NETWATCH

edited by JOCELYN KAISER

ENERGY: This week, NetWatch highlights Web sites that supplement this special issue on energy, covering topics that range from alternative fuels to wind farms.

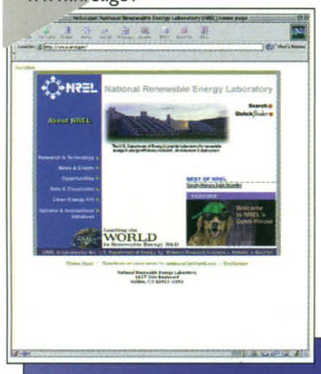
SITE VISITS

All About Renewable Energy

Do a Web search on terms like "solar energy research" or "alternative fuels," and your hits are bound to include a Web page at the National Renewable Energy Laboratory (NREL). This Department of Energy (DOE) lab in Golden, Colorado, dominates renewables research in the United States, and its site brims with information, whether you're a student curious about geothermal energy or a researcher looking for references on photovoltaics.

NREL's chunk of cyberspace can be confusing, as one gets shunted among the smaller sites it contains or diverted to a megasite that NREL operates for DOE, called the Energy Efficiency and Renewable Energy Network. To get your bearings, click on the home page's Research and Technology link, which leads to specific topics. For instance, the photovoltaics page offers a trove of reports and background on research areas such as polycrystalline thin films. The Wind Center's site has a U.S. atlas showing how much wind each state gets (altogether, wind could provide 1.5 times the nation's electricity needs), and references—even a database on "avian–wind turbine interactions." The NREL home page's Data and Documents link also leads to databases, such as a U.S. atlas of 30 years of solar radiation measurements that can help you figure out whether it makes sense to put up solar panels on your roof. In the biomass section, there's a bibliography and maps showing U.S. forestry stocks. This fall the lab plans to add a "much more robust" background section called Clean Energy Basics, says Joe Chervenak, who manages the site.

www.nrel.gov

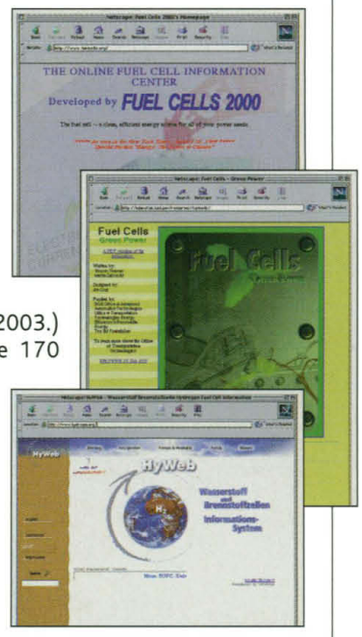


Yet another useful resource is NREL's Online Photo Library, an archive of over 7000 photos showcasing renewable projects around the world—from a wind farm in Altamont Pass, California (above), to a sari-clad woman using a solar-powered water pump in India.

Powering Up With Fuel Cells

Fuel cells, a power source that combines hydrogen and oxygen to produce electricity, may be the world's best hope for cars that emit virtually no pollution. The Web offers a smattering of useful sites on this developing technology.

A good introduction to the topic is a 33-page book (in PDF format) just out from Los Alamos National Lab.* It covers everything from a basic diagram of the cell to the trade-offs of different fuel types (gasoline versus hydrogen, for example) and how the cells could help avoid global warming. To plug into the fuel cells research community, click over to Fuel Cells 2000,† sponsored by a nonprofit. The site's offerings include answers to frequently asked questions (Why haven't fuel cells caught on? Answer: They're still too expensive), conferences, a bibliography, a message board, and news. (For example, Toyota and Honda recently announced plans to commercialize fuel cell vehicles by 2003.) Fuel Cells 2000 also lists some 170 companies, government labs, and academic departments working on fuel cells.



For a European slant on fuel cells that use hydrogen, there's HyWeb,‡ a site in German and English. It includes review articles, a glossary, and *Hydrogen-Gazette*, a quarterly electronic newsletter about fuel cells in Germany and elsewhere.

* education.lanl.gov/resources/fuelcells
† www.fuelcells.org
‡ www.hydrogen.org

HOT PICKS

Consumption junction. Want to get a handle on the quantities of metals, toxic solvents, and energy that went into—as well as the greenhouse gases spewed out by—your new $25,000 car? This Web calculator tallies up the materials and energy that flow through everything from restaurants to roads, known as a "life-cycle assessment." www.eiolca.net

Ups and downs. From monthly stats on how much petroleum Americans burn to forecasts for the uranium industry, the U.S. Energy Information Administration has the scoop on energy use in the United States and internationally. You'll find its huge storehouse of statistics and reports at www.eia.doe.gov

The energy game. Helping precollege students learn about energy issues is EnergyQuest, a nifty educational site from the California Energy Commission. It covers topics such as nuclear energy and alternative fuel vehicles and includes an ask-the-experts section, a gallery of famous energy scientists, and experiments (such as how to turn lemons into batteries). www.energy.ca.gov/education/index.html

Science ONLINE

Science Online has posted the full text of 1974's all-energy special issue, as well as material from energy issues in1978 and 1989. The oil crisis inspired the earliest issue, while global warming is a major impetus for energy research as we approach the millennium. But some technologies, such as solar energy and cleaner fossil fuels, have remained topical throughout the past quarter-century.
www.sciencemag.org/feature/data/energy/energy.shl

Send Internet news and great Web site suggestions to netwatch@aaas.org

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