The Myths and Realities of Green Power

Green power is becoming more widely available but barriers remain

Customers in Select Energy’s market area, like customers of power companies throughout the nation, have probably heard something about “green power” recently. You are likely to hear more, as a combination of government and industry initiatives and popular sentiment contribute to a growing movement to find ways of producing and consuming energy that has the smallest possible negative impact on the environment.

As with any new movement, however, there are many misconceptions and disagreements about green power.

WHAT IS “GREEN POWER”? Green power is a mix of technologies that are generally considered to have less impact on the environment than conventional power generation sources, such as coal, oil, gas and nuclear energy. “Today, green power really refers to a way of offering the electricity produced by cleaner, renewable technologies for sale in deregulated power markets,” explains Diana Frame, a research associate at Cambridge [MA] Energy Research Associates (CERA).

Just what constitutes green power depends on whose definition is used. While virtually everyone agrees that solar and wind power qualify as green generation technologies, other renewable energy sources—including geothermal, hydroelectric, landfill gas, waste-to-energy, and biomass—are considered green power by some, but not by others.

The U.S. Department of Energy, which may end up having the final say on what does and does not constitute green power, includes in its definition solar, wind, geothermal, biomass, landfill gas and low-head hydroelectric plants. Currently, the agency is tracking energy prices of 50 green power programs in 19 states, but many other states also have green power programs under way or in the planning stage.

AVAILABLE GREEN POWER SOURCES Green power is growing, but not quickly. A big factor slowing its growth is cost. “Very

continued on page 5
As this edition of Select Success goes to press, five states in the northeast have specified “green power” and fuel cell offerings as part of their restructuring legislation. In our cover story, “The Myths and Realities of Green Power,” Diana Frame from Cambridge Energy Research Associates talks about technologies dubbed “green” and answers some of the questions our customers have been asking.

On a related note, “Understanding Fuel Cells” (Q&A, page eight) discusses a clean power generation technology that holds increasing promise for business and industrial customers.

Also affecting our customers is new ownership of 13 hydroelectric and pumped storage generating plants in Connecticut and Massachusetts. Northeast Generation Company, a competitive subsidiary of Northeast Utilities, bought the plants from the two regulated utilities required to divest them under terms of the states’ restructuring plans. Select Energy’s affiliate, Northeast Generation Services (NGS), manages and operates the plants, while Select Energy manages and markets the plants’ power output. Many of NGS’s technical services can optimize larger commercial and industrial operations too. Turn to our feature on page four to learn how Select Energy and NGS together offer integrated energy solutions to match our customers’ needs.

Market forces tell us that size matters in the new, competitive energy business environment. On page six, Select Energy’s management team discusses the energy industry’s recent trend of mergers and acquisitions. We hope this article helps put market dynamics in perspective for our customers. Over the longer term, experts agree, customers should continue to see opportunities to save money and derive other benefits from industry mergers and acquisitions.

As always, we welcome your feedback about Select Success and our company activities. If you have comments or questions, just e-mail them to us at success@selectenergy.com.

Sincerely,

Stephen J. Fabiani

Emerging Technologies and Industry Change
New Standards to Increase Efficiency of Fluorescents

New efficiency standards for electronic ballasts—based on the terms of a joint agreement recently signed by member companies of the National Electrical Manufacturers Association’s (NEMA) lighting division—may take effect April 1, 2005. If the NEMA recommendations are accepted by the Department of Energy (DOE), they will be written into the DOE’s final standards.

Under the terms of the agreement, outdated, less-efficient magnetic ballasts for fluorescent lamps would be forced from the market and replaced by energy-efficient electronic ballasts. That action is expected, since DOE has proposed a similar ban on magnetic ballasts in the past.

In addition, all fluorescent lamp ballasts produced by light manufacturers for the commercial and industrial new construction and renovation markets would be required to be electronic models meeting the new energy-efficiency standards as of April 1, 2005. However, magnetic ballasts for the replacement market would continue to be available until 2010 under the terms of the joint agreement.

New Uses for Old Technology

In this age of high-tech, computerized everything, new uses for old technology often get overlooked. With air-conditioning and other sophisticated climate control technologies now widespread, who would think to turn to a simple, old-fashioned fan for an effective cooling system? As some operators of large distribution centers, warehouses and other industrial facilities have discovered, those facilities can be very expensive to air-condition, and giant fans can present a cost-effective alternative.

A single, 20-foot-diameter, high-volume, low-speed (HVLS) fan can circulate air over an area of 15,000 to 20,000 square feet, and can be effectively utilized in buildings with ceiling heights exceeding 45 feet, according to HVLS Fan Company, a leading manufacturer of the huge fans. Such fans can provide significant temperature reduction ranging from 6 to 8 degrees Fahrenheit.

A single HVLS fan costs less than 10 cents an hour to operate, on average, according to the manufacturer. More information can be found at the HVLS website at www.hvls.com.

Power Companies Offer Bundled Services via the Internet

With competition in the energy industry increasing, power companies are finding different ways to attract new customers and to keep existing ones. One strategy many are adopting is bundled service programs, which are often offered with an e-commerce option. According to a strategic research study conducted by Frost & Sullivan (www.frost.com), some 700,000 customers currently purchase at least one service as part of a bundled services program.

Research conducted by Ernst & Young (www.ey.com) indicates the bundled services trend is converging with a trend toward greater use of the Internet by large utilities. Among the 50 largest U.S. utilities, one in five had begun offering customer service transactions, such as the delivery of gas and electric service via the Internet, and one in four had begun offering electronic bill presentation and payment by the end of last year.

Calendar

Upcoming energy events that provide information and education

FUNDAMENTALS OF POWER QUALITY
Produced by the Association of Energy Engineers
AUGUST 24-25, 2000
LOCATION: PITTSBURGH
CONTACT: AEE, 770-447-5083

VISIT OUR WEB SITE AT www.selectenergy.com FOR A LISTING OF OTHER INDUSTRY EVENTS.
Select Energy Affiliate Succeeds by Putting Service First

A new company resulting from electric industry restructuring, Northeast Generation Services nevertheless boasts decades of experience

Adapting to changes in a restructured electric market, Northeast Utilities, parent company of Select Energy, knew by the second half of 1998 that it would be spinning off its power generation assets. The company faced the question of what to do with an engineering and operations group that had managed, operated and maintained 5,500 megawatts of hydroelectric and fossil fuel power generation for almost 80 years.

“NU saw a market niche,” says Steve Persutti, Director of Marketing and Sales at Northeast Generation Services Company (NGS). “We had a group of highly skilled and experienced people, and we knew that the new owners of the generation plants would need good staff to run and maintain them. So Northeast Utilities decided to create a service company—NGS—to compete in the open market.”

Select Energy’s retail customers benefit too, since many of the technical services NGS provides can also optimize larger commercial and industrial operations.

MEETING THE CHALLENGE OF COMPETITION

Since its creation in January 1999, NGS has focused on the needs of large industrial and power plant customers in the northeast. NGS has three major service lines: Manage and Operate Services for power plant customers, Industrial Services and Consulting Engineering Services. Its recent projects are varied, and include major turbine overhauls, boiler repairs, high-voltage substation construction, demolition studies, environmental field services (diving, stack testing, fuel and water sampling), environmental management planning, water/wastewater plant services, and complete predictive and preventive maintenance services.

In fact, NGS offers its customers all the support services needed to keep industrial and generating plants in top working order.

“Our focus is on optimizing plant performance for the owner,” Persutti explains. “We also market turnkey manage-and-operate service contracts for owners who prefer to subcontract the actual operations. We currently have 1,500 megawatts of generation under contract, and we are working with numerous power plant owners and developers to increase that business base.”

Thanks to the relationship between NGS and its affiliate, Select Energy, the two companies will be able to offer some customers a “full wrap” of services. For example, Select Energy’s retail group can provide energy to meet a customer’s needs, NGS can operate and maintain its generating plant, and Select Energy’s wholesale marketing and trading group can purchase back excess power the plant produces.

For other customers, according to Persutti, NGS and Select Energy can provide integrated energy solutions tailored to specific situations and needs. “We’re dedicated to providing the highest caliber portfolio of services—and greatest value—to help improve our customers’ operational and financial performance. That’s what we’re about.”
few of the renewable energy technologies are cost-competitive with conventional technologies, especially on a large scale,” Frame says. “Wind power comes closest, but some sort of government help or mandate is generally necessary to make renewable technologies competitive. Some states’ programs offer customer incentives that can whittle away at the difference in price, but, again, they usually are not enough to fund renewables on a large scale in the absence of government support.”

The type of green power available to energy customers is often a function of geographic location. Wind power, for example, is more practical on the flat plains of the Midwest than in hilly and mountainous areas. Geothermal power, of course, is limited to areas where the natural resources required to produce it exist, such as underground hot springs. In the Northeast and Mid-Atlantic, green power is most often generated by hydroelectric, solar and landfill gas.

When customers opt to purchase green power, what they are actually buying is quantities of power—kilowatt hours—that match some or all of their power use. “That doesn’t mean the electricity supplier can corral a particular stream of ‘green’ electrons from a wind farm, say, directly into your power sockets,” Frame explains. “It just means that the supplier will have contracts to source and sell matching amounts of green power from a specified resource to its customers. Companies offering green power often will also commit to building a certain amount of new renewable generation capacity.”

Despite the fact that there is no practical way to channel a stream of “green” electrons directly to power outlets, customers who opt for green power still boost environmental health. Every kilowatt of green power consumed is one less kilowatt that has to be produced by older technologies, such as the burning of fossil fuels. That can help reduce pollution. Green power can also help energy marketers do a better job of managing their load and matching it more efficiently to demand. That, too, is an environmentally friendly outcome, since more efficient management means less waste and less unnecessary use of non-renewable resources.

While estimates of the currently available supply of green power in the U.S. depend on the technology mix, CERA pegs it at about 16 gigawatts, excluding hydroelectric power. And purchasing 100-percent green power is an option, but currently only for a small percentage of consumers in California and Pennsylvania.

In conclusion, it’s clear that the role of green power is growing in the new energy market. However, important barriers related to price and reliability must be overcome before customers—and the environment—benefit fully from green power.

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What's Happening with Green Power in the Northeast?

CONNECTICUT: The state’s restructuring legislation breaks renewable sources into two categories, Class I and Class II. This year, 5.5 percent of energy offered must be either Class I (solar, wind, small hydro, sustainable biomass, landfill gas or fuel cells) or Class II (hydro or other biomass), with at least 0.5 percent Class I; 7 percent must be Class I or II by 2009, with at least 6 percent Class I. The state’s regulatory commission may delay implementation of any or all requirements for up to two years.

MAINE: 30 percent of energy offered in 2000 (start of retail choice in the state) must be from fuel cells, tidal power, solar, wind, geothermal, hydro, biomass or high-efficiency cogeneration systems.

MASSACHUSETTS: 1 percent of energy offered must be from renewables by 2003, rising to 4 percent in 2009 and 1 percent per year thereafter until a date to be determined by the state’s Division of Energy Resources. Solar, wind and clean biomass qualify as renewables; existing hydro also qualifies, but hydro does not qualify as a new renewable energy source.

NEW JERSEY: 2.5 percent from Class I (solar, wind, fuel cells, geothermal, wave, tidal energy, landfill gas, sustainable biomass) or Class II (hydro meeting high environmental standards) by 2001, with at least 0.5 percent from Class I, rising to 1 percent by 2006 and increasing by 0.5 percent a year to 4 percent by 2012.

Pennsylvania: PECO, West Penn and PP&L must provide at least 20 percent of customers served by competitive default providers 2 percent of their energy from renewable sources in 2001, rising 0.5 percent a year for an indefinite period. GPU must provide 0.2 percent of energy from renewable sources to 20 percent of its customers in 2001, rising to 80 percent of its customers in 2004; all non-hydro renewable sources qualify.
Select Energy customers have probably noticed an increasing amount of media coverage of merger and acquisition (M&A) activity in the energy industry, and there is a good reason for that: the pace of M&A activity has doubled over the past five years. Mergers and acquisitions have been a fact of life in the energy business for many years. Select Energy's parent company, Northeast Utilities, is itself the product of dozens of mergers and acquisitions, and was formed as a holding company in 1966.

One of the most significant recent M&A developments in Select Energy's market area is the “roll up” of the gas industry in New England. Over the past two years, 12 separate gas companies have been consolidated into five larger organizations—an abrupt change in an energy industry segment that had gone many years without experiencing any significant consolidation.

FACTORS DRIVING INDUSTRY CHANGE
The restructuring of the energy industry is one of the primary driving forces behind the recent increase in M&A activity. New regulations and laws have required utility companies to divest many of their capital assets, particularly generating plants. At the same time, the introduction of regulated rate caps and rate freezes, and the emergence of potential on-site electricity-generation options, have focused utility companies’ management on controlling delivery costs. One obvious strategy to achieve the kinds of economies of scale that can control delivery costs is to combine the redundant functions of multiple companies.

Another important strategy is the creation of strong, unregulated energy companies that can capitalize on the opportunities of an evolving marketplace. Those unregulated energy companies should contribute to the strong earnings growth demanded by shareholders in a competitive marketplace.

ENERGY MERGERS ARE SUBJECT TO INTENSE SCRUTINY
It is also important to keep in mind that an announced merger is not necessarily a “done deal.” Among the proposed mergers that have not made it through to completion are a number of very large deals, including Western Resources with Kansas City Power & Light, Northern States Power with Wisconsin Energy, and Potomac Electric with Baltimore Gas & Electric.

Mergers and acquisitions in the energy industry are not among the easiest types of deals to complete. By way of comparison, industry analysts anticipate that the huge AOL/Time Warner deal may close within six months, or even less. Utility M&As generally take far longer. The proposed merger between Columbus, Ohio-based American Electric Power and Dallas, Texas-based Central and South West, for example, is now in its third year of regulatory review.

That unique aspect of the energy industry may contribute to a slowing of M&A activity over the near term. However, consolidation in the industry is likely to continue over the long term.

Large-scale mergers and acquisitions can bring about factors that drive a great deal of internal change—change that is needed in order to achieve the potential gains that initially drive both parties to the bargaining table. If handled well, that pressure to change can unleash potent creative forces, which in turn lead to better customer care systems and new and improved products and services.

Ultimately, customers will benefit from the cost savings achieved through merger activity. Over the short term, those savings need to be harnessed to offset costs related to the merger. Over the long term, however, those savings will continue and will accumulate benefits to customers.

This article is based on interviews with Select Energy’s management team. For more information, email us at success@selectenergy.com.
Maine Sets Standard Offer Rates

Maine’s legislature passed a law introducing customer choice of electricity supplier which took effect March 1, 2000. Maine Public Utilities Commission (MPUC) set Standard Offer rates on January 27. They do not include delivery service, which is provided by transmission and distribution companies at separate rates. You can find the Standard Offer providers and supply rates at the MPUC site, http://janus.state.me.us/mpuc.

MPUC committed to a “no losers” standard for Maine’s transition to customer choice. After March 1, Residential and Small General Service customers should see average savings of 9 percent on their electric bills; Medium General Service and Large General Service customers, about 5 percent.

NU Subsidiary Awards Standard Offer Supply Contracts

Western Massachusetts Electric Company (WMECO)*, a wholly-owned subsidiary of Northeast Utilities, has announced the four winning bids in its auction to provide Standard Offer electric service in Massachusetts. The four one-year power contracts, with a total value of about $169 million, were procured through a competitive bid process in accordance with the Massachusetts Electricity Restructuring Act. The auction was ordered by the state’s Division of Energy Resources after it was determined that WMECO’s Standard Offer rates— which began at 2.8 cents/kWh in March 1998, and had only risen to 3.7 cents/kWh by July 1999—were too low to foster competition in the marketplace. Contract awards include:

- 40 percent of the Standard Offer service load to Alternate Power Source of Westwood, Massachusetts.
- 20 percent of the load to Consolidated Edison Energy, a wholly-owned subsidiary of Consolidated Edison of New York.
- 20 percent of the load to Constellation Power Source, a subsidiary of Constellation Energy Group of Baltimore, Maryland.
- 20 percent of the load to Southern Company Energy Marketing, a subsidiary of Southern Company of Atlanta, Georgia.

* Select Energy is not the same company as WMECO. Customers do not have to buy products from Select Energy in order to continue to receive quality regulated services from WMECO on a non-discriminatory basis. No advantage accrues to customers or others in the use of WMECO’s services as a result of dealing with Select Energy.

Select Energy First Competitive Supplier Licensed in Connecticut

Retail electric prices took a dip with the introduction of customer choice and Standard Offer service in Connecticut on January 1, 2000. As of that date, Select Energy was the only competitive supplier licensed by state regulators—a prerequisite for soliciting customers— but four other suppliers had license applications pending, and more were expected. Approval generally takes between 30 and 90 days.

Initially, Connecticut residents in 25 municipalities designated as “distressed” have been given the right to choose their electricity supplier, but the rest of the state gets that option as of July 1. However, all state residents immediately benefit from lower rates, with electric bills dropping between 6 and 9 percent on January 1, as a result of the new Standard Offer rate. State law requires that electric rates be 10 percent lower than they were in 1996, and the Standard Offer stays in effect until the end of 2003. At that point, regulators expect robust activity and competition in the retail marketplace to provide customers with a variety of choices and lower rates.

Editor’s note: As we go to press, two additional suppliers have been licensed.
Understanding Fuel Cells

Once considered a futuristic vision, fuel cells are fast becoming a commercially viable product. In this issue of Select Success, we answer questions about this emerging technology, how it works and its benefits to commercial and industrial customers.

QUESTION: Why is anyone interested in fuel cells?  
ANSWER: The Department of Energy’s Federal Energy Technology Center (FETC) describes fuel cells as “one of the most promising new technologies for meeting the nation’s energy needs well into the 21st century.”

Inherently clean and efficient, fuel cells have the potential to reduce carbon dioxide emissions by 40 to 60 percent, according to FETC reports. Fuel cells produce virtually no harmful emissions and operate so quietly that they can be used in residential neighborhoods.

QUESTION: What is a fuel cell and how does it work?  
ANSWER: A fuel cell is an electromechanical device that converts the chemical energy of a fuel (such as natural gas or methane) directly to usable energy—electricity and heat—without combustion. Like a battery, a fuel cell produces a DC current using two electrodes, an anode and a cathode, separated by an electrolyte. Unlike a battery, a fuel cell does not release energy stored in the cell, running down when the energy is gone. Instead, it converts energy in a hydrogen-rich fuel directly into electricity and operates as long as it is supplied with fuel.

QUESTION: What kinds of energy users stand to benefit most from this technology?  
ANSWER: Fuel cells are most attractive to customers who require premium power and an uninterrupted power supply, such as hospitals, data centers, computer chip manufacturers and any type of business that can’t afford a power interruption. Fuel cells provide reliability similar to battery-backed UPS systems, but with advantages in terms of harmonics, power quality and efficiency. Fuel cells can also eliminate the environmental concerns related to the disposal of used batteries after they are changed out of conventional UPS systems.

QUESTION: Do fuel cells come in different sizes?  
ANSWER: Fuel cells as small as 7 kilowatts and as large as 20 megawatts are currently available. FETC expects 50-megawatt systems using coal-derived synthetic gas to be commercially available within 10 years.

To learn more about fuel cells, visit the National Fuel Cell Research Center’s website at http://www.nfccr.uc.edu.