



## Electric Utility Careers

### Putting Students' Energy to Work

It's springtime! Soon many high school students will be launching their careers. As a teacher, we would like to make you aware of the kinds of careers your students may want to know are needed at electric utilities.

#### Jobs for High School and Technical School Graduates

Job opportunities in administrative areas are applicable for students graduating from high school or technical school. Most of these jobs offer comfortable, indoor working conditions:

- **Consumer Service Representatives** deal directly with customers, handling requests for service and helping solve problems.
- **Meter Readers** travel from customer to customer, reading and recording the amount of electricity used.
- **Clerks and Bookkeepers** keep records, bill customers and prepare reports and statements.
- **Cashiers** collect and record customers' payments and handle other transactions.
- **Secretaries** provide a range of office and software skills.

Technical positions call for practical, scientific and mechanical skills. Some of these jobs are well suited to individuals who prefer to work outdoors:

- **Electricians** install and repair equipment following blueprints.
- **Line Installers** construct and maintain power lines both above and below ground.

- **Plant Operators** regulate and monitor equipment used in the generating process: switchboards, boilers, turbines, etc.
- **Support Personnel** include janitors, mechanics and security guards who help keep equipment safe and in good condition.

#### Jobs for College Graduates

Highly skilled individuals can find challenging career opportunities with electric utilities. Spanning generation, transmission, distribution and administration, the industry employs college graduates from various fields. Some career opportunities are in scientific and technical areas:

- **Engineers** are involved in planning, design, construction and management of generation and transmission facilities, and help protect the environment surrounding the electric utility system.
- **Computer Programmers and Analysts** handle information that is used to keep electrical production as efficient and economical as possible.
- **Statisticians** help make the best use of information gathered and produced by various departments within the electric utility.
- **Health and Safety Specialists** promote the general well-being of all employees in an electric utility.

Like other businesses, electric utilities employ

*continued on page 2*



- 1 **Electric Utility Careers**
- 2 **We're Looking for Bright Ideas**
- 3 **The Cutting Edge**
- 4 **Educational Resources**

FirstEnergy Corp.  
Community Support Dept.  
76 South Main Street  
Akron, Ohio 44308  
(330) 384-5022

Electric Operating Companies:

- Ohio Edison
- The Illuminating Company
- Toledo Edison
- Metropolitan Edison
- Pennsylvania Electric
- Penn Power
- Jersey Central Power & Light

## We're Looking for Bright Ideas!



### Applications Available for 2003-2004 FirstEnergy Math, Science and Technology Education Grants

Your great teaching idea could be a winner! FirstEnergy is offering grants of up to \$500 to educators in our Ohio, Pennsylvania and New Jersey service areas and in the communities where we have facilities for creative classroom projects and teacher professional development initiatives in math, science and technology. We encourage applications from youth group leaders as well as educators (pre-K through 12th grade). While projects involving electricity receive preference, we're looking for innovative, well-planned projects in all areas of math, science and technology.

An application form is enclosed with this newsletter, and you can also download it at [www.firstenergycorp.com/education](http://www.firstenergycorp.com/education). Also available online is our booklet *Bright Ideas for Educators*, which contains descriptions of recent projects.

### Networked Appliances

While California has recovered from its electrical power crisis, some European countries still face shortages of power. In Italy, for example, there is a limit to the electricity each household can draw down at any time – and homes that exceed their limit can suffer a blackout. To help consumers cope, manufacturers are producing networked appliances. With this technology, when the oven is turned on the refrigerator automatically reduces its power consumption to compensate. In a further development, some consumers are choosing a pay-per-use washer. Although located in the home, the washer belongs to the manufacturer. Each time the consumer does a load of laundry the washer communicates with the company, which sends out a monthly bill.

*Popular Science, February 2003*



### Electric Utility Careers

*continued from page 1*

college graduates from a range of professions:

- **Personnel Specialists** help provide an effective work force, addressing problems and handling employee-related benefits.
- **Accountants** keep financial records and analyze and advise on major business transactions.
- **Lawyers** are needed to handle legal matters involving the utility and individuals, groups, corporations and governments.
- **Administrators and Marketing Specialists** handle purchasing, public relations and other areas that require a business background.

Working for an electric utility means being part of the team that powers our homes, schools and businesses. To learn more about the jobs needed at FirstEnergy, visit our web site at [www.firstenergycorp.com/employment](http://www.firstenergycorp.com/employment).

## Maglev Development Is on Track

January saw the launch of the world's first commercial magnetic levitation rail system in Shanghai, China. The 450-passenger train reaches a speed of 270 mph on its 19-mile trip between the city's airport and financial district, cutting a 30-minute commute to under 8 minutes. Although cost is still high, the technological success of this project bodes well for maglev in the U.S. This fall the Federal Railroad Administration plans to award \$950 million to either Pittsburgh or Baltimore-Washington to build the nation's first maglev line.

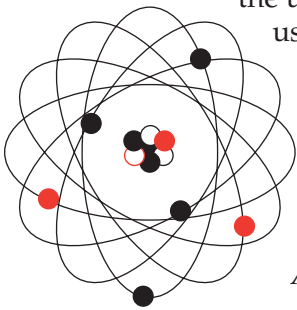
*Popular Science, April 2003*

## Watching Particles in Action

Ultra-fast laser pulse photography is enabling scientists to observe motion that has been invisible up to now. The new technology works like the familiar stop-action photography – but billions of times faster. Using advanced laser strobe light, the technology slices time into the shortest unit yet measured: an attosecond, a billionth of a billionth of a second. (There are more attoseconds in a minute than there have been minutes since the birth of

the universe.) Biologists can use the new instruments to observe cell growth, while chemists track the motion of electrons, protons and neutrons in an atom.

*San Jose Mercury News, April 22, 2003*



## Choosing Where to Land on Mars

Scientists have chosen the landing sites for NASA's two Mars Explorer spacecraft, scheduled for launch in May and June 2003. The first will land in the Gusev crater, an ancient lakebed 15° south of the Martian equator. The second will head for the Meridiani Planum, an area roughly half-way around the planet from Gusev. Both sites have been chosen with the objective of exploring evidence of past water action on Mars. But another consideration is safety, and scientists had to look for landing sites that are flat, relatively free of rocks and dust and not too windy. The spacecraft – with their solar-powered rovers on board – will land on Mars in January 2004.

*NewScientist.com, April 14, 2003*




## Prehistoric Global Warming


Scientists investigating prehistoric climate change have found evidence that a large release of methane into the atmosphere may have contributed to the end of the last ice age. Traces of methane, a greenhouse gas that is far more powerful than carbon dioxide, have been found in air-bubbles trapped in ancient ice. Some researchers speculate that melting clathrates – ice-like mixtures of water and a gas such as methane that form at temperatures above freezing – may have released methane in large enough quantities to bring about global warming. Others suggest that the methane originated from tropical wetlands and peat bogs that formed as the ice retreated. Both groups agree that tracing the causes of prehistoric global warming is key to understanding climate change today.


*The Economist, April 17, 2003*


Visit our website at  
[www.firstenergycorp.com/education](http://www.firstenergycorp.com/education)


## Educational Resources Available

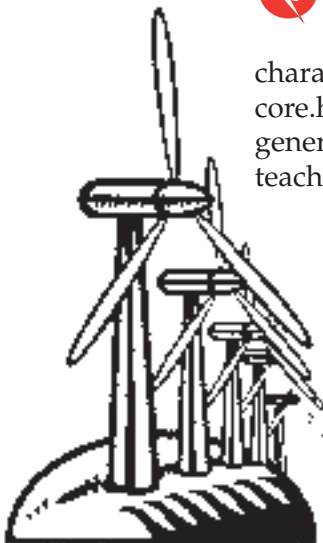
 Kids can learn **how a fuel cell works** and try virtual electrolysis at [www.tryscience.org](http://www.tryscience.org). Click on “experiments” and then on “try it online.”


 Kids looking for **information on renewable energy** can go to the Department of Energy site, [www.eia.doe.gov/kids/renewable/renewable.html](http://www.eia.doe.gov/kids/renewable/renewable.html). Click on “biomass,” “solar,” “geothermal,” “water” or “wind” for facts about each energy source.


 Two web sites that offer **downloadable curriculum material on hydropower** are the Foundation for Water and Energy Education’s site, <http://www.fwee.org/TG/nwaterpwr.html>, and the National Hydropower Association web site, [www.hydro.org/pubs/curriculum.asp](http://www.hydro.org/pubs/curriculum.asp).

 The Charles Edison Fund provides science teachers with simple, proven, fun booklets containing 82 experiments on energy and other science topics. There is a small fee for handling charges. Write to Charles Edison Fund, One Riverfront Plaza, 4th Floor, Newark, NJ 07102 or visit [www.charlesedisonfund.org](http://www.charlesedisonfund.org).


 Middle school students will enjoy exploring **how a wind turbine works** with the help of cartoon character Miller at [www.windpower.org/core.htm](http://www.windpower.org/core.htm). The site includes ideas for wind generation educational activities and a teacher’s guide.




 Lesson plans for grades 4-8 on cleaning up ocean oil spills are available online at [www.kidsnet.org/seaweb/pto\\_op.html](http://www.kidsnet.org/seaweb/pto_op.html).

 For a **complimentary packet of information on nuclear energy**, call the Nuclear Energy Institute at (202) 739-8000 or visit their web site at [www.nei.org](http://www.nei.org).



 Are your 8-11-year-old students watching the new PBS series, “Cyberchase?” The daily animated adventure **program makes math come alive** through the daring missions of a team of kids. For more information and interactive games for kids, visit <http://pbskids.org/cyberchase>.

 Find **online information about education grants** at <http://www.eschoolnews.com/resources/funding/> or at [www.schoolgrants.org](http://www.schoolgrants.org).

*Excellence is not an act but a habit.*

*- Aristotle*