



Deregulation Of Electricity Generation in Pennsylvania

Dennis E. Buffington, Professor, Agricultural and Biological Engineering
 Scott E. Wolf, Graduate Student, Agricultural and Biological Engineering

Governor Tom Ridge signed legislation on December 3, 1996 to open the electric industry to competition. This legislation will have a profound impact on how electricity is sold and used in Pennsylvania. This fact sheet provides the facts concerning the deregulation of electricity generation, recommendations for preparing for deregulation, and brief definitions of pertinent terms.

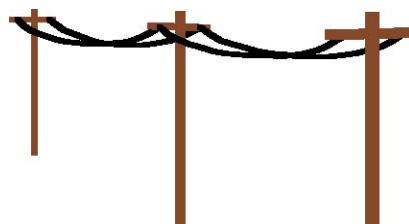
THE FACTS

What Is Deregulation?

For the electric industry, deregulation means the generation portion of electricity service will be open to competition. However, the transmission and distribution of the electricity will remain regulated and your local utility company will continue to distribute electricity to you and provide customer services to you. Both the investor-owned utility companies and the rural electric co-ops are impacted by this legislation. It is the generation of electricity that is being deregulated, meaning that you will have the opportunity to shop around for the electricity generation supplier of choice. Deregulation is not new; you probably remember previous deregulations involving trucking, airline travel, and long distance telephone service.

Why The Legislation?

Supporters of the legislation say electricity customers (industrial, commercial, and residential) will be the biggest beneficiaries of the competition because of lower rates for electricity. In 1995 in the regulated environment, Pennsylvanians spent \$10 billion for electricity. If the rates for electricity in Pennsylvania drop to the national average, then about 15% (\$1.5 billion) will be saved each year. If the rates fall to the anticipated competitive price for electricity, then an estimated 25% (\$2.5 billion) will be saved each year in Pennsylvania.



When Will Deregulation Take Place?

One-third of all customer classes (residential, commercial, and industrial) will have the opportunity to select electricity generation suppliers by January 1, 1999. Two-thirds of all customer classes will have freedom of choice by January 1, 2000, with all customers having choice by January 1, 2001. In the meantime, utility companies are establishing pilot programs that will begin late in 1997 or early in 1998. The purpose of the pilot programs is to enable utility companies and some customers to gain experiences operating in the deregulated environment.

What Guidelines Did The PUC Set For Deregulation?

The Pennsylvania Public Utilities Commission (PUC) has been very active in developing rigorous guiding principles concerning the deregulation of electricity generation. These principles include:

- ▲ universal service and energy conservation programs
- ▲ consumer education
- ▲ consumer services
- ▲ reliability of supply of electricity

Each utility company must document that its levels of consumer services and reliability equal or exceed the levels that existed on January 1, 1997. In addition, the PUC has capped electricity rates so that rates for the vast majority of

customers will not exceed the rates that existed on January 1, 1997. This rate cap will be in effect for the next four to nine years. In fact, rates may decrease significantly as a result of the deregulation of electricity generation.

What Is The Role Of The Local Utility Company In The Deregulated Environment?

Your local utility company—whether it is an investor-owned company or a rural electric co-op—will continue to distribute electricity to you and provide customer services to you. It doesn't matter which company you select as your electricity generation supplier; you will remain a customer of your local utility company for distribution and local services. These services will remain regulated for the foreseeable future. Your local utility company will be responsible for providing line maintenance, restoring service after storms and accidents, and providing customer services including meter reading and billing.

Your local utility company will also serve as "the electricity generator of last resort." In other words, if your selected electricity generation supplier is unable to provide the electricity you need, your local utility company will supply you with electricity at the prevailing price. When you shop for electricity generation suppliers, you should consider your local utility company as one of the possible suppliers.

What Changes Can You Expect?



There are a number of changes that are likely to take place as a result of deregulation. We have already seen mergers of utility companies. Allegheny Power was created by the merger of Monongahela Power, Potomac Edison, and West Penn Power. GPU Energy was created by the merger of Penelec, MetED and JCP&L. We may see additional mergers in the future.

Electricity pricing will certainly change. Today the investor-owned utilities are guaranteed the opportunity to make a profit in the regulated environment, with oversight provided by the PUC. Rural electric co-ops are not guaranteed to make a profit since they are operated as non-profit cooperatives governed by a board of directors elected by all customers. In the competitive environment, the utility companies will no longer be guaranteed the opportunity to make a profit.

Today there are few pricing options available and they are relatively easy to understand. It is anticipated that in the deregulated environment, there will be many pricing options and some may be very complex.

There will be additional customer choices in the future. Today you just buy your electricity from your designated utility company. In the near future, there will be many products and services that will be offered by companies and brokers in addition to electricity. These additional products and services may include propane, diesel fuel, energy efficiency services, financing, equipment, and equipment maintenance.

HOW CAN YOU PREPARE FOR DEREGULATION?

First, it needs to be emphasized that there are no actions that you must take today to respond to the deregulation that will be occurring. However, you need to begin now to become better informed of options available in the deregulated environment. Complete these steps before shopping for an electricity generation supplier.

- ☞ Document how much electricity you use and when you use the electricity.
- ☞ Identify your major uses of electricity.
- ☞ Determine how you could modify your load profile by shifting electricity usage from on-peak to off-peak periods. Inquire about the electricity rates and time periods for on-peak and off-peak electricity service.
- ☞ Consider the total cost of any alternate forms of energy, including costs for installation, maintenance and operation.

- ☞ Estimate your costs of electricity for various residential uses, such as heating, air conditioning and water heating. This recommendation applies to homeowners and renters as well as apartment dwellers. Consider how you could shift tasks such as laundering and dishwashing to off-peak hours to reduce your utility bill.
- ☞ Calculate the cost of electricity as a percentage of total production or service costs of your business. For example, if your company is manufacturing widgets, calculate the cost of electricity per widget produced. If you operate a commercial venture, calculate the cost of electricity per customer serviced and per dollar revenue generated. If you are a farmer, calculate the cost of electricity to produce 100 pounds of milk, a dozen of eggs, a pound of meat, a flat of bedding plants, or a bushel of fruit.
- ☞ Study offers that "sound too good to be true."

After you have carefully documented how and when you use electricity, then you will be able to select the most appropriate electricity generation supplier to meet your needs.

What Is The Role Of Energy Conservation?

The surest way to reduce your expenses for electricity is to use less electricity. Whenever energy conservation programs are being considered, all the implications of reducing electricity consumption must be evaluated. For example, the utility bill for heating a building can be lowered by reducing the ventilation. However, the reduced ventilation rate may result in poor indoor air quality and endanger the health and comfort of the occupants. This is an example of “penny wise and pound foolish,” because the energy savings are quickly offset by the negative consequences.

Electricity consumption needs to be viewed in the context of an overall energy management plan. The challenge is to optimize energy use to increase profitability of your business, industry, or service. For residential customers, the objective is to use energy as efficiently as possible without adverse impacts on health and comfort.

BRIEF DEFINITIONS

Aggregation - A grouping of electric consumers (generally residential and commercial customers) into a larger purchasing unit in order to gain more bargaining power with the electricity generation suppliers.

Biomass -Organic matter including wood, agricultural crops, and crop residues that can be burned to produce energy.

Broker - Someone, licensed by the PUC, who acts as a middle man in the purchase and sale of electricity.

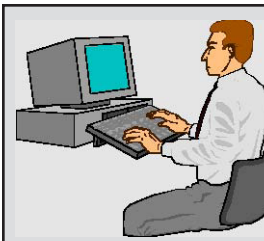
Cogeneration -A process of producing simultaneously electric and useful thermal (heat) energy from one fuel source.

Competitive Transition Charge - A charge that must be applied to the bill of every customer accessing the transmission or distribution network. The charge is needed so that an electric utility can recover a portion of its transition costs or stranded costs as determined by the PUC.

Demand - Maximum amount of electrical power used over a 15-, 30- or 60- minute interval in the billing period. Expressed in units of kiloWatt (kW).

Demand Charge - Amount charged for the highest average power demand recorded during any one time period (ranging from 15 minutes to one hour) within the billing period.

Deregulation - Removal or relaxation of regulations or controls governing a business or service operation. In the case of the electric industry, deregulation means consumers will have their choice of electricity generation suppliers.



How Can You Get More Information?

There is much additional information that is needed before you can make a decision to select the most appropriate electricity generation supplier. More information is available from your local utility company, Penn State’s Agricultural and Biological Engineering Extension, trade journals, popular press, and the PA Public Utilities Commission (PUC). Check Penn State’s web site (<http://engrabe.cedcc.psu.edu/users/fac/buff/dereg.htm>) and the PUC web site (<http://puc.paonline.com>) for up-to-date information on deregulation of electricity generation.

Distribution - The local part of an electric system which delivers power from the substation to the retail customers.

Electricity Generation Supplier - A person or corporation, generator, broker, marketer, aggregator, or any others who sell electricity or related services utilizing the transmission and/or distribution facilities of an electric utility company.

Electricity Generator of Last Resort - A consumer’s local electric utility that will provide power to the consumer if his or her selected generation supplier is unable to deliver.

Energy Conservation - The process of reducing use of energy to conserve and protect environmental resources.

Fossil Fuels - Natural resources such as coal, oil, and natural gas that can be burned to generate electricity.

Generation - Production of electricity from a power plant.

Generation Capacity -The maximum amount of electrical power that a power plant is able to produce. Usually expressed in units of megaWatts (mW).

Geothermal Energy - Natural heat from within the earth, captured for production of electric power. Geothermal energy can also cool air in the summer and heat air in the winter when using a ground-coupled heat pump.

Investor-owned Utility - A utility company owned and operated by private investors.

Interruptible Rate - A special utility rate given to those who may have their service temporarily stopped as part of an agreement with the utility company. Service interruptions may occur during periods of high demand or high cost periods of short supply for the utility.

KiloWatt-hour - Unit of measure of electricity use over a period of time. For example, ten 100 Watt light bulbs operated for one hour consume one kiloWatt hour (kWh) of electricity.

Load - The amount of electrical power being used at one time by a customer, circuit or system. Expressed in units of kiloWatts (kW).

Load Management - Shifting energy demands to different time periods of the day in order to reduce demand charges.

Load Profile - Graphic representation of electricity used over a period of time.

Non-Utility Generation - When a company other than a regulated public company produces power for sale.

Off-Peak Period - Period of time when the electricity supplied by a utility system is at a low level compared to other time periods. Corresponds to when demand by customers is low.

On-Peak Period - Period of time when the electricity supplied by a utility system is at a high level compared to other time periods. Corresponds to when demand by customers is high.

Pilot - A utility program offering a limited group of customers their choice of certified or licensed energy suppliers on a short-term trial basis.

Public Utility Commission (PUC) - The state regulatory agency that provides oversight, policy guidance, and direction to electric public utilities as well as other public utilities.

Real-time Pricing - Hourly rates for electricity that reflect the actual fluctuating costs for generating electricity.

Renewable Electricity - Electricity generated from replenishable energy sources, such as hydro, wind, solar, geothermal, and biomass.

Retail Wheeling - Also known as retail customer choice. A utility company is required to transport electricity from a generating plant it does not own directly to its retail customers. This gives retail customers the ability to purchase electricity from any source they choose.

Rural Electric Cooperative - Generally a non-profit, customer-owned electric utility, responsible for providing electricity in primarily rural areas.

Stranded Costs - Investments and commitments made by utility companies that cannot be recovered in the deregulated environment, except by special billings over a projected five to nine year period. The PUC will determine the amount of stranded costs to be recovered.

Transmission - The transport of high voltage electricity from the generation plant to substations.

Unbundling - Itemizing utility company services (generation, transmission, distribution, local service, stranded costs) so the customer knows the cost of each service.

Universal Service - Policies, protections and services that help low-income customers maintain service. This includes customer assistance programs and policies and services that help low-income customers reduce or manage energy consumption in a cost-effective manner.

Valley Filling - An electric utility procedure used to change customer consumption patterns so that output of electricity is more evenly distributed throughout the day or year.

Wheeling - The transmission of power that has been generated by one utility system over the lines of another utility system.

For a more complete list of terms refer to the Glossary of Electric Terms for the Future produced by the PA Public Utility Commission, Bureau of Public Liaison, P.O. Box 3265, Harrisburg, PA 17105.

For more information on energy or other topics, see our website: www.abe.psu.edu

Agricultural & Biological Engineering
246 Agricultural Engineering Building
University Park, PA 16802
Phone (814) 865-7685 FAX (814) 863-1031
email: agbioeng@psu.edu

PSU8/97

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, or veteran status. Discrimination or harassment against faculty, staff, or students will not be tolerated at The Pennsylvania State University. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Director, The Pennsylvania State University, 328 Boucke Building, University Park, PA 16802-5901, Tel 814-865-4700/V, 814-863-1150/TTY.