federal facilities. Members of the buildings community and researchers in industry and at government laboratories and universities may also find this series of interest.

### **Energy Savings Performance Contracting**

(May 1994; 2 pp.; Order no. DOE/CH10093-286)

### **Federal Energy Efficiency Fund**

(April 1994; 2 pp.; Order no. DOE/CH10093-285)

### **Fort Lewis Conservation Program**

(June 1994; 2 pp.; Order no. DOE/CH10093-253)

### **SAVEnergy Program**

(September 1994; 2 pp.; Order no. DOE/CH10093-333)

## **Industrial Innovations for Tomorrow**

Industrial Innovations for Tomorrow is a series of two-page fact sheets produced for the Office of Industrial Technologies. The series focuses on DOE-sponsored programs and technologies that improve energy efficiency and reduce waste in industry. The objective of the series is to stimulate interest in cost-shared research, field testing, or application between managers in industry and potential government partners.

### **Brayton-Cycle Heat Pump Recovers Solvents**

(January 1992; Order no. DOE/CH10093-118)

### **Ceramic-Tube Heat Exchanger Reduces Energy Use and Increases Yield of Chemical Products**

(September 1992; Order no. DOE/CH10093-142)

### **Commercial Power Plant Tests Blend of Refuse-Derived Fuel and Coal to Generate Electricity**

(November 1993; Order no. DOE/CH10093-194)

### **Computer Model Helps the U.S. Automotive Industry Design Efficient New Engines**

(May 1993; Order no. DOE/CH10093-167)

### **Coordinated Research Aims to Eliminate Engine Knock**

(August 1993; Order no. DOE/CH10093-166)

### **Dual-Cure Photocatalysts Reduce Solvent Use in Coatings**

(May 1993; Order no. DOE/CH10093-126)

### **Efficient Bioprocess Uses Microorganisms to Separate Phosphate from Ore**

(April 1993; Order no. DOE/CH10093-164)

### **Energy-Efficient Ceramic Catalytic Membrane Reactor Can Replace Some Thermal Processes for Producing Chemicals**

(April 1993; Order no. DOE/CH10093-164)

### **Freeze Concentration Can Save Energy and Open Up New Markets for Dairy Products**

(April 1993; Order no. DOE/CH10093-162)



## **Industrial Innovations for Tomorrow (Continued)**

- High-Performance Steam System Boosts Energy Efficiency and Broadens Markets for Cogeneration**  
(February 1993; Order no. DOE/CH10093-168)
- Industrial Heat Pumps Improve Plant Efficiency and Recover Wasted Energy Resources**  
(February 1993; 4 pp.; Order no. DOE/CH10093-144)
- Innovative Approach to Chemical Recycling of Plastics**  
(September 1993; Order no. DOE/CH10093-165)
- Innovative Closed-Furnace Technology Generates New Hope for Ailing U.S. Silicon Industry**  
(December 1992; Order no. DOE/CH10093-136)
- Installation of Ultrafiltration/Reverse Osmosis System at Automotive Coatings Plant Minimizes Hazardous Waste**  
(December 1993; Order no. DOE/CH10093-199)
- New Bioreactor Can Produce High-Value Chemicals from Food Processing Wastes**  
(November 1993; Order no. DOE/CH10093-197)
- New Ceramic Heat Exchangers Recapture Energy from Hot Waste Gases**  
(September 1992; Order no. DOE/CH10093-143)
- New Cogeneration System Uses High-Efficiency Diesel Engine to Produce Heat and Power**  
(February 1993; Order no. DOE/CH10093-169)
- New Energy-Efficient Cocurrent Distillation Technology Is a Major Step Forward for Industry**  
(June 1993; Order no. DOE/CH10093-161)
- New Energy-Saving Process for Recovering and Reusing Methanol**  
(October 1993; Order no. DOE/CH10093-200)
- New Hybrid Membrane/Distillation System for Olefin Recovery Saves Energy and Money**  
(June 1993; Order no. DOE/CH10093-193)
- New Materials from Old Tires**  
(July 1992; Order no. DOE/CH10093-119)
- New Materials Improve Energy Efficiency and Reduce Electricity Use in Aluminum Production**  
(September 1992; Order no. DOE/CH10093-140)
- New On-line Sensor Improves Energy Efficiency for a Myriad of Industrial Processes**  
(July 1992; Order no. DOE/CH10093-139)
- New Plastic Made from Potato Peels is Degradable, Inexpensive and Energy Conserving**  
(July 1992; Order no. DOE/CH10093-135)
- New Process Uses Bacteria to Transform Waste Gases into Useful Chemicals**  
(August 1992; Order no. DOE/CH10093-138)
- New Software Aids Selection of Energy-Efficient Motors**  
(February 1993; Order no. DOE/CH10093-168)
- New Soldering Process for Electronic Assemblies Requires Less Energy, Reduces Waste, and Improves the Environment**  
(December 1992; Order no. DOE/CH10092-137)
- New System Uses Fiber Optics to Improve Energy Efficiency in Glassmaking**  
(June 1992; Order no. DOE/CH10093-141)
- New System Uses Solar Energy to Destroy Hazardous Chemicals in Water**  
(May 1994; Order no. DOE/CH10093-196)
- Oxygen-Enriched Cocombustion of Sewage Sludge and Municipal Solid Waste**  
(October 1993; Order no. DOE/CH10093-195)
- Oxygen-Enriched Combustion Can Reduce Emissions and Fuel Use in Energy-Intensive Industries**  
(September 1993; Order no. DOE/CH10093-198)
- Solar Process Heat System Reduces Fuel Consumption at a California Prison**  
(August 1993; Order no. DOE/CH10093-192)
- Supercritical CO<sub>2</sub>—An Environmentally Acceptable Alternative for Industrial Cleaning Applications**  
(June 1994; Order no. DOE/CH10093-201)

## Technology and Research Briefs

These briefs explain research and technology advances made by NREL in a format that is understandable for the nontechnical reader. Additionally, the briefs help identify opportunities for industry and researchers to use the technology or form partnerships with NREL to work on projects. The technology briefs cover technologies at a stage at which other parties might be able to make use of them. The research briefs cover work in progress at a stage at which other researchers might be able to benefit from or contribute to NREL's work.

### **Cellulose Conversion Key to Fuel of the Future—Technology brief**

(August 1994; 4 pp.; Order no. MK-336-5679)

### **Defect Mapping Helps Improve Semiconductor Electronics—Technology brief**

(August 1993; 4 pp.; Order no. MK-336-5684)

### **Microalgae Serve Energy Needs—Research brief**

(August 1994; 4 pp.; Order no. MK-336-5680)

### **"Mini-Manhattan Project" for Cellulases—Research brief**

(October 1993; 4 pp.; Order no. MK-336-5676)

### **NREL Getting Extra "Corn Squeezins"—Technology brief**

(November 1993; 4 pp.; Order no. MK-336-5639)

### **NREL Process and Furnace Harness Optical Phenomenon—**

Technology brief

(September 1994; 4 pp.; Order no. MK-336-5831)

### **NREL Putting It All Together for Biofuels—**

Technology brief

(March 1994; 4 pp.; Order no. MK-336-5675)

### **NREL to Build Major Biofuels Facility—Technology brief**

(October 1993; 4 pp.; Order no. MK-336-5674)

### **NREL Turning Biomass into Adhesives and Plastics—**

Technology brief

(May 1994; 4 pp.; Order no. MK-336-5819)

### **Precise, Non-Degrading Etching of Superconducting**

Circuits—Technology brief

(August 1993; 4 pp.; Order no. MK-336-5678)

### **Profits from Old Plastics—Technology brief**

(February 1994; 4 pp.; Order no. MK-336-5816)

### **Solar-Heated Fresh Air Cuts Heating Costs—Technology brief**

(August 1994; 4 pp.; Order no. MK-336-6702)

### **Trash to Treasure—Technology brief**

(April 1994; 4 pp.; Order no. MK-336-5683)



## **Utility Wind Interest Group (UWIG) Publications**

The Utility Wind Interest Group consists of electric utilities and industrial firms working with the Electric Power Research Institute (EPRI) and DOE to support the integration of wind technology for utility applications. The group has produced eight brochures in the series.

**America Takes Stock of a Vast Energy Resource**

(July 1992; 4 pp.; Order no. UWIG3)

**Another Asset in the Utility Resource Portfolio**

(October 1994; 4 pp.; Order no. SP-440-5954)

**Economic Lessons from a Decade of Experience**

(August 1991; 4 pp.; Order no. UWIG1)

**The Evolving Wind Turbine**

(March 1993; 6 pp.; Order no. SP-336-5897)

**Integrating an Ever-Changing Resource**

(July 1992; 4 pp.; Order no. UWIG2)

**An Old Idea Takes New Shape for Electric Utilities**

(Reprinted November 1992; 4 pp.; Order no. UWIG4)

**Utilities Move Wind Technology Across America**

(February 1994; 6 pp.; Order no. SP-336-5916)

**Wind Power and the Environment**

(August 1993; 4 pp.; Order no. SP-336-5898)

## General Interest Publications

The following publications are listed in subject order for your convenience. The information contained in these documents is generally nontechnical in nature and is intended for a wide audience.

Publications marked with an asterisk (\*) were published in the fourth quarter (July–September) of fiscal year 1994. For ordering information see page 5 or use the order form provided in the center of the catalogue.

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### Buildings

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**Advanced Window Technologies. Program Overview: Office of Building Technologies, U.S. Department of Energy** (Fact sheet). October 1993; 2 pp. Written for architects, builders, university researchers, and others interested in the latest advances in windows technology, this bulletin describes the research sponsored by DOE's Advanced Window Technologies Program on improving the thermal properties of windows.  
Order no. DOE/CH10093-185.

**Building America. Energized** (Fact sheet). June 1994; 2 pp. See series description on p. 12.  
Order no. TP-470-5776J.

**Buildings that Save Money with Efficient Lighting. Tomorrow's Energy Today for Cities and Counties** (Fact sheet). November 1993; 4 pp. See series description on p. 11.  
Order no. DOE/CH10093-212.

**Cooling Your Home Naturally. Energy Efficiency and Renewable Energy Clearinghouse (EREC)** (Fact sheet). October 1994; 8 pp. See series description on p. 12.  
Order no. DOE/CH10093-221.\*

**Energy Savings Performance Contracting. What's New in Federal Energy Management: Program Overview** (Fact sheet). May 1994; 2 pp. See series description on p. 13.  
Order no. DOE/CH10093-286.

**Federal Energy Efficiency Fund. What's New in Federal Energy Management: Program Overview** (Fact sheet). April 1994;

2 pp. See series description on p. 13.  
Order no. DOE/CH10093-285.

**Fort Lewis Conservation Program. What's New in Federal Energy Management: Program Overview** (Fact sheet). June 1994; 2 pp. See series description on p. 13.  
Order no. DOE/CH10093-253.

**National Projects Link Energy-Efficient Mortgages with Home Energy Ratings** (Analytic Studies brief). July 1994; 2 pp. See series description on p. 11.  
Order no. MK-461-5861.\*

**SAVEnergy Program. What's New in Federal Energy Management: Program Overview** (Fact sheet). September 1994; 2 pp. See series description on p. 13.  
Order no. DOE/CH10093-333.\*

**The Solar Renaissance** (Article). McIntyre, M. *Construction Specifier*. March 1994; 47(3): pp. 86-95. Examines some of the ways solar energy technologies can be used for heating, cooling, and lighting buildings efficiently and economically. Also presents some examples of these technologies currently in use. Available through your local library.

**Step into the Future of Energy-Efficient Building Design and Renewable Energy Research** (Brochure). October 1993; 6 pp. This brochure examines NREL's model of energy-efficient building design, the new Solar Energy Research Facility (SERF) building. A description of the SERF's lighting, heating, and cooling systems is included.  
Order no. MK-130-5773.

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## Electric/Hybrid Vehicles

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**1994 HEV Challenge: Share the Excitement of Sponsoring the Future** (Brochure). 1993; 4 pp. The HEV Challenge is a competition to develop a vehicle with two sources of motive energy: an electric motor powered by batteries, and a combustion engine powered by methanol, ethanol, or reformulated gasoline. The brochure describes the HEV Challenge and the benefits of sponsoring a team.  
Order no. SP-336-5985.

**NREL Examines Environmental, Health, and Safety Issues Concerning Nickel Metal Hydride Batteries** (Analytic Studies brief). July 1994; 2 pp. See series description on p. 11.  
Order no. MK-463-5863.\*

**Sunrayce 93** (Article). Nelsen, E.; Leboeuf, C. *CADDET Renewable Energy Newsletter*. April 1994; No. 2: pp. 27-29. Discusses basic rules, vehicle design features, and race results for the 1993 competition of solar-powered cars. Available through your local library.

**Sunrayce 93: Solar Car Racing Offers Students and the General Public an Exciting Introduction to Solar Energy Technologies** (Article). Nelsen, E.; Leboeuf, C. *Solar Today*. January/February 1994; 8(1): pp. 21-22. Reports on the highlights of Sunrayce 93, a cross-country race of solar-powered vehicles. Available through your local library.

**Sunrayce 93: The Hottest New Sport on Campus** (Booklet). May 1994; 89 pp. This report describes the 1993 cross-country automobile race for solar-powered cars. The cars were designed, built, and driven by teams of U.S. university students. The report provides a history of the race and details the specifications of the race, the car designs and qualifications, and the people and sponsors involved in the race.  
Order no. TP-411-6767.

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## Energy Efficiency and Renewable Energy

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**Cities and Counties Resource Guide: Meeting Today's Energy Needs Without Sacrificing Tomorrow's Resources** (Book). September 1994; 68 pp. The *Cities and Counties Resource Guide* is designed to help local government officials navigate the maze of information on energy efficiency, energy planning, transportation, waste management, water management, alternative energy, and renewable energy. It pinpoints resources that will help you make informed decisions regarding sustainability for your community.  
Order no. DOE/CH10093-287.\*

**Cities Cut Water System Energy Costs. Tomorrow's Energy Today for Cities and Counties** (Fact sheet). February 1994; 4 pp. See series description on p. 11.  
Order no. DOE/CH10093-262.

**Cooling Our Cities. Tomorrow's Energy Today for Cities and Counties** (Fact sheet). November 1993; 4 pp. See series description on p. 11.  
Order no. DOE/CH10093-211.

**Energy Dollars Relieve Municipal Budgets. Tomorrow's Energy Today for Cities and Counties** (Fact sheet). December 1992; 4 pp. See series description on p. 11.  
Order no. DOE/CH10093-170.

**Energy Efficiency Strengthens Local Economies. Tomorrow's Energy Today for Cities and Counties** (Fact sheet). March 1993; 4 pp. See series description on p. 11.  
Order no. DOE/CH10093-172.

**Energy—Our Future is Today!: Energy Awareness Month Packet**. September 1994; 22 pp. Packet contains 1 poster, 21 "Talking Point" papers, 1 short speech, and 2 short articles. Jointly prepared by NREL and the DOE Office of Public Affairs.  
Order no. SP-336-7129.\*

## Energy Efficiency and Renewable Energy (Continued)

**Energy-Related Inventions Program** (Brochure). Revised September 1994; 6 pp. This brochure explains how the Energy-Related Inventions Program can help you make the journey from idea to market with energy-related inventions. The program provides free technical evaluation, market assessment, workshops, and grant funding support for the research, development, and marketing of new ideas.



Order no. DOE/CH10093-151.\*

**Financing Local Energy Efficiency Projects.** *Tomorrow's Energy Today for Cities and Counties* (Fact sheet). June 1994; 4 pp. See series description on p. 11. Order no. DOE/CH10093-346.

**A Guide to Making Energy-Smart Purchases.** *Energy Efficiency and Renewable Energy Clearinghouse (EREC)* (Fact sheet). April 1994; 8 pp. See series description on p. 12. Order no. DOE/CH10093-271.

**Innovative Concepts Program** (Brochure). Revised September 1994; 6 pp. The U.S. Department of Energy Inventions and Innovations Division can help you move your idea from a concept to the marketplace. In addition to explaining how the program works, this brochure presents success stories of how the Innovative Concepts Program has helped new innovations find commercial applications in U.S. industry. Order no. DOE/CH10093-208.\*

**The Jobs Connection: Energy Use and Local Economic Development.** *Tomorrow's Energy Today for Cities and Counties* (Fact sheet). July 1994; 6 pp. See series description on p. 11. Order no. DOE/CH10093-368.\*

**Office of Energy Efficiency and Renewable Energy.** *Tomorrow's Energy Today* (Fact sheet). Revised October 1993; 2 pp. This fact sheet lists the offices, functions, and goals of the DOE Office of Energy Efficiency and Renewable Energy. Order no. DOE/CH10093-160.

**Procurement Works Hand in Hand with Energy Efficiency.** *Tomorrow's Energy Today for Cities and Counties* (Fact sheet). July 1994; 4 pp. See series description on p. 11. Order no. DOE/CH10093-347.\*

**Renewable Energy** (Article). Sunderman, D. *Forum for Applied Research and Public Policy*. Spring 1994; 9(1): pp. 112-115. Discusses the changing roles of national laboratories with an emphasis on science and technology relating to energy efficiency, energy supplies, the impact of energy on the environment, technology transfer from laboratories to academia and the private sector, and the involvement of the private sector in the development of technologies. The article looks at how NREL is working to achieve those goals. It also provides an overview of the future of renewable energy and energy efficiency. Available through your local library.

**Renewable Energy in the United States** (Article). Stokes, R.; Bath, T. *CADDET Renewable Energy Newsletter*. January 1994; No. 1: pp. 14-17. Highlights the status of renewable energy in the United States by looking at the types of renewable resources and the progress that has been made in developing renewable energy technologies. Available through your local library.

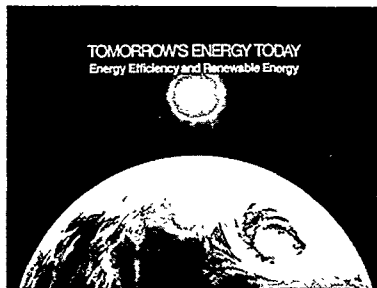
## Energy Efficiency and Renewable Energy (Continued)

**Renewable Energy Rises to the Clean Air Challenge** (Article). Sunderman, D. *Pennsylvania Energy*. Winter 1993; 7(1): pp. 34-36. Examines a variety of state and utility company projects using renewable energy sources (wind, solar, alternative fuels) to reduce air pollution and meet the requirements of the Clean Air Act Amendments. Available through your local library.

**Tomorrow's Energy Today** (Video). July 1993; Length 23:05. An award-winning video that features various solar and wind technologies and alternative fuels from biomass. **Tomorrow's Energy Today: The Energy Efficiency Option** (Video). July 1993; Length 26:00. This video includes energy-efficient lighting and manufacturing processes, advanced windows and insulation, and electric vehicles. Both programs are available on a single VHS tape from EREC at (800) 363-3732.

**Tomorrow's Energy Today; Energy Efficiency and Renewable Energy** (Brochure). Revised November 1993; 16 pp. Along with discussing new energy efficiency strategies, this brochure describes how government works with the private sector to produce electricity from clean, abundant renewable energy resources. It also shows how plant material can be converted to new transportation fuels. The brochure explains the major goals and strategies of U.S. Department of Energy programs in energy efficiency and renewable energy.

Order no. DOE/CH10093-90.



**U.S. Department of Energy 1994 National Awards Program for Energy Efficiency and Renewable Energy. Tomorrow's Energy Today** (Book). April 1994; 150 pp. This document was produced for the 1994 National Awards Program for Energy Innovation. The projects selected for awards represent innovative energy initiatives being undertaken by schools, businesses, communities, and individuals to increase the use of renewable energy and reduce overall energy consumption. Projects receiving the award are described in the book as case studies. Order no. DOE/CH10093-295.

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### Energy Policy and Analysis

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**Linking Energy Use and City Planning. Tomorrow's Energy Today for Cities and Counties** (Fact sheet). December 1993; 4 pp. See series description on p. 11. Order no. DOE/CH10093-255.

**Solar Access: A Winning Strategy. Tomorrow's Energy Today for Cities and Counties** (Fact sheet). December 1993; 4 pp. See series description on p. 11. Order no. DOE/CH10093-256.

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### Fuels and Chemicals

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**AFDC Update: News of the Alternative Fuels Data Center—Spring 1994** (Newsletter). 1994; 3(1): 8 pp. See periodical description on p. 9. Order no. SP-425-6358.

**AFDC Update: News of the Alternative Fuels Data Center—Winter 1994** (Newsletter). 1994; 2(4): 8 pp. See periodical description on p. 9. Order no. SP-425-6171.

**AFDC Update: News of the Alternative Fuels Data Center—Fall 1993** (Newsletter). 1993; 2(3): 8 pp. See periodical description on p. 9. Order no. SP-336-6446.

## Fuels and Chemicals (Continued)

### **Alternative Feedstocks Program: Business Opportunities for Industry (Brochure).**

May 1994; 6 pp.

Order no. TP-430-6325B.

### **Alternative Feedstocks Program: Business Opportunities to Revitalize Agriculture (Brochure).**

May 1994; 6 pp.

Order no. TP-430-6325A.

These brochures discuss opportunities for industrial and agricultural businesses to enter into research and development partnerships with DOE laboratories to use resources from renewable and agricultural processes as feedstocks to demonstrate new pathways to chemical production.

### **The American Farm: Harnessing the Sun to Fuel the World (Booklet).**

March 1994;

24 pp. This color-

ful 24-page

booklet was

produced by

and for several

energy, agricul-

tural, and related

organizations

to show how

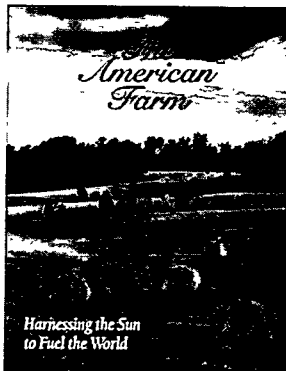
America's

farmers can

profitably grow

energy crops.

Order no. SP-420-5877.



### **Biofuels for Transportation: The Road from Research to the Marketplace (Folder).**

Revised March

1994; 6 pp. This

publication

provides a brief,

general overview

of DOE's

Biofuels Program.

Fact sheets are

provided that

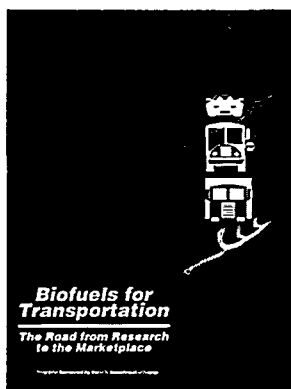
focus on ethanol,

methanol,

reformulated

gasoline, and

biodiesel. Information on NREL's Alternative



Fuels User Facility, where much of this research is being conducted, is also provided. This folder contains all of the following fact sheets.

Order no. SP-420-5439.

### **Alternative Fuels User Facility. Biofuels Facts.**

March 1994; 2 pp.

### **Biodiesel. Biofuels Facts.**

March 1994;

2 pp.

### **Ethanol from Biomass. Biofuels Facts.**

March 1994; 2 pp.

### **Ethers from Biomass: Additives for Reformulated Gasoline. Biofuels Facts.**

November 1993; 2 pp.

### **Methanol from Biomass. Biofuels Facts.**

March 1994; 2 pp.

### **Biofuels: Project Summaries (Book).**

July 1994; 128 pp. Produced for the U.S.

Department of Energy by the National

Renewable Energy Laboratory, Golden,

Colorado.

Order no. DOE/CH10093-297.\*

### **Biofuels Update: Report on U.S. DOE Biofuels Technology—Spring 1994**

(Newsletter). 1994; 2(2): 4 pp. See series

description on p. 9.

Order no. SP-420-6384.

### **Biofuels Update: Report on U.S. DOE Biofuels Technology—Winter 1994**

(Newsletter). 1994; 2(1): 4 pp. See periodical

description on p. 9.

Order no. SP-420-6237.

### **Biofuels Update: Report on NREL Biofuels Technology—Fall 1993 (Newsletter).**

1993; 1(1): 2 pp. See periodical description on p. 9.

Order no. SP-336-5981.

### **Cellulose Conversion Key to Fuel of the Future: NREL Improving Key Step in Producing Ethanol from Biomass**

(Technology brief). August 1994; 4 pp.

See series description on p. 15.

Order no. MK-336-5679.\*



## Fuels and Chemicals (Continued)

**Microalgae Serve Energy Needs: NREL Cultivating Biodiesel Source that Reduces Greenhouse Gases** (Research brief). August 1994; 4 pp. See series description on p. 15. Order no. MK-366-5680.\*

**"Mini-Manhattan Project" for Cellulases** (Research brief). October 1993; 4 pp. See series description on p. 15. Order no. MK-336-5676.

**New Bioreactor Can Produce High-Value Chemicals from Food Processing Wastes. Industrial Innovations for Tomorrow** (Fact sheet). November 1993; 2 pp. See series description on p. 13. Order no. DOE/CH10093-197.

**New Energy-Saving Process for Recovering and Reusing Methanol. Industrial Innovations for Tomorrow** (Fact sheet). October 1993; 2 pp. See series description on p. 13. Order no. DOE/CH10093-200.

**NREL Getting Extra "Corn Squeezins"** (Technology brief). November 1993; 4 pp. See series description on p. 15. Order no. MK-336-5639.

**NREL Putting It All Together for Biofuels; Bioprocess Integration: A Critical Step Towards Commercialization** (Technology brief). March 1994; 4 pp. See series description on p. 15. Order no. MK-336-5675.

**NREL to Build Major Biofuels Facility** (Technology brief). October 1993; 4 pp. See series description on p. 15. Order no. MK-336-5674.

**NREL Turning Biomass into Adhesives and Plastics** (Technology brief). May 1994; 4 pp. See series description on p. 15. Order no. MK-336-5819.

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## Geothermal

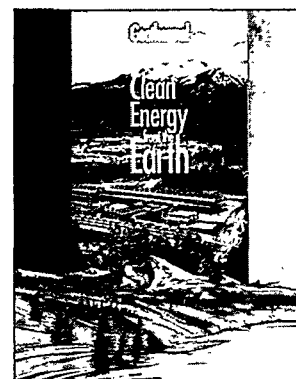
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**Direct Contact Condensers: Advanced Designs for Geothermal Power Plants. Energized** (Fact sheet). April 1994; 2 pp. See series description on p. 12. Order no. TP-470-5776P.

**Geothermal: Clean Energy from the Earth** (Brochure).

October 1994; 6 pp. Emphasizes the environmental benefits of geothermal power and encourages utilities to consider it for their current and future power needs.

Order no. DOE/GO10094-003.\*



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## Industry

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**Installation of Ultrafiltration/Reverse Osmosis System at Automotive Coatings Plant Minimizes Hazardous Waste. Industrial Innovations for Tomorrow** (Fact sheet). December 1993; 2 pp. See series description on p. 13. Order no. DOE/CH10093-199.

**Manufacturing Ceramic Powders: A Collaboration for Strengthening U.S. Industry. Energized** (Fact sheet). August 1994; 2 pp. See series description on p. 12. Order no. TP-470-5776D.\*

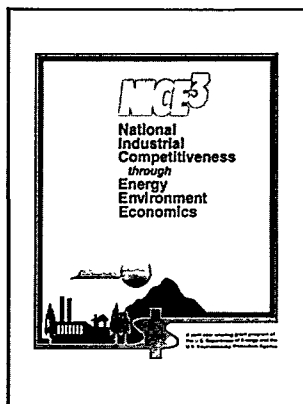
**Motor Challenge: U.S. Department of Energy** (Brochure). February 1994; 6 pp. Increasing the use of energy-efficient electric motor systems is a win-win situation for industry and the nation. The Motor Challenge is a joint effort by DOE, industry, motor/drive manufacturers and distributors, and other key

## Industry (Continued)

participants to put information about energy-efficient motor system technology into the hands of people who can use it. This brochure explains the benefits and resources that the Motor Challenge program offers and how you can get more information.

Order no. DOE/CH10093-247.

**NICE<sup>3</sup> Kit: National Industrial Competitiveness through Energy, Environment, Economics (Kit).** October 1994. Wouldn't it be NICE if industries could receive financial assistance to demonstrate energy-efficient, waste-reducing technologies? Two federal agencies have joined forces to sponsor an innovative, cost-sharing grant program with state and industry partners to save energy, prevent pollution, and enhance industrial competitiveness. This kit highlights successful projects that were awarded grant money from the U.S. Department of Energy and the U.S. Environmental Protection Agency to help offset start-up risk. Kit includes the following fact sheets, which cannot be ordered individually.



Order no. SP-336-5958.\*

**Advanced Mineral Calciner**  
**Advanced Optical System Sorts Waste Glass Feedstock for Container Manufacturing**  
**Advanced Tooling Technology for Plastic Molding**  
**Automated Reuse of Dyebaths in Carpet Manufacturing**  
**Dense Fluid Extraction Product Cleaning**  
**Direct Osmosis Concentration and Solar Evaporation**  
**Electric Heating of Tundish Eliminates Lead Emissions**  
**Full Body Powder Antichip Project**  
**Hydrochloric Acid Recovery System for Galvanizers and Steel Manufacturers**

**Manufacture of Tissue Paper Products**  
**New Energy-Saving Process for Recovering and Reusing Methanol**  
**New Manufacturing Process for Color TV Picture Tubes**  
**Non-Electroless Direct Plate Copper Process**  
**On-Site Aluminum Recycling for Wheel Manufacturers**  
**Propane/Butane-Based Solvent Recovery System Reduces Wastes from Petroleum Products**  
**Real-Time Neural Networks**  
**Recycling Spent Potliner from Aluminum Shelters**  
**Reducing Contaminated Wastewater from Water-Based Paint**  
**Solvent Recovery System Minimizes Volatile Organic Compounds (VOCs)**  
**SS RF Power Source**  
**Sugarcane Molasses By-Product Used to Increase Fertilizer Efficiency**  
**Ultrasonic Dishwashing Reduces Wastewater and NO<sub>x</sub> Emissions**  
**Ultraviolet Curing System for Manufacturing Label Liners Eliminates Use of Solvents**  
**Using 40% Post-Consumer Waste Paper to Produce Pallets Reduces Waste**  
**UV-Curable Coatings for Aluminum Can Production**

**Supercritical CO<sub>2</sub>—An Environmentally Acceptable Alternative for Industrial Cleaning Applications. Industrial Innovations for Tomorrow (Fact sheet).** June 1994; 2 pp. See series description on p. 13.

Order no. DOE/CH10093-201.

**Wouldn't It Be NICE...if Industries Could Receive Financial Assistance to Demonstrate Energy-Efficient, Waste-Reducing Technologies? NICE<sup>3</sup>: National Industrial Competitiveness through Energy, Environment, Economics (Pamphlet).** October 1994; 1 p. This pamphlet briefly explains the NICE<sup>3</sup> (National Industrial Competitiveness through Energy, Environment, Economics) grants project.  
Order no. DOE/CH10093-243.

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## Materials Science and Semiconductors

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**NREL Process and Furnace Harness Optical Phenomenon: Lower Temperature Operations Could Revolutionize Semiconductor Processing** (Technology brief). September 1994; 4 pp. See series description on p. 15.  
Order no. MK-336-5831.\*

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## National Renewable Energy Laboratory

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**Guide to Research Facilities at the National Renewable Energy Laboratory** (Brochure). April 1994; 26 pp. NREL is the nation's premier national laboratory for research and development in renewable energy and energy efficiency. This guide includes descriptions of NREL's laboratories that provide sophisticated experimental equipment, testing capabilities, or processes that may not be available in the private sector. Further information describes the work being done in individual laboratories and lists laboratory managers.  
Order no. SP-280-5794.



**New Directions in Energy Independence: Tomorrow's Energy Options Are Taking Shape at the National Renewable Energy Laboratory** (Brochure). Revised February 1994; 6 pp. NREL's mission is to maintain America's leadership in renewable energy and energy efficiency technologies and advance them toward the marketplace. This brochure describes some of the areas of research being conducted at NREL, as well as research that has found application in industry.  
Order no. MK-336-5685.

**NREL In Review. Science and Technology at NREL** (Magazine). Fall 1994; 16(3): 16 pp. See periodical description on p. 9.  
Order no. SP-130-7232.\*

**NREL In Review. Science and Technology at NREL** (Magazine). Summer 1994; 16(2): 16 pp. See periodical description on p. 9.  
Order no. SP-130-7118.\*

**NREL In Review. Science and Technology at NREL** (Magazine). Spring 1994; 16(1): 20 pp. See periodical description on p. 9.  
Order no. SP-130-6599.

**NREL In Review. Science and Technology at NREL** (Magazine). December 1993; 15(3): 20 pp. See periodical description on p. 9.  
Order no. SP-336-6342.

**Step into the Future of Profitable Partnerships** (Brochure). August 1994. The bottom line for NREL is to promote the adoption and use of renewable energy and energy efficiency technologies. Learn how we can help you achieve your bottom line. This informative brochure explains the resources available at NREL to help your business, community, government, or industry adopt and deploy these technologies.  
Order no. MK-280-6704.\*



STEP INTO  
THE FUTURE  
OF PROFITABLE  
PARTNERSHIPS

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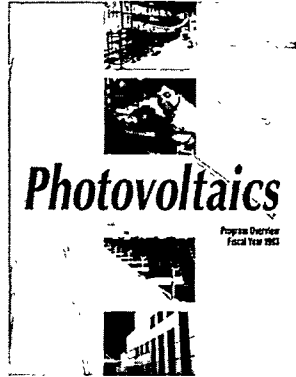
## Solar Energy—Photovoltaics

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**Brazilian Rural Electrification Pilot Project** (Article). Taylor, R.W. *CADDET Renewable Energy Newsletter*. June 1994; No. 3: pp. 21-23. Reviews a DOE pilot project aimed at bringing photovoltaic electric lighting systems to homes and schools in remote areas of Brazil which are not served by electric utility lines. Available through your local library.

## Solar Energy—Photovoltaics (Continued)

**Photovoltaics: Program Overview, Fiscal Year 1993** (Booklet). February 1994; 39 pp. Designed for the professional interested in the status of the DOE Photo-voltaics Program, this document summarizes the research accomplishments for the past fiscal year and the projects that will shape the direction of the program in the coming year.



Order no. DOE/CH10093-264.

**PV Working with Industry: National Renewable Energy Laboratory Quarterly Technical Report** (Newsletter). June 1994; 8 pp. See periodical description on p. 9. Order no. TP-410-7049.\*

**PV Working with Industry: National Renewable Energy Laboratory Quarterly Technical Report** (Newsletter). March 1994; 8 pp. See periodical description on p. 9. Order no. TP-410-6391.

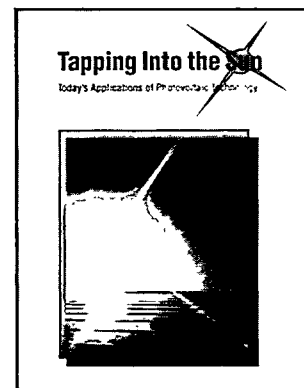
**PV Working with Industry: National Renewable Energy Laboratory Quarterly Technical Report** (Newsletter). December 1993; 8 pp. See periodical description on p. 9. Order no. TP-410-6071.

**PVMaT: A Government/Industry Partnership for U.S. Competitiveness; History and Current Status** (Brochure). October 1993; 4 pp. PVMaT is a partnership between DOE and industry. By working together to reduce costs, the partners ultimately hope to extend U.S. leadership in manufacturing and developing commercial photovoltaic systems. This brochure highlights the first-year accomplishments of awarded contracts for Phase 2A of the project and updates the current status of the project. Order no. MK-411-5850.

**Solar Resource-Utility Load Matching Assessment. Photovoltaic Project Summary** (Brochure). November 1993; 4 pp. The goal of the research summarized in this document is to provide information on the match existing between the output of PV power plants and the load requirements of U.S. utilities. Order no. TP-411-5836.

**Tapping Into the Sun: Today's Applications of Photovoltaic Technology** (Brochure). July 1994; 20 pp. *Tapping Into the Sun* is a collection of photovoltaics success stories accompanied by nontechnical explanations of photovoltaic technologies.

The brochure, which progresses from discussions of simple water-pumping systems through explanations of utility grid-connected arrays, is



intended to encourage interest and investment in photovoltaic technologies. Order no. DOE/CH10093-203.\*

**When Disaster Strikes, the Sun Can Still Shine Through. Tomorrow's Energy Today for Cities and Counties** (Fact sheet). March 1994; 6 pp. See series description on p. 11. Order no. DOE/CH10093-282.

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## Solar Energy—Radiation

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**NREL Develops a New Solar Radiation Data Manual** (Resource Assessment brief). May 1994; 2 pp. This brief describes a new solar radiation data manual produced by NREL's Analytic Studies Division. The manual contains solar radiation values and weather data for sites throughout the United States and will help designers and planners more accurately estimate the performance of flat-plate and concentrating solar collectors. Order no. MK-463-6683.

## Solar Energy—Radiation (Continued)

**Solar Radiation Resource Assessment Project: Program Overview of Fiscal Year 1993** (Booklet). June 1994; 18 pp. The solar radiation available at a particular location is an important factor when determining whether a solar technology's application is economically viable. The project provides planners and users of solar technologies with information on the best times and locations to use the sun's energy resource. This publication highlights the accomplishments of the project's activities during FY 1993 and presents its goals for FY 1994.

Order no. SP-463-6156.\*

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## Solar Energy—Thermal

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**Electronics and the Sun: Metallizing Ceramics Using Solar Energy. Energized** (Fact sheet). April 1994; 2 pp. See series description on p. 12.

Order no. TP-470-5776F.

**Federal Solar Thermal Market: A Second Wave** (Article). Westby, R.D. *Solar Today*. March/April 1994; 8(2): pp. 19-21. Looks at factors driving the "second wave" of solar thermal projects developed for federal government buildings and gives an overview of existing systems built in the 1980s, during the "first wave" of federal solar thermal activity. Available through your local library.

**Manufacturing with the Sun. Energized** (Fact sheet). December 1993; 2 pp. See series description on p. 12.

Order no. TP-470-5776E.

**Solar Heat: Business and Government Warm Up to a Proven Technology. Energized** (Fact sheet). January 1994; 2 pp. See series description on p. 12.

Order no. TP-470-5776C.

**Solar-Heated Fresh Air Cuts Heating Costs: Elegantly Simple System Uses Solar Energy to Preheat Air for Ventilation Systems and to Dry Crops** (Technology brief). August 1994; 4 pp. See series description on p. 15.

Order no. MK-336-6702.\*

**Solar Heating and You. Energy Efficiency and Renewable Energy Clearinghouse (EREC)** (Fact sheet). August 1994; 8 pp.

See description on p. 12.

Order no. DOE/CH10093-272.\*

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## Superconductivity

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**Superconductivity Partnership Initiative** (Pamphlet). January 1994; 6 pp. The Superconductivity Partnership Initiative is an industry-led program, with U.S. Department of Energy financial assistance, to take high-temperature superconducting technologies into the marketplace. This pamphlet briefly describes the initiative and how to obtain more information.

Order no. DOE/CH10093-270.

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## Transportation

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**Catch a Cleaner Bus. Tomorrow's Energy Today for Cities and Counties** (Fact sheet). February 1994; 6 pp. See series description on p. 11.

Order no. DOE/CH10093-263.

**The Clean Air Act: What It Means for Municipal Fleets. Tomorrow's Energy Today for Cities and Counties** (Fact sheet). March 1993; 4 pp. See series description on p. 11.

Order no. DOE/CH10093-171.

**Traffic Flow: Keeping It Moving. Tomorrow's Energy Today for Cities and Counties** (Fact sheet). May 1994; 4 pp.

See series description on p. 11.

Order no. DOE/CH10093-322B.

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## Utilities

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**Analysis Examines Recent Projections of Electric Power Demand: Complex and Uncertain Factors Influence Demand for Electric Power** (Analytic Studies brief). August 1994; 2 pp. See series description on p. 11.  
Order no. MK-463-5787.\*

**EPRI Supports DOE Biomass Energy Initiative: Laboratory Update, National Renewable Energy Laboratory** (Article). *Biologue*. Summer 1993; 11(2): pp. 29-33. Discusses cost-sharing partnership between the Electric Power Research Institute and the U.S. Department of Energy to develop case studies involving biomass electric power generation. Available through your local library.

**Profiles in Renewable Energy: Case Studies of Successful Utility-Sector Projects** (Brochure). October 1993; 36 pp. Intended primarily for utility regulators and executives, this brochure presents case studies of successful U.S. renewable energy projects. It presents the factors that contributed to the success of each project, as well as the difficulties that had to be overcome.  
Order no. DOE/CH10093-206.

**Report Clarifies and Explains Integration of Intermittent Renewable Electric Technologies: Review of Studies Invalidates Some Early Negative Perceptions** (Analytic Studies brief). July 1994; 2 pp. See series description on p. 11.  
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**Solar 2000 Update—August 1994** (Newsletter). August 1994; 2(2): 8 pp. See periodical description on p. 9.  
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Order no. TP-411-6268.

**Utilities (Re) Discover Electricity from Biomass: EPRI Conference Highlights Scope of Resources, Environmental Benefits, Advanced Technologies, and Economic Issues** (Article). Phillips, J. *Biologue*. Fall 1993; 11(3): pp. 23-29. Details EPRI-sponsored conference on the environmental benefits, advanced technologies, and economic issues of generating electricity using biomass resources. Available through your local library.

**Utility Battery Storage Systems Program Plan—FY 1994–FY 1998** (Booklet). February 1994; 47 pp. This program plan for the DOE Utility Battery Storage Systems Program describes the technical and programmatic activities needed to bring about the widespread use of batteries by utilities. By following this plan, DOE anticipates that many of the significant national benefits from battery storage will be achieved in the near future.  
Order no. DOE/CH10093-258.

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## Waste Recycling and Management

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**Alternative Wastewater Treatment: Advanced Integrated Pond Systems. Tomorrow's Energy Today for Cities and Counties** (Fact sheet). October 1993; 6 pp. See series description on p. 11.  
Order no. DOE/CH10093-246.

**Commercial Power Plant Tests Blend of Refuse-Derived Fuel and Coal to Generate Electricity. Industrial Innovations for Tomorrow** (Fact sheet). November 1993; 2 pp. See series description on p. 13.  
Order no. DOE/CH10093-194.

**Managing Research for Better MSW Management** (Article). Gupta, B.P.; Shepherd, P.B.; Friedrich, S. *Solid Waste & Power*. September/October 1993; VII(5): pp. 55-59. Provides information on DOE research and development programs at NREL that encourage commercial development and use of waste management technologies. Available through your local library.

## **Waste Recycling and Management** (Continued)

**Municipal Solid Waste Management Program** (Brochure). May 1994; 8 pp. Lists research reports of NREL's Municipal Solid Waste Management Program. The program focuses on the productive and responsible use of municipal solid waste as a renewable resource.  
Order no. SP-430-6736.

**New System Uses Solar Energy to Destroy Hazardous Chemicals in Water. Industrial Innovations for Tomorrow** (Fact sheet). May 1994; 2 pp. See series description on p. 13.  
Order no. DOE/CH10093-196.

**Oxygen-Enriched Cocombustion of Sewage Sludge and Municipal Solid Waste. Industrial Innovations for Tomorrow** (Fact sheet). October 1993; 2 pp. See series description on p. 13.  
Order no. DOE/CH10093-195.

**Profits from Old Plastics: NREL's Selective Pyrolysis Recycles Nylon Carpeting, Car Parts, and Other Plastics** (Technology brief). February 1994; 4 pp. See series description on p. 15.  
Order no. MK-336-5816.

**Solar Detox Update—Summer/Fall 1994** (Research brief). October 1994; 1(2): 4 pp. See series description on p. 10.  
Order no. TP-470-7104.\*

**Solar Detox Update—Winter/Spring 1994** (Research brief). February 1994; 1(1): 4 pp. See series description on p. 10.  
Order no. TP-470-6232.

**Trash to Treasure: NREL's High-Solids Digester Converts Wastes to Biogas and Compost** (Technology brief). April 1994; 4 pp. See series description on p. 15.  
Order no. MK-336-5683.

**Using Landfill Gas for Energy: Projects that Pay. Tomorrow's Energy Today for Cities and Counties** (Fact sheet). May 1994; 6 pp. See series description on p. 11.  
Order no. DOE/CH10093-322A.

**Waste Management in Japan: Integration with an Emphasis on Combustion** (Article). Cohen, A.S. *Solid Waste Technologies*. May/June 1994; VIII(3): pp. 42-48. Work performed by CSI Resource Systems, Inc., Boston, Massachusetts. Details Japan's approach to integrated municipal solid waste management. Available through your local library.

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## **Wind Energy**

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**Another Asset in the Utility Resource Portfolio** (Brochure). October 1994; 4 pp. As the wind industry matures, the organizations that build and operate wind power plants are becoming increasingly similar to organizations that build and operate other types of power plants. This brochure describes how members of the U.S. wind industry have developed expertise, increased their financial strength, and invested in expanding markets. It also presents sources of available information about the performance of U.S. wind companies.  
Order no. SP-440-5954.\*

**Harnessing the Winds of Change** (Article). Lawson, M.; Hock, S.; Thresher, R. *Aerospace America*. August 1994; pp. 35-39. Provides a brief introduction to the status of wind energy technology for electrical generation in the United States and Europe. Discusses current usage, cost trends, and promising new technologies. Available through your local library.\*

**National Wind Technology Center: Research, Development, and Testing to Support the Wind Industry** (Brochure). September 1994; 8 pp. Geographically located to provide optimum wind testing conditions, the National Wind Technology Center (NWTC)

## Wind Energy (Continued)

is a world-class center for developing and testing wind turbines. This brochure provides an overview of the facilities and services available at the NWTC, including turbine design testing, research, and computer modeling and analysis. The brochure is designed for audiences ranging from industry members who may be interested in cooperative agreements, to students and other visitors to the center.  
Order no. SP-440-6000.\*



**Utilities Move Wind Technology Across America** (Brochure). February 1994; 6 pp. This Utility Wind Interest Group (UWIG) brochure describes pilot projects being conducted by four U.S. utilities to gain experience with wind-generated electric power. The projects are the first steps these utilities are taking to make greater use of regional wind resources.  
Order no. SP-336-5916.

**Wind Energy Program Overview, Fiscal Year 1993** (Booklet). May 1994; 34 pp. This document explains the activities and accomplishments of DOE's wind program in FY 1993 and highlights its goals for FY 1994.  
Order no. DOE/CH10093-279.

**The Near-Term Product Development Project. Wind Turbine Development** (Brochure). May 1994; 6 pp. Highlights the new wind turbines being developed by four U.S. wind energy companies under NREL's Turbine Development Program. Written for companies either involved in the wind industry or interested in being potential users of, or investors in, these turbines.  
Order no. DOE/CH10093-312.

**Sources of Information on Wind Energy** (Brochure). May 1994; 4 pp. This brochure lists groups providing information for those interested in knowing more about wind energy.  
Order no. DOE/CH10093-276.





## Technical Reports

NREL Technical Reports provide technical information on research and analysis projects performed by NREL staff and subcontractors. They are intended for knowledgeable technical professionals. Publications marked with an asterisk (\*) were published in the fourth quarter (July–September) of fiscal year 1994. For ordering information see page 5 or use the order form provided in the center of the catalogue.

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Mayo, K. **SAVEnergy Action Plans: Implementing Audits in Federal Facilities.** July 1994; 4 pp. Prepared for the International Energy and Environmental Congress, 21–22 September 1994, Milwaukee, Wisconsin. Order no. TP-472-7011.\*

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Sabatini, J.C.; Field, E.L.; Wu, I.C.; Cox, M.R.; Barnett, B.M.; Coleman, J.T. **Feasibility Study for the Recycling of Nickel Metal Hydride Electric Vehicle Batteries: Final Report.** January 1994; 100 pp. Work performed by Arthur D. Little, Inc., Cambridge, Massachusetts. Order no. TP-463-6153.

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## **Energy Efficiency and Renewable Energy (Continued)**

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This category encompasses information from NREL which is available in commercial technical publications including books, journals, and conference proceedings. These documents are aimed at communicating findings from NREL research and analysis to other technical professionals. Publications marked with an asterisk (\*) were published in the fourth quarter (July–September) of fiscal year 1994. The documents in this section are available through your local library.

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