

The Restructuring of the Electric Power Industry

A Capsule of Issues and Events



Energy Information Administration

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Much of the information contained in this booklet was excerpted from the report entitled *The Changing Structure of the Electric Power Industry: An Update*, which was published in December 1996 by the Office of Coal, Nuclear, Electric and Alternate Fuels in the Energy Information Administration (EIA). The EIA is the independent statistical and analytical agency within the U.S. Department of Energy (DOE). The information contained herein should not be construed as advocating or reflecting any policy position of DOE or of any other organization.

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Energy Information Administration

Dear Reader,

Today, the Nation is abuzz with the changes taking place within the electric power industry, and with good reason, considering the role electricity plays in our national economy as well as in our daily lives. This industry has operated as a regulated monopoly for over 100 years. It is now being restructured to operate in a more competitive market.

The Energy Information Administration (EIA) has the responsibility to provide timely, high-quality energy information and to perform objective, credible analyses for both public and private decisionmakers. To that end, we have been striving to provide Congress, Federal and State agencies, the electric power industry, and the general public with up-to-date data and information concerning all aspects of restructuring.

The breadth and scope of the interrelated issues, problems, facts, and data can be overwhelming. Those involved in the restructuring of the electric power industry must be aware of all of these aspects. Those not closely involved, but in need or want of the basic facts, must sift through stacks of articles and reports. It is for these persons that we offer this booklet in the hope that it does clearly present an overview of the major changes that have already occurred, their causes, and current events which will result in even more change. If additional information is desired, I encourage you to contact EIA's National Energy Information Center. They are available to answer your questions and to provide you with relevant products, services, and publications.

Sincerely,

Jay E. Hakes, Administrator
Energy Information Administration

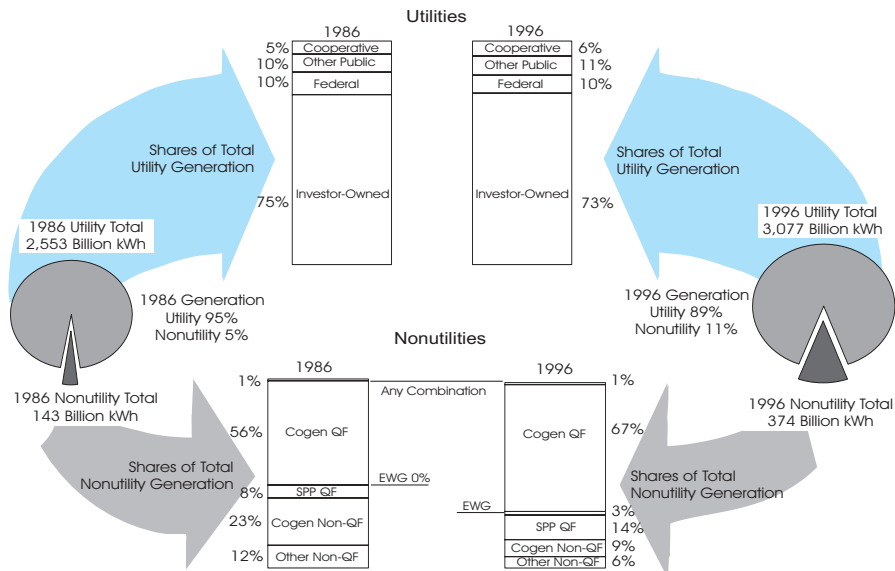
Electricity Generation in a Competitive Market

The old school of thought that considered electric utility power generation, transmission, and distribution a “natural monopoly” has given way to a new school of thought. Today, there is a general consensus among legislators, regulators, industry analysts, and economists that the generation segment of power supply in today’s environment would be more efficient and economical in a competitive market. In contrast, transmission and distribution will likely remain regulated and noncompetitive.

The electricity industry is being restructured. It is currently in the midst of a transition from a vertically integrated and regulated monopoly to an entity in a competitive market where retail customers choose the suppliers of their electricity. The change began in 1978, when the Public Utility Regulatory Policies Act (PURPA) made it possible for nonutility generators to enter the wholesale power market.

The figure below shows not only the share of generation by each component of electricity supply but also the significant amount of change that has occurred in the nonutility segment of the industry in the last 10 years. (Refer to the next page for terms and definitions which will characterize each utility and nonutility component.)

Utility and Nonutility Generation and Shares by Class, 1986 and 1996



Generating Components: Key Terms & Definitions

To fully understand the roll of each U. S. electricity generating component mentioned on the previous page and throughout this booklet, the following key terms and definitions are provided.

UTILITIES: public agencies and privately owned companies which generate power for public use. There are four types:

Investor (or Privately) Owned (IOU): regulated by State and sometimes Federal government; earn a return for investors; 243 in the United States; operate in all States except NE.

Federally Owned: power not generated for profit; primarily producers and wholesalers; power is marketed by TVA and five DOE power marketing administrations; 10 in the United States; operate in all areas except the Northeast, the upper Midwest, and HI.

Other Publicly Owned: are non-profit State and local government agencies; serve at cost; most just distribute power but some large ones produce and transmit; 2,010 in the United States; operate in virtually all areas of the United States.

Cooperatively Owned: owned by members (small rural farms and communities) and provide service mostly to members only; incorporated under State law; 932 in the United States; operate in all States except CT, HI, and RI, and DC.

NONUTILITIES: privately owned entities that generate power for their own use and/or for sale to utilities and others. There are five types:

Cogenerator Qualifying Facility (Cogen QF): sequentially produce electric energy and another form of energy, such as heat or steam, using the same fuel source; are qualified under the Public Utility Regulatory Policies Act (PURPA) by meeting certain criteria set forth by the Federal Energy Regulatory Commission (FERC) and, therefore, are guaranteed that utilities will purchase their output.

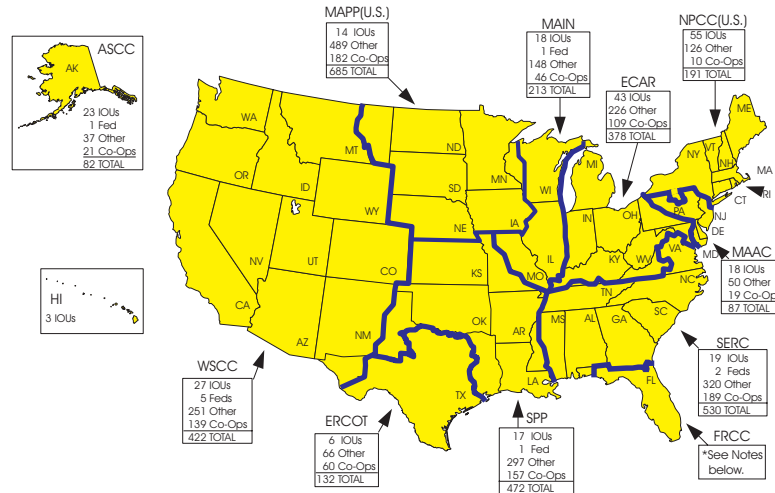
Small Power Producer Qualifying Facility (SPP QF): use renewable resources (biomass, geothermal, solar, wind, and hydroelectric) as a primary energy source; renewables must provide at least 75 percent of total energy input; are qualified under PURPA and, therefore, are guaranteed that utilities will purchase their output.

Exempt Wholesale Generator (EWG): created by the Energy Policy Act of 1992 (EPACT); exempt from PUHCA restrictions; sell wholesale only; do not possess transmission facilities; utilities are not required to purchase their output.

Cogenerator Non-Qualifying Facility (Cogen Non-QF): utilize cogenerating technology but are not qualified under PURPA.

Other Non-Qualifying Facility (Other Non-QF): do not use a cogenerating technology and are not qualified under PURPA.

Electric Utility Ownership by NERC Region

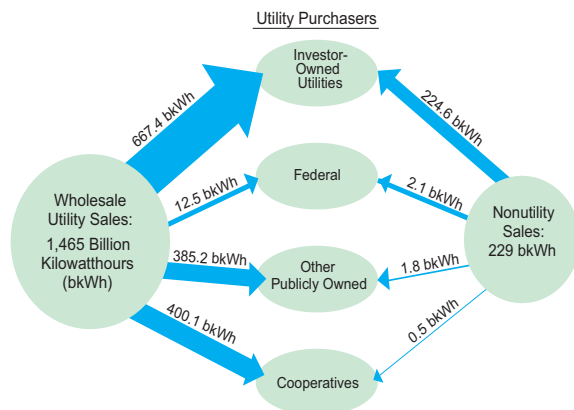


Sources: North American Electric Reliability Council (NERC) and the Energy Information Administration (EIA).

Notes: NERC's Regional Electric Reliability Councils are: ECAR-East Central Area Reliability Coordination Agreement; SERC-Southeastern Electric Reliability Council; MAIN-Mid-Atlantic Interconnected Network, SPP-Southwest Power Pool, ERCOT-Electric Reliability Council of Texas; MAAC-Mid-Atlantic Area Council; MAPP (U.S.)- Mid-Continent Area Power Pool; WSSC (U.S.)- Western Systems Coordinating Council; NPCC (U.S.)-Northeast Power Coordinating Council; and ASCC-Alaska Systems Coordinating Council. The Florida Reliability Coordinating Council (FRCC) was informally organized in October 1996 and officially became a NERC Region on January 1, 1997. However, data for the FRCC will not be available until 1998. In the interim, the data will continue to be included in SERC.

- As of December 31, 1996, there were 3,195 electric utilities throughout the United States, but only approximately 700 of them operate facilities that generate power.
- Many utilities are exclusively distribution utilities — that is, they purchase wholesale power from others to distribute it, over their own distribution lines, to the ultimate consumer.
- Some electric utilities have service territories extending beyond a single county or parish. Others just serve a municipality or part of a county.
- Many counties in the United States are served by more than a single utility, and some parts of the country have more than 10 electric utilities operating in a county.
- An extensive system of high-voltage transmission lines is owned and operated by the Nation's larger utilities. This transmission network permits electricity trading between utilities. Without transmission facilities, electricity could not be moved from power plants to the thousands of distribution systems serving millions of consumers of electric power.

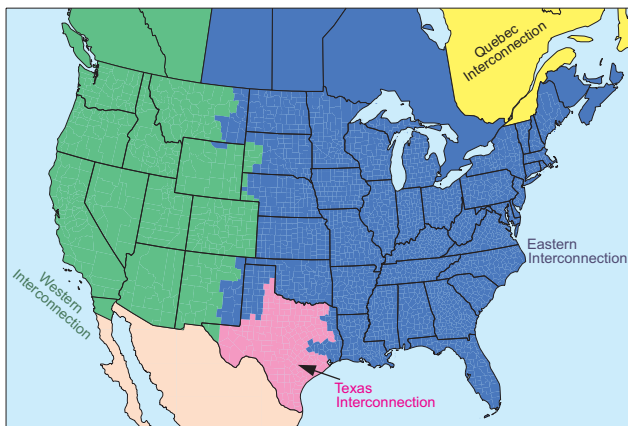
Electric Utility Wholesale Power Purchases by Ownership Type, 1996 (billion kilowatt-hours)



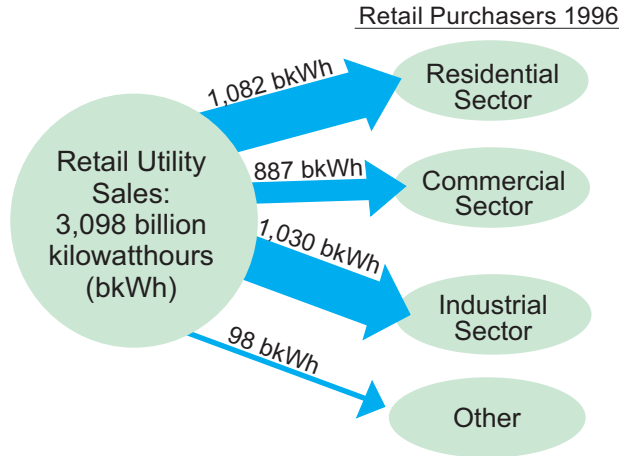
Wholesale Market

- The wholesale market encompasses electric trade and is an important part of the electric power industry.
- Approximately half of all electricity generated is purchased (or traded) in the wholesale (or bulk power) market before being sold to ultimate consumers.
- Wholesale transactions allow utilities to reduce power costs and increase power supply options.
- During contingency and emergency situations, overall electric system reliability is maintained as utilities cooperate in wholesale trade.
- The bulk power system has evolved into 3 major networks (the interconnected Eastern, Western, and Texas power grids) which consist of extra-high-voltage connections between individual utilities designed to permit the transfer of electrical energy from one part of the network to another.
- While utilities have dominated the industry, nonutilities have been increasing their role due to new regulatory orders and Federal laws which have opened transmission lines and encourage greater wholesale trade.

Interconnections of the North American Electric Reliability Council in the Contiguous United States, 1996



Retail Power Purchases by End-Use Sector, 1996 (billion kilowatthours)



Retail Market

- The retail market encompasses electricity generated, transmitted, and distributed to ultimate consumers. Retail electricity consumers are grouped into four end-use sectors: residential, commercial, industrial, and other.

- The **Residential**

Sector includes private households and apartment buildings, where energy is consumed primarily for space heating, water heating, air conditioning, lighting, refrigeration, cooking, and clothes drying.

- **The Commercial Sector** includes nonmanufacturing business establishments, such as hotels, motels, restaurants, wholesale businesses, retail stores, and health, social, and educational institutions.
- **The Industrial Sector** includes manufacturing, construction, mining, agriculture, fishing, and forestry establishments.
- **Other** includes public street and highway lighting, transportation, municipalities, divisions or agencies of State and Federal governments under special contracts or agreements, and other utility departments as defined by the pertinent regulatory agency and/or electric utility.

Sector	1996 Retail Sales (million kWh)	1996 Revenue from Retail Sales (million dollars)	1996 Average Revenue per kWh (cents)
Residential	1,082,491	90,501	8.36
Commercial	887,425	67,827	7.64
Industrial	1,030,356	47,385	4.60
Other	97,539	6,741	6.91
All Sectors	3,097,810	212,455	6.86

The Drivers of Change

Several factors have motivated the changes occurring in the electric power industry. They are advancements in power-generating technology, legislative and regulatory mandates, and regional electricity price variations.

Advancements in power-generating technology:

New advanced generators are cleaner and use less fuel.

Technological advancements have enabled nonutilities (as well as utilities) to generate electricity at lower cost than utilities that use older fossil-fueled or nuclear-fueled steam-electric technologies.

The new generators can be built and put into operation quickly, sometimes as an alternative to utility capacity at existing central station plants.

Legislative and regulatory mandates:

The Public Utility Regulatory Policies Act of 1978 (PURPA) stipulated that electric utilities had to interconnect with and buy, at the utilities' avoided cost, capacity and energy offered by any nonutility facility meeting certain criteria established by the Federal Energy Regulatory Commission (FERC). (See further explanation of PURPA on Pages 8 and 9.)

The Energy Policy Act of 1992 (EPACT) opened access to transmission networks and exempted certain nonutilities from the restrictions of the Public Utility Holding Company Act of 1935 (PUHCA). PUHCA broke up massive interstate holding companies and required them to divest their holdings until each became a single consolidated system serving a circumscribed geographic area. PUHCA also permitted holding companies to engage only in business that was essential and appropriate for the operation of a single integrated utility, thereby practically eliminating the participation of nonutilities in wholesale electric power sales. (See Page 10 for a further explanation of PUHCA and Pages 11-13 for a discussion of the arguments for and against the repeal of PURPA and PUHCA.)

In 1996, FERC issued Order 888 which opened transmission access to non-utilities, thereby establishing wholesale competition, **and Order 889** which requires utilities to establish electronic systems to share information about available transmission capacity. (See Page 14 for further details on these Orders.)

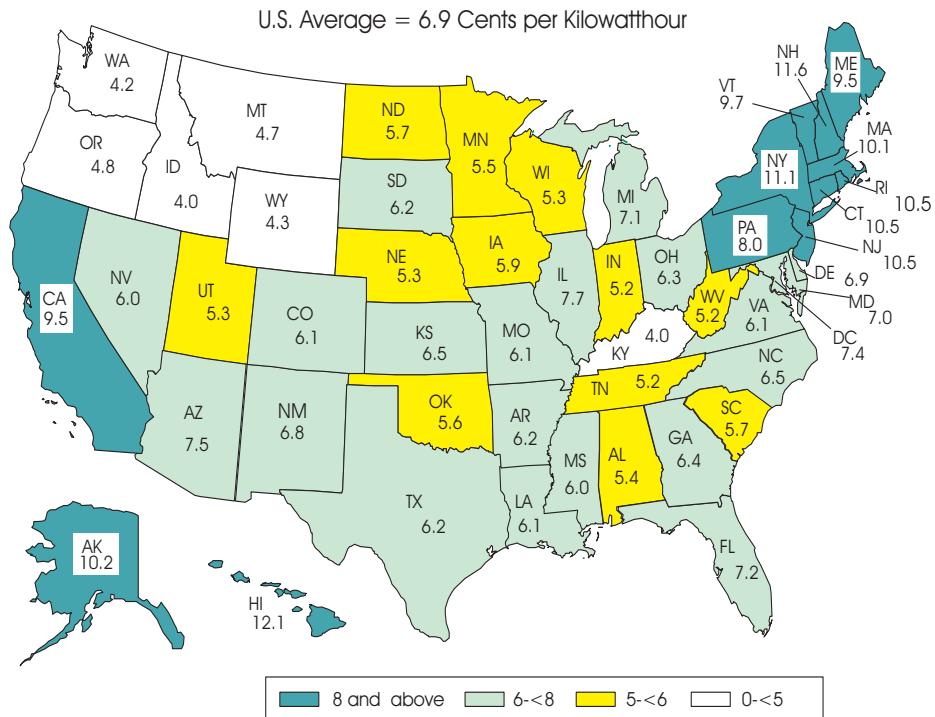
Regional electricity price variations across the Nation:

Large industrial consumers, located in States where electricity prices are significantly higher than those in other States, have used their considerable influence to convince State legislators and regulators to take actions that will lower electricity prices.

In 1996, the average revenue from electricity sales to industrial consumers ranged from 2.7 cents per kilowatthour (kWh) in Idaho to 10.0 cents per kWh in Hawaii; average revenue nationwide was 4.6 cents per kWh.

Average revenue from electricity sales to all consumers (i.e., residential, commercial, industrial, and other) ranged from 4.0 cents per kWh in Idaho to 12.1 cents per kWh in Hawaii and averaged 6.9 cents per kWh nationwide.

Average Revenue from Electricity Sales to All Retail Consumers by State, 1996 (cents per kilowatthour)



PURPA Specifications Regarding Utilities

As mentioned on Page 6, the Public Utility Regulatory Policies Act (PURPA) was enacted in 1978 and allowed certain nonutilities to enter the wholesale market. It was one of five statutes of the National Energy Act which was aimed at reducing our Nation's dependence on foreign oil. PURPA was designed to encourage the efficient use of fossil fuels in electric power production through cogenerators and the use of renewable resources through small power producers.

Cogenerators

Cogenerators are generators that sequentially or simultaneously produce electric energy and another form of energy (such as heat or steam) using the same fuel source. Cogeneration technologies are classified as "topping-cycle" and "bottoming-cycle" systems.

In a typical topping-cycle system, high-temperature high-pressure steam from a boiler is used to drive a turbine to generate electricity. The waste heat or steam exhausted from the turbine is then used as a source of heat for an industrial or commercial process.

In a typical bottoming-cycle system, high-temperature thermal energy is produced first for applications such as reheat furnaces, glass kilns, or aluminum metal furnaces, and heat is then extracted from the hot exhaust steam of the primary application and used to drive a turbine. Bottoming-cycle systems are generally used in industrial processes that require very high-temperature heat.

For a nonutility to be classified as a cogenerator qualified under PURPA, it must meet certain ownership, operating, and efficiency criteria established by FERC. The operating requirements stipulate the proportion (applicable to oil-fired facilities) of output energy that must be thermal energy, and the efficiency requirements stipulate the maximum ratio of input energy to output energy.

Renewable Resources

A renewable resource is an energy source that is regenerative or virtually inexhaustible. Renewable energy includes solar, wind, biomass, geothermal, and water (hydroelectric).

- Solar thermal technology converts solar energy through high concentration and heat absorption into electricity or process energy.
- Wind turbines use wind flows to generate electricity.
- Biomass energy is derived from hundreds of plant species, various agricultural and industrial residues, and processing wastes. Industrial wood and wood waste are the most prevalent form of biomass energy used by nonutilities.
- Geothermal technologies convert heat naturally present in the earth into heat energy and electricity.
- Hydroelectric power is derived by converting the potential energy of water to electrical energy by using a hydraulic turbine connected to a generator.

For a nonutility to be classified as a small power producer under PURPA, it also must meet certain ownership and operating criteria established by FERC. In addition, renewable resources must provide at least 75 percent of the total energy input. PURPA provisions enabled nonutility renewable electricity production to grow significantly, and the industry responded by improving technologies, decreasing costs, and increasing efficiency and reliability.

PUHCA Goals and Specifications

PUHCA was enacted in 1935 and was aimed at breaking up the unconstrained and excessively large trusts that then controlled the Nation's electric and gas distribution networks. The Act was passed at a time when financial pyramid schemes were extensive. These schemes allowed operating utilities in many areas of the country to come under the control of a small number of holding companies, which were in turn owned by other holding companies. These pyramids were sometimes 10 layers thick.

Before PUHCA, almost half of all electricity generated in the United States was controlled by three huge holding companies, and more than 100 other holding companies existed. Their size and complexity made industry regulation and oversight control by the States impossible. After the collapse of several large holding companies, the Federal Trade Commission conducted an investigation after which it criticized the many abuses that tended to raise the cost of electricity to consumers. The Securities and Exchange Commission (SEC) also investigated and publicly charged that the holding companies had been guilty of stock watering and capital inflation, manipulation of subsidiaries, and improper accounting practices.

Under PUHCA, the SEC was charged with the administration of the Act and the regulation of the holding companies. One of the most important features of the Act was that the SEC was given the power to break up the massive interstate holding companies by requiring them to divest their holdings until each became a single consolidated system serving a circumscribed geographic area. Another feature of the law permitted holding companies to engage only in business that was essential and appropriate for the operation of a single integrated utility. This latter restriction practically eliminated the participation of nonutilities in wholesale electric power sales.

The law contained a provision that all holding companies had to register with the SEC, which was authorized to supervise and regulate the holding company system. Through the registration process, the SEC decided whether the holding company would need to be regulated under or exempted from the requirements of PUHCA. The SEC also was charged with regulating the issuance and acquisition of securities by holding companies. Strict limitations on intrasystem transactions and political activities were also imposed.

The Repeal of PURPA and PUHCA

Arguments For and Against

The Public Utility Regulatory Policies Act of 1978 (PURPA) and the Public Utility Holding Company Act of 1935 (PUHCA) are being considered for repeal by Congress. Some groups feel that these statutes are actually hindering the industry's transition from a regulated monopoly. The arguments both for and against their repeal follow:

THE REPEAL OF PURPA

Arguments For Repeal

“PURPA is anticompetitive because utilities are required to purchase from Qualifying Facilities (QFs)”.

“EPACT’s provisions for exempt wholesale generators render PURPA obsolete.”

“PURPA has resulted in high prices to consumers because QF contract terms were lengthy and were based on erroneous forecasts of high capital costs and increases in demand and the price of natural gas. “

“PURPA’s goals have already been achieved.”

“If natural gas will be the fuel of choice as predicted, the environment will not need PURPA’s strict protection since natural gas is the least harmful fossil fuel.”

“Cogenerators and renewables have already gotten a foothold and do not need further promotion.”

“Immediate repeal is necessary; it will take too long if it is contained in comprehensive industry restructuring legislation.”

Arguments Against Repeal

“There is no guarantee that a free market can sustain the goals of PURPA, especially in the use of cogeneration and renewables.”

“Our Nation must be able to handle another energy crisis through fuel diversity.”

“Incentives must remain in place to conserve energy and to use more environmentally benign fuels.”

“QFs bring increased reliability and decrease the need for large costly plants.”

“At this point, utilities still have too much market power and PURPA levels the playing field for nonutilities.”

“Immediate repeal is a piecemeal approach--repeal should be included in comprehensive industry restructuring legislation.”

THE REPEAL OF PUHCA

Arguments For Repeal

“PUHCA’s provisions are antiquated.”

“PUHCA is impeding the transition to competition.”

“Utilities need to be able to diversify in order to improve profits.”

“PUHCA has already achieved its goal by making holding companies manageable and regulated.”

“The Securities and Exchange Commission itself recommends a conditional repeal.”

“PUHCA prevents all companies from playing on a level field.”

“Various other regulations have since been instituted that prevent holding company abuse.”

“Immediate repeal is necessary; it will take too long if it is contained in comprehensive industry restructuring legislation.”

Arguments Against Repeal

“PUHCA regulations can protect consumers until full retail competition is up and running.”

“Ratepayers are still at the mercy of the regulated monopolies.”

“PUHCA guards against monopolies and anticompetitive behavior.”

“Utility monopolies are now taking actions (e.g., merging) to increase market dominance, and PUHCA can keep them in control.”

“Immediate repeal is a piecemeal approach; repeal should be contained in comprehensive industry restructuring legislation.”

“PUHCA guards against interaffiliate transaction abuse.”

Regulatory Changes by the Federal Energy Regulatory Commission

FERC Orders 888 and 889

On April 24, 1996, FERC issued Orders 888 and 889, which encourage wholesale competition. The primary objective of these orders is the elimination of monopoly power over the transmission of electricity. To achieve this objective, FERC requires all public utilities that own, control, or operate facilities used for transmitting electric energy in interstate commerce to:

- file open access nondiscriminatory transmission tariffs containing minimum terms and conditions,
- take transmission service (including ancillary services) for their own new wholesale sales and purchases of electricity under open access tariffs,
- develop and maintain a same-time information system that will give existing and potential users the same access to transmission information that the public utility enjoys, and
- separate the transmission from generating and marketing functions and communications.

Stranded Costs

Recovery of stranded costs is perhaps the most contentious issue confronting regulators in promoting competition. Stranded costs (or assets) are costs that have been prudently incurred by utilities to serve their customers but cannot be recovered if the consumers choose other electricity suppliers.

One study has estimated current stranded assets at \$88 billion, and estimates of projected stranded costs range from \$10 billion to \$500 billion.

In its Order 888, FERC reaffirmed “that the recovery of legitimate, prudent and verifiable stranded costs should be allowed.” FERC’s directive is grounded in the belief that the recovery of stranded costs “is critical to the successful transition of the electricity industry to a competitive, open access environment.”

For this purpose, direct assignment of costs to departing customers was selected as the appropriate method for recovery of stranded costs.

Current Federal Legislative Proposals

As of the end of the first session of the 105th Congress, there were 20 legislative proposals pending which are directly or indirectly related to the restructuring of the electric power industry. The following gives each bill number, its sponsor, its date of introduction, and a very brief synopsis of its intent.

IN THE SENATE:

S.237 - introduced by Senator Dale Bumpers (D-AR) on January 30, 1997; to provide for retail competition among electric energy suppliers for the benefit and protection of consumers, and for other purposes.

S. 621 - introduced by Senator Alfonse M. D'Amato (R-NY) on April 22, 1997; to repeal the Public Utility Holding Company Act of 1935.

S. 687 - introduced by Senator James M. Jeffords (R-VT) on May 1, 1997; to enhance the benefits of the national electric system by encouraging and supporting State programs for renewable energy sources, universal electric service, affordable electric service, and energy conservation and efficiency, and for other purposes.

S. 710 - introduced by Senator John Breaux (D-LA) on May 7, 1997; to amend the Internal Revenue Code of 1986 to extend the credit for producing fuel from a nonconventional source to taxpayers using biomass fuel sources in the generation of electricity through the use of a suspension burning process.

S. 722 - introduced by Senator Craig Thomas (R-WY) on May 8, 1997; to benefit consumers by promoting competition in the electric power industry, and for other purposes.

S. 1276 - introduced by Senator Jeff Bingaman (D-NM) on October 8, 1997; to amend the Federal Power Act, to facilitate the transition to more competitive and efficient electric power markets, and for other purposes.

S. 1401 - introduced by Senator Dale Bumpers (D-AR) on November 7, 1997; to provide for the transition to competition among electric energy suppliers for the benefit and protection of consumers, and for other purposes. (This modifies **S. 237**.)

S. 1483 - introduced by Senator Frank Murkowski (R-AK) on November 8, 1997; to amend the Internal Revenue Code of 1986 to provide for the treatment of tax-exempt bond financing of certain electrical output facilities.

IN THE HOUSE OF REPRESENTATIVES:

[H.R. 296](#) - introduced by Congressman John Shadegg (R-AZ) on January 7, 1997; to privatize the Federal Power Marketing Administrations, and for other purposes.

[H.R. 338](#) - introduced by Congressman Cliff Stearns (R-FL) on January 7, 1997; to prospectively repeal section 210 of PURPA.

[H.R. 603](#) - introduced by Congressman Bob Franks (R-NJ) on February 5, 1997; to amend the Tennessee Valley Authority Act of 1933 to prohibit appropriations after FY 1998.

[H.R. 655](#) - introduced by Congressman Dan Schaefer (R-CO) on February 10, 1997; to give all American electricity consumers the right to choose among competitive providers of electricity, in order to secure lower electricity rates, higher quality services, and a more robust U.S. economy, and for other purposes.

[H.R. 718](#) - introduced by Congressman Mark Foley (R-FL) on February 12, 1997; to privatize certain Federal power generation and transmission assets, and for other purposes.

[H.R. 1230](#) - introduced by Congressman Tom DeLay (R-TX) on April 8, 1997; to give all American electricity consumers the right to choose among competitive providers of electricity in order to secure lower electricity rates, higher quality services, and a more robust U.S. economy, and for other purposes.

[H.R. 1359](#) - introduced by Congressman Peter A. DeFazio (D-OR) on April 17, 1997; to amend PURPA to establish a means to support programs for electric energy conservation and energy efficiency, renewable energy, and universal and affordable service for electric consumers.

[H.R. 1401](#) - introduced by Congressman Bill Thomas (R-CA) on April 17, 1997; to amend the Internal Revenue Code of 1986 to provide a 5-year extension of the credit for producing electricity from wind.

[H.R. 1910](#) - introduced by Congresswoman Julia Carson (D-IN) on June 17, 1997; to establish minimum nationwide nitrogen oxide pollution standards for fossil-fuel fired electric powerplants.

[H.R. 1960](#) - introduced by Congressman Edward J. Markey (D-MA) on June 19, 1997; to modernize PUHCA, the Federal Power Act, the Fair Packaging and Labeling Act, and PURPA to promote competition in the electric power industry, and for other purposes.

[H.R. 2909](#) - introduced by Congressman Frank Pallone, Jr. (D-NJ) on November 7, 1997; to amend the Federal Power Act to establish requirements regarding the operation of certain electric generating facilities, and for other purposes.

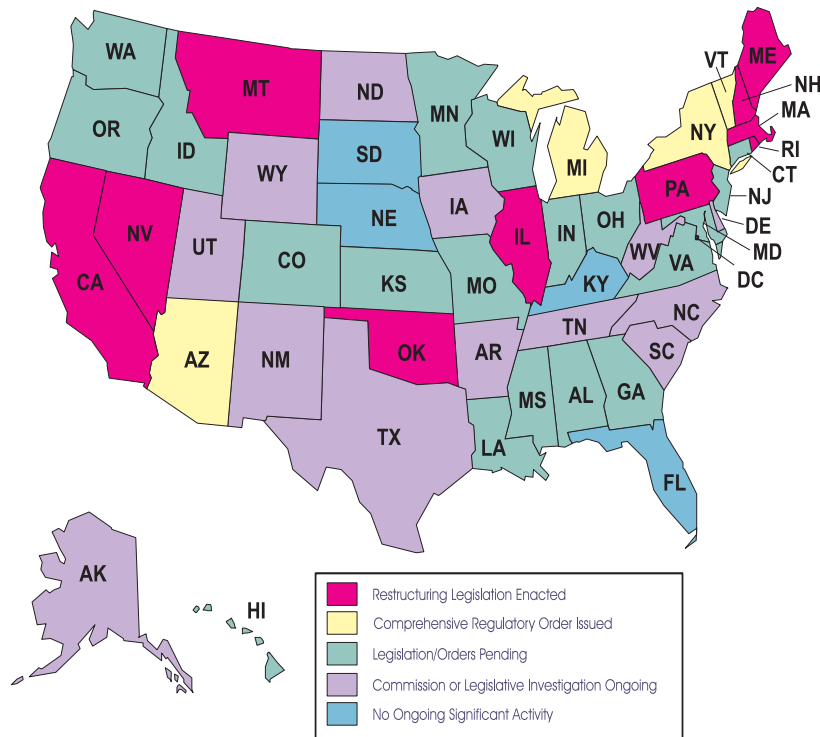
[H.R. 2988](#) - introduced by Congressman John T. Doolittle (R-CA) on November 9, 1997; to facilitate the operation, maintenance, and upgrade of certain federally owned hydroelectric power generating facilities, to ensure the recovery of costs, and to improve the ability of the Federal Government to coordinate its generating and marketing of electricity with the non-Federal electric utility industry.

State Progress

There has been a surge of activity in the legislatures and public utility commissions in most of the States to examine retail competition. Some States have moved faster than others by passing restructuring legislation and instituting retail pilot programs. States with high electricity rates, such as California and those in the Northeast, had compelling reasons to promote competition in the hope of making lower rates available to their consumers. In fact, California, which has been the pathfinder through the unexplored world of direct retail access, will usher in full direct access for all customers beginning March 1, 1998. Currently, twelve other States (ID, IL, MA, MI, MO, NH, NJ, NY, OH, OR, PA, and WA) have active pilot programs or direct access programs. The map below gives a general view of the status of restructuring activities in each of the States. For more information, refer to EIA's Website at:

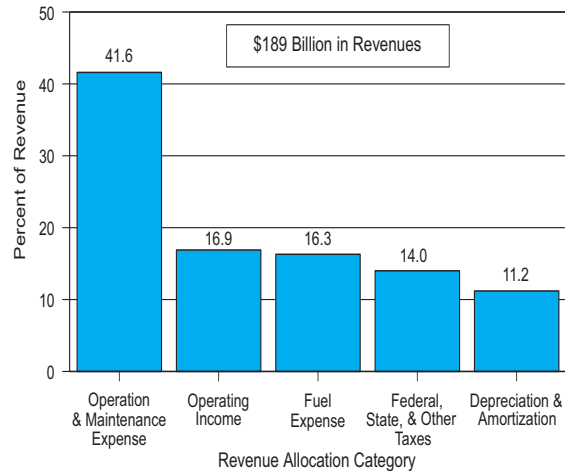
www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html

Status of Restructuring Activities by State, as of December 2, 1997



Transitional Strategies

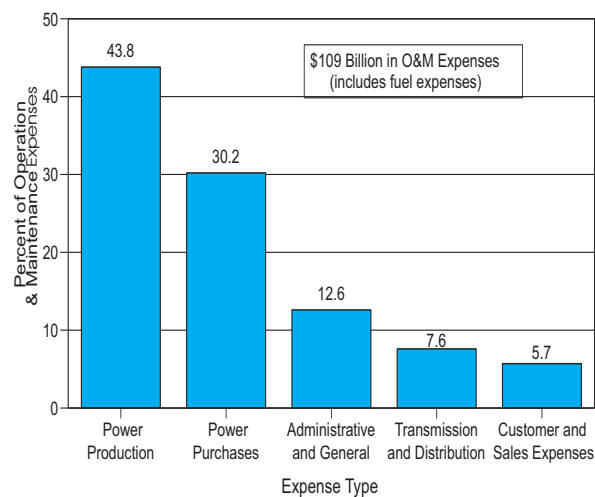
Allocation of Revenue Dollars from Electric Operations for Major U. S. Investor-Owned Utilities, 1996



The different components of the industry are taking actions to prepare for competition. One component, the investor-owned utilities (IOUs), have traditionally produced and sold most of the electricity in the United States, but their dominant position is being threatened due to the changes taking place. They have been taking actions to stay competitive through such activities as lowering operations and maintenance (O&M) costs, staff

reductions, mergers and acquisitions, diversification into nonutility businesses, and reorganization of corporate structures.

Allocation of Electric Operation and Maintenance Expenses of Major U. S. Investor-Owned Utilities, 1996



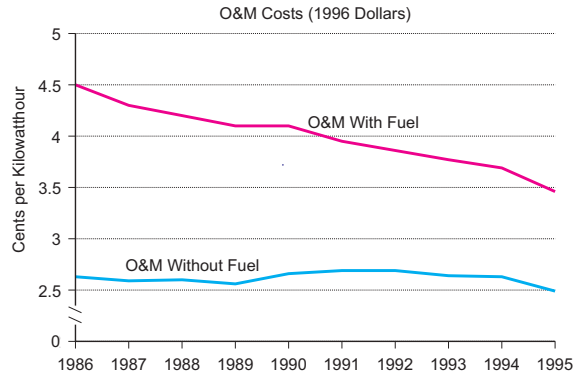
Operations and maintenance costs plus fuel costs accounted for almost 58 percent of major IOU revenues in 1996.

These O&M costs are allocated toward power production, power purchases, administrative and general, transmission and distribution, and customer sales and expenses.

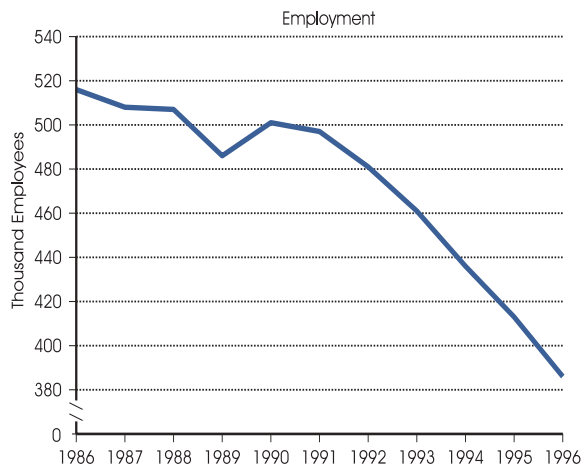
IOU O&M costs have decreased by 22 percent from about 4.6 cents per kWh in 1986 to 3.5 cents per kWh in 1996.

Many IOUs have significantly reduced their workforce and lowered their payroll expenses through attrition, early retirement, and voluntary and involuntary severance. From 1986 to 1996, employment at major IOUs decreased by about 25 percent, a reduction of more than 100,000 employees.

Operation and Maintenance Expenses of Major U. S. Investor-Owned Utilities, 1986-1996

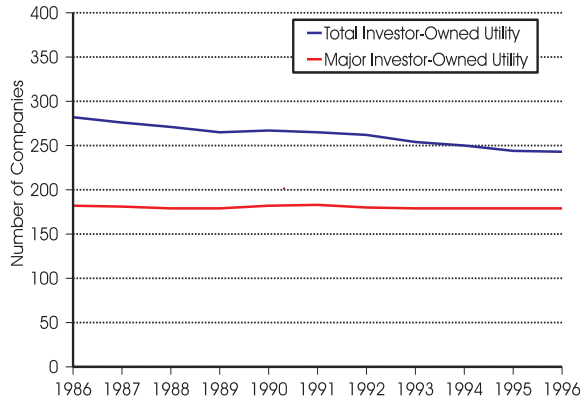


Employment at Major U. S. Investor-Owned Utilities, 1986-1996



Mergers and acquisitions are another strategy being used to become more competitive. They combine resources, eliminate redundant operations and staff, and reduce costs. Over the past 11 years, 39 electric IOUs have merged with other utilities in the industry.

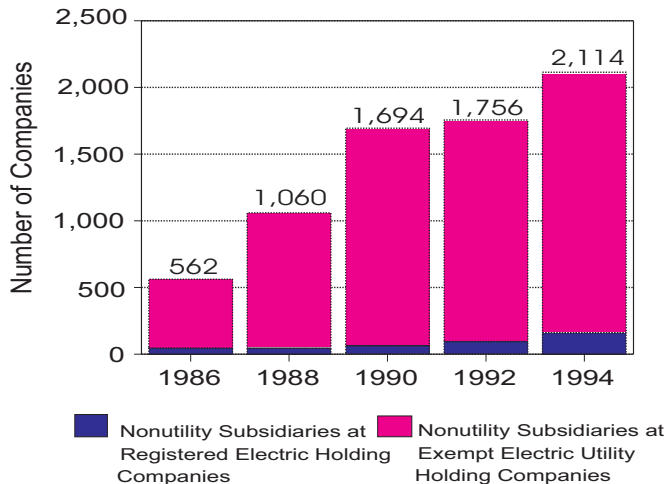
Number of Investor-Owned Electric Utilities, 1986-1996



Diversification into nonutility businesses (such as energy service companies; cogeneration and independent power production; oil and gas exploration, development, and production; and foreign utility ventures) is helping some IOUs to remain viable. While these types of investments have been a feature of the electric utility industry for decades, recent changing regulatory constraints and increased competition have resulted in utilities investing more aggressively in nonutility businesses.

From 1992 through 1994, registered electric utility holding companies increased their ownership of nonutility businesses from 95 companies to 160 companies, an increase of almost 70 percent in 3 years. Exempt holding companies show a similar pattern. In 1992, 72 exempt electric holding companies owned 1,661 nonutility subsidiaries. By 1994, exempt holding companies owned 1,954 nonutility businesses.

Number of Nonutility Subsidiary Companies Owned by Electric Utility Holding Companies, 1986, 1988, 1990, 1992, and 1994



NOTES

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