DOE/EIA-X037
January 2000

The Restructuring of the Electric Power Industry

A Capsule of Issues and Events

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Energy Information Administration

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National Energy Information Center (NEIC)
Energy Information Administration, EI-30
Forrestal Building, Room 1F-048
Washington, DC 20585

(202) 586-8800
(202) 586-0727 (fax)
TTY: (202) 586-1181
E-mail: infoctr@eia.doe.gov

Released for printing: January 13, 2000


Printed with soy ink on recycled paper

This is the first update of the original restructuring booklet published in 1997. It is basically the same as the original but 1996 data have been replaced with 1998 data. Also, several areas of text have been amended or expanded to cover new developments. The information contained in this booklet was excerpted from a series of reports regarding the changing structure of the electric power industry which have recently been published by the Office of Coal, Nuclear, Electric and Alternate Fuels in the Energy Information Administration (EIA). 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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The Restructuring of the Electric Power Industry

A Capsule of Issues and Events
(Including Data Through 1998)

Energy Information Administration

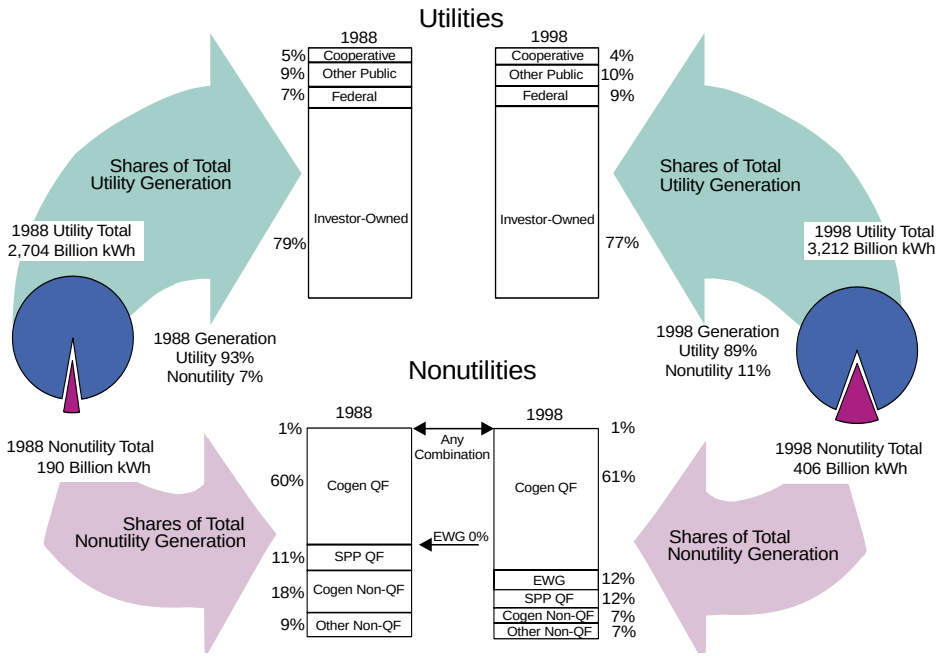
Electricity Generation in a Competitive Market

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 widespread view 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 remain regulated and noncompetitive.

Major segments of the electricity industry are being restructured. The industry 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, 1988 and 1998



Generating Components: Key Terms and Definitions

To fully understand the role 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; 239 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; 2,009 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; 912 in the United States; operate in all States except CT, HI, and RI, and DC.

Power Marketers: a new subcategory considered utilities because they buy and sell electricity; do not own or operate generation, transmission, or distribution facilities; approximately 80 are now actively engaged in wholesale trade, while over 400 have filed rate tariffs with the Federal Energy Regulatory Commission (FERC).

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 FERC and, therefore, are guaranteed that utilities will purchase their output.

Small Power Producer Qualifying Facility (SPP QF): use renewable resources (bio-mass, 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 restrictions set forth in the Public Utility Holding Company Act of 1935 (PUHCA); 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.

Note: An *entity* is any of the above five types in any combination.

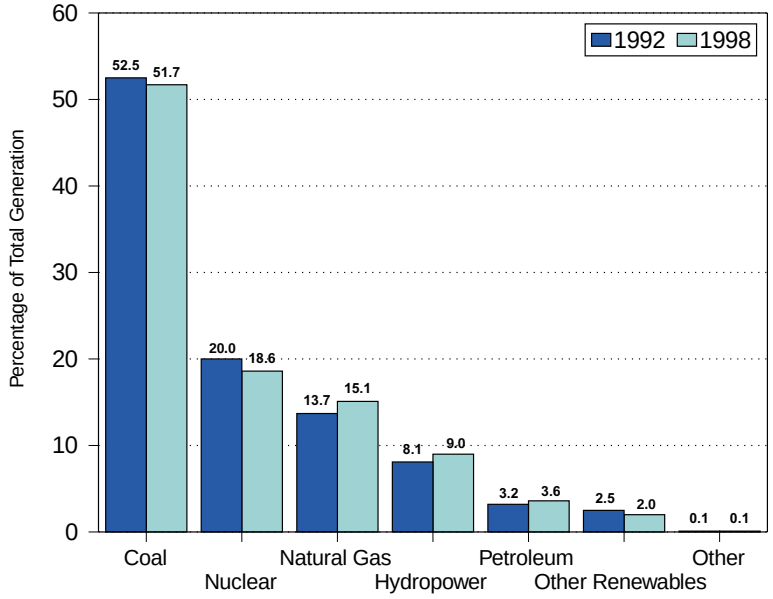
Fuels Used to Generate Electricity

Electricity is produced using the following fuel sources: coal, nuclear, natural gas, petroleum, and renewable resources. Renewable resources include hydropower (which traditionally makes up over 95 percent of renewable generation), geothermal, biomass, wind, solar, and photovoltaics. Another source, categorized as "other" by EIA, includes hydrogen, sulfur, batteries, chemicals, and purchased steam.

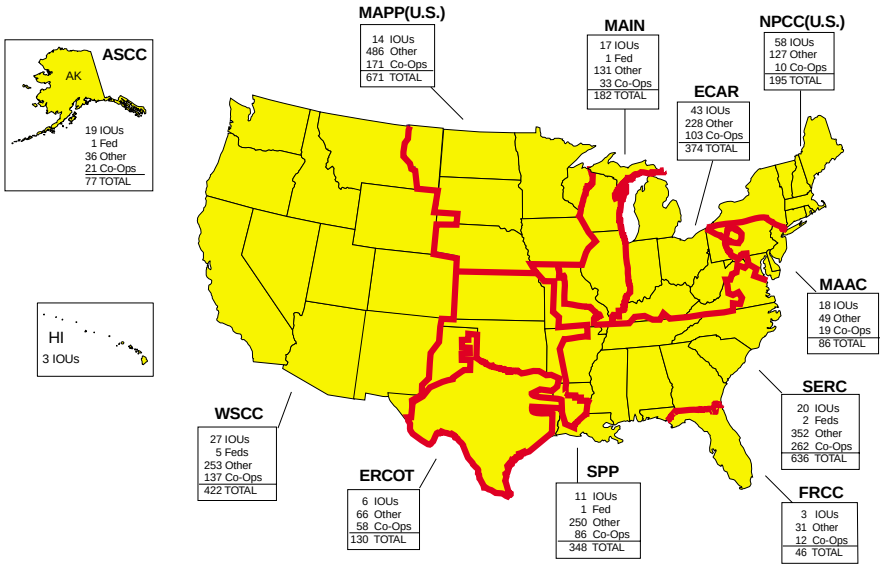
The figure below compares the shares of net electricity generation by energy source for 1992 (the year that EPACT was passed) and 1998. As can be seen, coal is the predominant fuel source and has been since the beginning of the electric power industry. The shares of coal, nuclear, and other renewables (renewables other than hydropower) declined by 1.5, 7.0, and 20.0 percentage points, respectively, over the period examined, while the shares of natural gas, hydropower, and petroleum rose by 10.2, 11.1, and 12.5 percentage points, respectively.

Nuclear power is projected to decline further over the next 20 years due to retirements of existing units. Generation from both natural gas and coal is projected to increase to offset these retirements and to meet the growing demand for electricity in the United States. However, due to assumptions about electricity industry restructuring prompting the construction of less capital-intensive and more efficient natural gas generation technologies, the share of coal generation will eventually decline while the natural gas share will continue to increase.

Shares of Net Electricity Generation by Energy Source, 1992 and 1998



Electric Utility Ownership by NERC Region, 1998



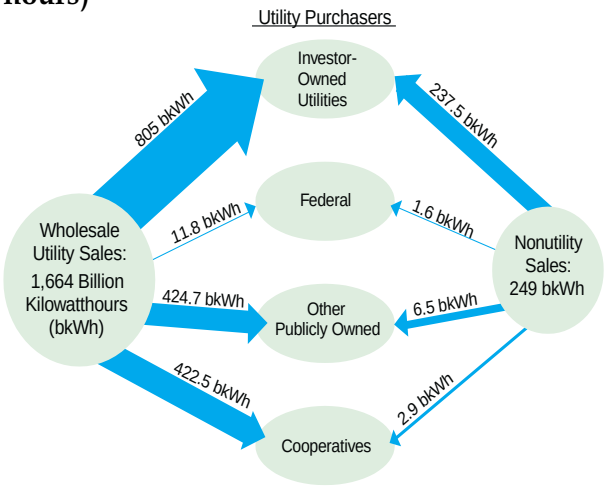
Sources: North American Electric Reliability Council (NERC) and the Energy Information Administration (EIA).
Notes: NERC's Regional Electric Reliability Councils are: ECAR-East Central Area Reliability Coordination Agreement; SERC-Southeastern Electric Reliability Council; MAIN-Mid-Atlantic Interconnected 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; ASCC-Alaska Systems Coordinating Council; and FRCC-Florida Reliability Coordinating Council.

- As of December 31, 1998, there were 3,170 electric utilities throughout the United States, but only approximately 860 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.

Wholesale Market

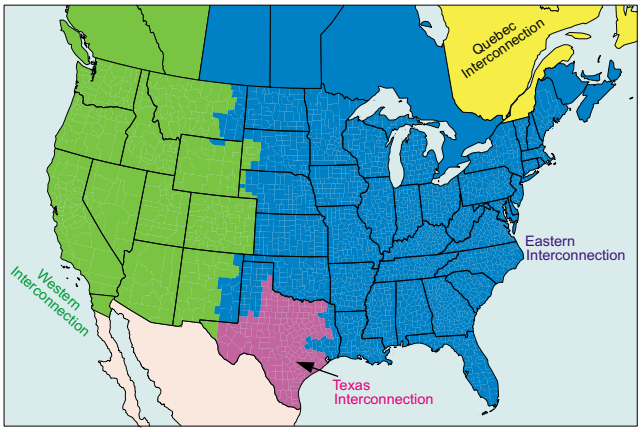
- The wholesale market encompasses electric trade and is an important part of the electric power industry.
- Approximately half of all electricity generated is purchased (or traded) in the wholesale (or bulk power) market before being sold to ultimate consumers.

Electric Utility Wholesale Power Purchases by Ownership Type, 1998 (billion kilowatt-hours)

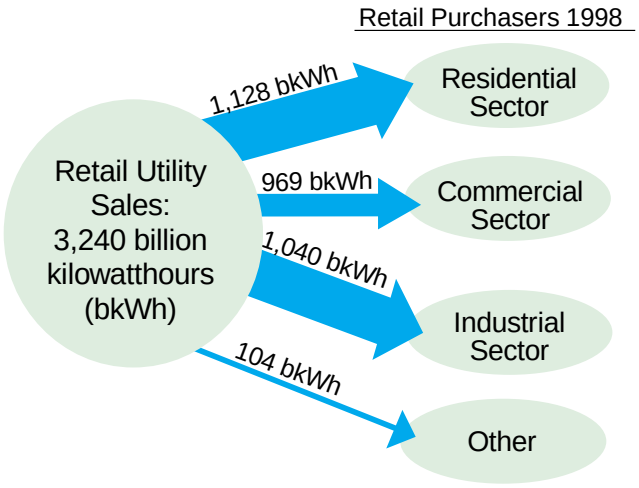


- Wholesale transactions allow utilities to reduce power costs and increase power supply options.
- During contingency and emergency situations, overall electric system reliability is maintained as utilities cooperate in wholesale trade.
- The bulk power system has evolved into 3 major networks (the 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, 1998



Retail Power Purchases by End-Use Sector, 1998 (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	**1998 Retail Sales** (million kWh)	**1998 Revenue from Retail Sales** (million dollars)	**1998 Average Revenue per kWh** (cents)
Residential	1,127,735	93,164	8.26
Commercial	968,528	71,769	7.41
Industrial	1,040,038	46,550	4.48
Other	103,518	6,863	6.63
All Sectors	3,239,818	218,346	6.74

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 FERC. (See further explanation of PURPA on Pages 10 and 11.)

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 12 for a further explanation of PUHCA and Pages 13-15 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 nonutilities, thereby establishing wholesale competition, **and Order 889** which requires utilities to establish electronic systems to share information about available transmission capacity. (See Pages 16-17 for further details on these Orders.)

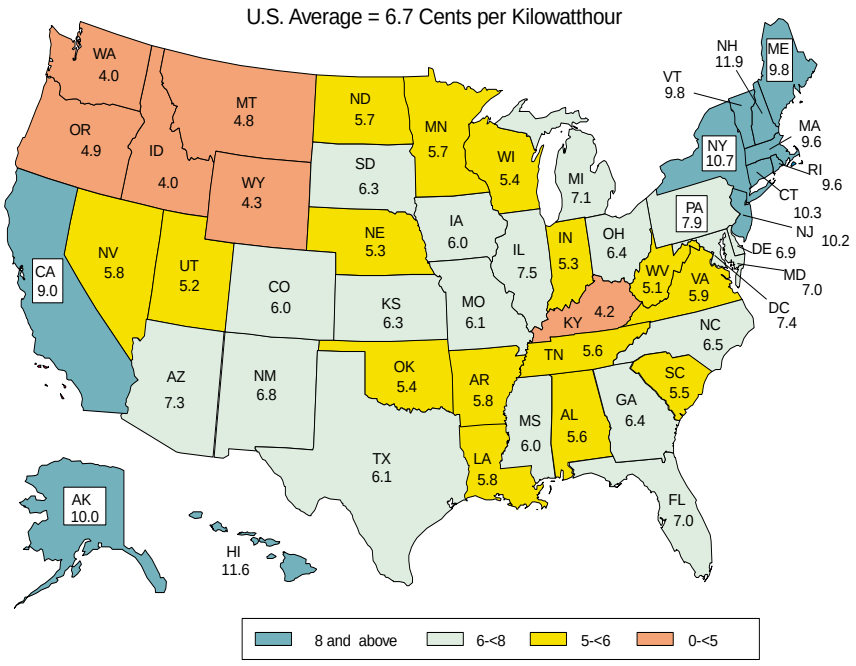
Regional electricity price variations across the Nation:

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 1998, the average revenue from electricity sales to industrial consumers ranged from 2.6 cents per kilowatthour (kWh) in Washington to 9.4 cents per kWh in Hawaii; average revenue from industrial consumers nationwide was 4.5 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 11.9 cents per kWh in New Hampshire and averaged 6.7 cents per kWh nationwide.

Note: The average revenue per kilowatthour is often used as a proxy for the retail price of electricity.

Average Revenue from Electricity Sales to All Retail Consumers by State, 1998 (cents per kilowatthour)



PURPA Specifications Regarding Utilities

As mentioned on Page 8, 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 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.
- Solar photovoltaic technology converts sunlight into electricity through solid-state semiconductor devices.
- 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 believe 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."

"PUHCA guards against interaffiliate transaction abuse."

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

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 has been 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 estimated 1995 stranded assets at $88 billion, and estimates of projected stranded costs have ranged 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 December 1999, there were 25 legislative proposals pending before the 106th Congress which are 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 U.S. SENATE:

S.161 - The Power Marketing Administration Reform Act of 1999 - introduced by Senator Daniel P. Moynihan (D-NY) on January 19, 1999; to provide for a transition to market-based rates for power sold by Federal Power Marketing Administrations and the Tennessee Valley Authority.

S.282 - The Transition to Competition in the Electric Industry Act - introduced by Senator Connie Mack (R-FL) on January 21, 1999; to provide that no electric utility shall be required to enter into a new contract or obligation to purchase or to sell electricity or capacity under Section 210 of the Public Utility Regulatory Policies Act of 1978.

S.313 - The Public Utility Holding Company Act of 1999 - introduced by Senator Richard C. Shelby (R-AL) on January 27, 1999; to repeal the Public Utility Holding Company Act of 1935 and to enact the Public Utility Holding Company Act of 1999.

S.516 - The Electric Utility Restructuring Empowerment and Competitiveness Act of 1999 - introduced by Senator Craig Thomas (R-WY) on March 3, 1999; to benefit consumers by promoting competition in the electric power industry.

S.1047 - The Comprehensive Electricity Competition Act - introduced by Senator Frank Murkowski (R-AK) on May 13, 1999; to provide for a more competitive electric power industry.

S.1048 - The Comprehensive Electricity Competition Tax Act - introduced by Senator Frank Murkowski (R-AK) on May 13, 1999; to provide for a more competitive electric power industry.

S.1273 - The Federal Power Act Amendments of 1999 - introduced by Senator Jeff Bingaman (D-NM) on June 24, 1999; to amend the Federal Power Act and to facilitate the transition to more competitive and efficient electric power markets.

S.1284 - The Electric Consumer Choice Act - introduced by Senator Don Nickles (R-OK) on June 24, 1999; to amend the Federal Power Act to ensure that no State may establish, maintain, or enforce on behalf of any electric utility an exclusive right to sell electric energy or otherwise unduly discriminate against any consumer who seeks to purchase electric energy in interstate commerce from any supplier.

S.1323 - The TVA Customer Protection Act - introduced by Senator Mitch McConnell (R-KY) on July 1, 1999; to amend the Federal Power Act to ensure that certain Federal power customers are provided protection by the Federal Energy Regulatory Commission.

S.1369 - The Clean Energy Act of 1999 - introduced by Senator James M. Jeffords (R-VT) on July 14, 1999; 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.

IN THE U.S. HOUSE OF REPRESENTATIVES:

H.R.341 - The Environmental Priorities Act of 1999 - introduced by Congressman Robert E. Andrews (D-NJ) on January 19, 1999; to establish a Fund for Environmental Priorities to be funded by a portion of the consumer savings resulting from retail electricity choice.

H.R.667 - The Power Bill - introduced by Congressman Richard Burr (R-NC) on February 10, 1999; to remove Federal impediments to retail competition in the electric power industry, thereby providing opportunities within electricity restructuring.

H.R.971 - The Electric Power Consumer Rate Relief Act of 1999 - introduced by Congressman James T. Walsh (R-NY) on March 3, 1999; to amend the Public Utility Regulatory Policies Act of 1978 to protect the Nation's electricity ratepayers by ensuring that rates charged by qualifying small power producers and qualifying cogenerators do not exceed the incremental cost to the purchasing utility of alternative electric energy at the time of delivery.

H.R.1138 - The Ratepayer Protection Act - introduced by Congressman Cliff Stearns (R-FL) on March 16, 1999; to prospectively repeal Section 210 of the Public Utility Regulatory Policies Act of 1978.

H.R.1486 - The Power Marketing Administration Reform Act of 1999 - introduced by Congressman Bob Franks (R-NJ) on April 20, 1999; to provide for a transition to market-based rates for power sold by the Federal Power Marketing Administrations and the Tennessee Valley Authority.

H.R.1587 - The Electric Energy Empowerment Act of 1999 - introduced by Congressman Cliff Stearns (R-FL) on April 27, 1999; to encourage States to establish competitive retail markets for electricity, to clarify the roles of the Federal Government and the States in retail electricity markets, and to remove certain Federal barriers to competition.

H.R.1828 - The Comprehensive Electricity Competition Act - introduced by Congressman Thomas J. Bliley, Jr. (R-VA) on May 17, 1999; to provide for a more competitive electric power industry.

H.R.2050 - The Electric Consumers' Power to Choose Act of 1999 - introduced by Congressman Steve Largent (R-OK) on June 8, 1999; to provide consumers with a reliable source of electricity and a choice of electric providers.

H.R.2363 - The Public Utility Holding Company Act of 1999 - introduced by Congressman W. J. (Billy) Tauzin (R-LA) on June 25, 1999; to repeal The Public Utility holding Company Act of 1935 and to enact The Public Utility Holding Company Act of 1999.

H.R.2569 - The Fair Energy Competition Act of 1999 - introduced by Congressman Frank Pallone, Jr. (D-NJ) on July 20, 1999; 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.

H.R.2602 - The National Electricity Interstate Transmission Reliability Act - introduced by Congressman Albert R. Wynn (D-MD) on July 22, 1999; to amend the Federal Power Act with respect to electric reliability and oversight.

H.R.2645 - The Electricity Consumer, Worker, and Environmental Protection Act of 1999 - introduced by Congressman Dennis J. Kucinich (D-OH) on July 29, 1999; to provide for the restructuring of the electric power industry.

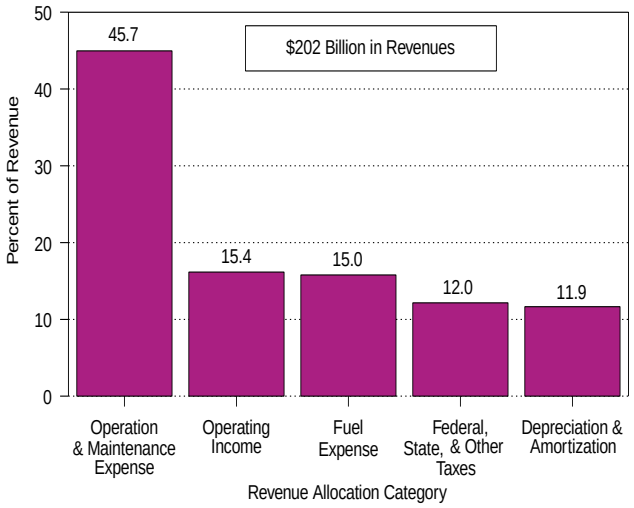
H.R.2734 - The Community Choice for Electricity Act of 1999 - introduced by Congressman Sherrod Brown (D-OH) on August 5, 1999; to allow local government entities to serve as nonprofit aggregators of electricity services on behalf of their citizens.

H.R.2786 - The Interstate Transmission Act - introduced by Congressman Thomas C. Sawyer (D-OH) on August 5, 1999; to provide for expansion of electricity transmission networks in order to support competitive electricity markets and to bring the benefits of less regulation of such markets to the public.

H.R.2944 - The Electricity Competition and Reliability Act - introduced by Congressman Joe Barton (R-TX) on September 24, 1999; to promote competition in electricity markets and to provide consumers with a reliable source of electricity.

Transitional Strategies

Allocation of Revenue Dollars from Electric Operations for Major U. S. IOUs, 1998

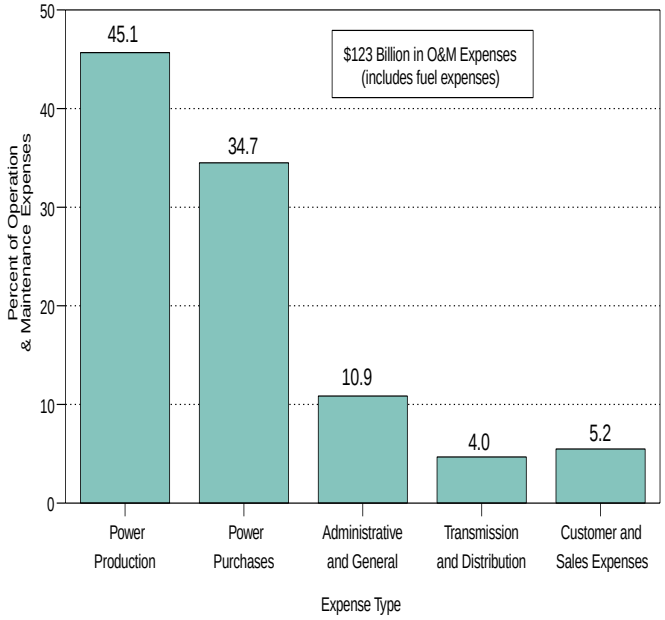


The different components of the industry are taking actions to prepare for competition. One component, the investor-owned utilities (IOUs), have traditionally produced and sold most of the electricity in the United States, but their dominant position is being threatened due to the changes taking place. 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.

O&M costs plus fuel costs accounted for almost 61 percent of major IOU revenues in 1998.

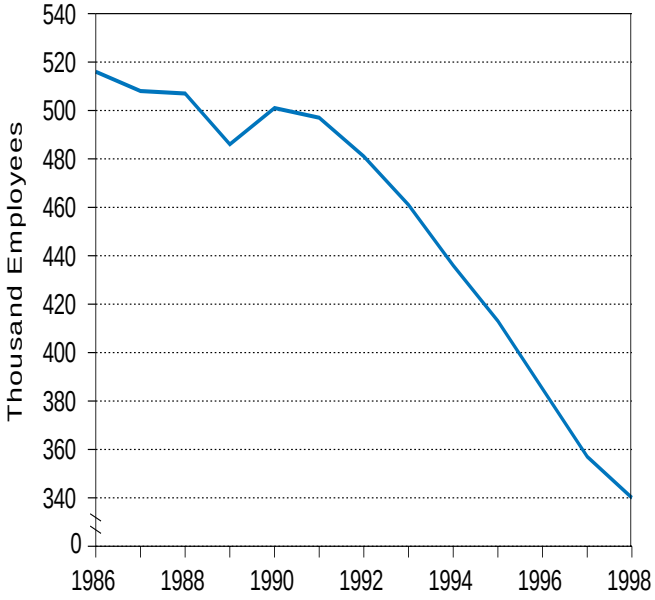
These O&M costs are allocated toward power production, power purchases, administrative and general, transmission and distribution, and customer and sales expenses.

Allocation of Electric Operation and Maintenance Expenses of Major U. S. IOUs, 1998



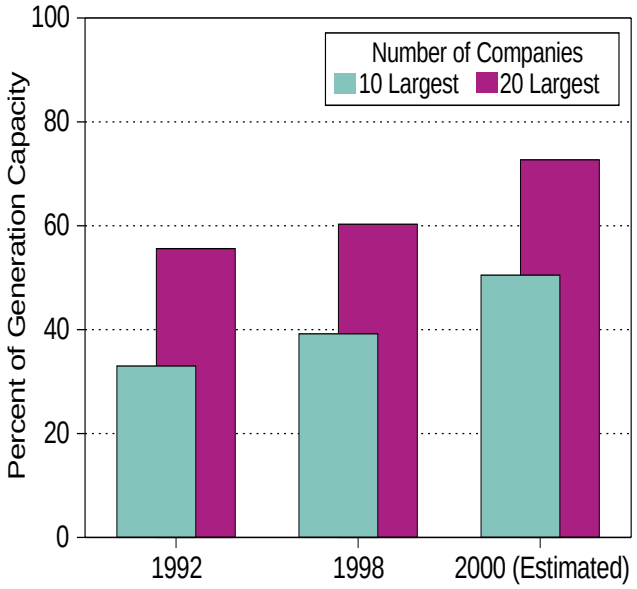
Many IOUs have significantly reduced their workforce and lowered their payroll expenses through attrition, early retirement, and voluntary and involuntary severance. From 1986 to 1998, employment at major IOUs decreased by about 33 percent, a reduction of nearly 180,000 employees.

Employment at Major U. S. IOUs , 1986-1998



Mergers, acquisitions, asset divestitures, and other forms of corporate combinations have become widespread as IOUs seek to improve their positions in the increasingly competitive electric power industry. Since 1992 IOUs have been involved in 26 mergers, and an additional 16 mergers are pending approval.

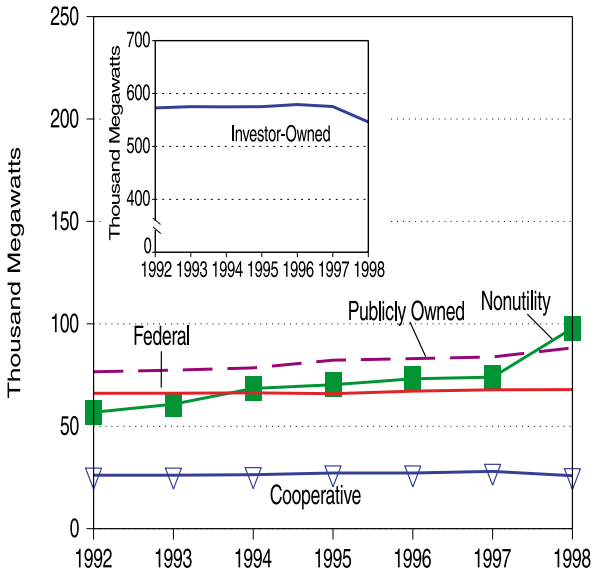
Percent of Generation Capacity Held by Largest IOUs, 1992, 1998, and 2000



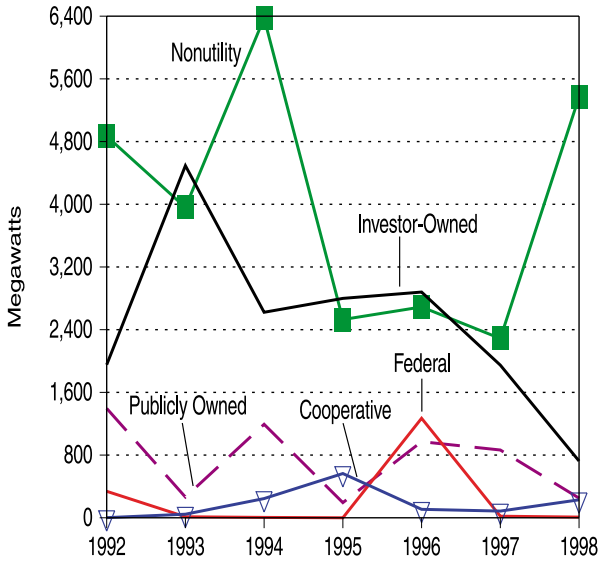
One effect of these mergers is that the industry is becoming more concentrated. In 1992 the 10 largest IOUs owned 33 percent of total IOU-held generation capacity. By 1998 the 10 largest IOUs owned nearly 40 percent. As more mergers are completed over the next few years, the l0 largest IOUs will own an estimated 51 percent of IOU-held generation capacity.

Industry Nameplate Capacity, 1992-1998

Presently, IOUs are divesting power generation assets in unprecedented numbers. Starting in late 1997 through September 1999, IOUs have collectively divested, or are in the process of divesting, 133.0 gigawatts of power generation capacity, representing about 17 percent of total U.S. electric power industry capacity.



Industry Additions to Capacity, 1992-1998



Comparing industry additions to capacity supports the fact that most of the capacity sold by IOUs has been acquired by non-utilities. This trend has been spurred by State-level restructuring programs that emphasize the unbundling of generation from transmission and distribution and, in some cases, by a desire to exit the competitive power generation business.

State Actions

Regulation of distribution service territories and retail rates for electricity are under State jurisdiction. Traditionally, the public utility commissions (PUCs) in each State set retail rates through ratemaking processes based on cost of service. The average revenue per kilowatthour (average retail price) varies across the Nation, from a high of 11.9 cents per kilowatthour in New Hampshire to 4.0 cents per kilowatthour in Idaho in 1998. Once the Federal government enacted EPACT with provisions that opened transmission lines and allowed development of a competitive wholesale market for electricity, States where electricity prices were highest began to investigate if a competitive retail market for electricity could lower retail prices and spur marketing and technological innovations to benefit their customers.

In 1996, California and Rhode Island passed landmark legislation to restructure their electric power industries and give their consumers the right to choose the supplier of their electricity. To date, 24 States have passed similar legislation or regulatory orders that will allow retail access to electricity. Most of the remaining States that have not passed legislation for retail choice are actively investigating the issues and observing the States that have begun retail access. Many have considered legislation and will likely enact laws in the next few years. However, some States have decided that restructuring may not be in their best interest at this time, mainly because their retail prices are currently well below the national average.

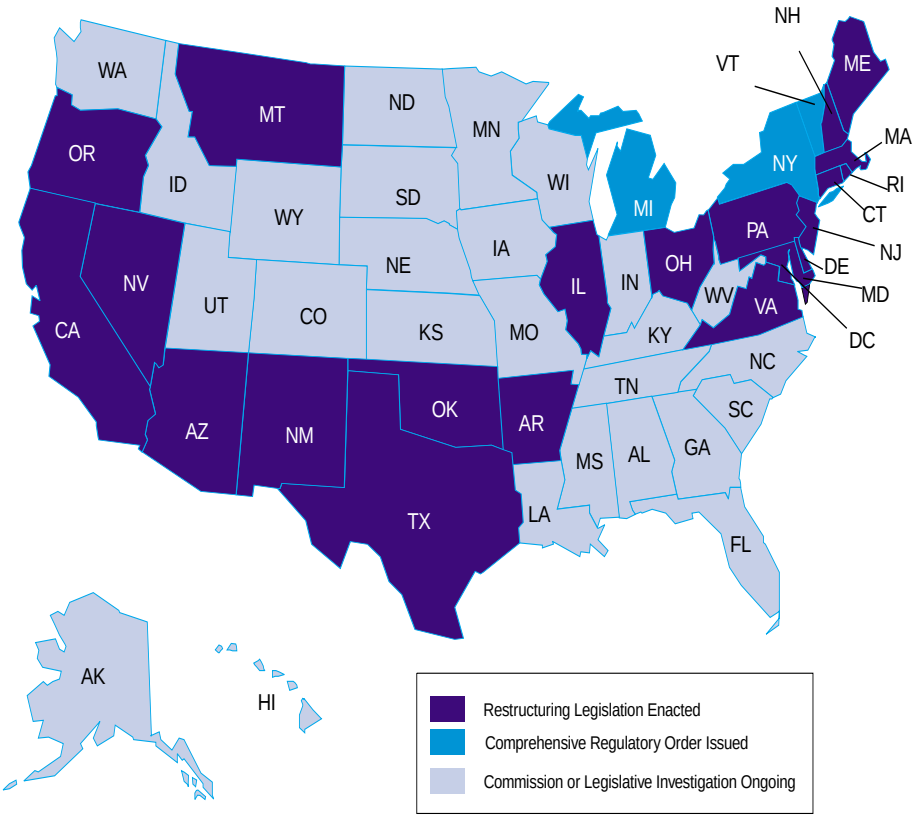
Today, many consumers in California, Massachusetts, Rhode Island, New Jersey, Illinois, Pennsylvania, and New York may choose the company that supplies their electricity. Consumers are being offered lower prices from their incumbent utilities through legislative provisions and a choice of alternative suppliers that offer a variety of electricity products and services (including green power which is power generated with renewable energy resources) at attractive prices.

The States that have decided to restructure to allow retail access have schedules for beginning the process ranging from April 1998 when California opened their retail electricity market to 2002 when Virginia and Texas plan to begin.

For current information, see "Status of State Electric Industry Restructuring Activity," on the EIA Web site at:

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

Status of Restructuring Activities by State, as of December 1, 1999



EIA Publications Related To Restructuring:

Following is a list of other EIA publications which deal with the subject of electric power industry restructuring. They can be viewed and/or downloaded from EIA's Web site or a hard copy can be obtained by contacting our National Energy Information Center at (202) 586-8800 or via e-mail at Infoctr@eia.doe.gov.

The Changing Structure of the Electric Power Industry 1999: Mergers and Other Corporate Combinations
(http://www.eia.doe.gov/cneaf/electricity/corp_str/corpcomb.html)

Published in December 1999, this report focuses on mergers, acquisitions, asset divestitures, and other forms of corporate combinations which have become widespread as U.S. investor-owned electric utilities seek to improve their positions in the increasingly competitive electric power industry. It presents data about corporate combinations, discusses corporate objectives for entering into such combinations, and assesses their cumulative effects on the structure of the industry.

The Changing Structure of the Electric Power Industry: Selected Issues, 1998
(http://www.eia.doe.gov/cneaf/electricity/chg_str_issu/summary/chg_str_issu_sum.html)

This report, published in July 1998, provides an analytical assessment of the changes taking place in the electric power industry, including market structure, consumer choice, rate setting, and transition costs. It also presents Federal and State initiatives in promoting competition.

The Changing Structure of the Electric Power Industry: An Update
(http://www.eia.doe.gov/cneaf/electricity/chg_str/contents.html)

Published in December 1996, this report was prepared as an update to the report listed below. It provides a comprehensive overview of the structure of the U.S. electric power industry over the preceding 10 years, with emphasis on the major changes that have occurred, their causes, and their effects.

The Changing Structure of the Electric Power Industry 1970 – 1991
(http://www.eia.doe.gov/cneaf/electricity/chg_str70/chg_str70_sum.html)

The purpose of this report, published in March 1993, was to provide a comprehensive overview of the ownership of the U.S. electric power industry over the preceding two decades, with emphasis on the major changes that had occurred, their causes, and their effects.

State Electricity Profiles
(http://www.eia.doe.gov/cneaf/electricity/st_profiles/e_profiles_sum.html)

Published in March 1999, this report is designed to profile each State and the District of Columbia regarding not only their current restructuring activities, but also their electricity generation and concomitant statistics from 1986 through 1996. Included are data on a number of subject areas including generating capability, generation, revenues, fuel use, capacity factors for nuclear plants, retail sales, and pollutant emissions.

Challenges of Electric Power Industry Restructuring for Fuel Suppliers
(http://www.eia.doe.gov/cneaf/electricity/chg_str_fuel/execsumm.html)

The current movement to restructure U.S. electricity generation markets and make them more competitive may lead to changes in the financial risks and demands on the supply and transportation infrastructures for the fuels used in electricity generation. Published in September 1998, this report examines the potential impacts of the restructuring of the U.S. electric power industry on the markets for electricity generation fuels – coal, nuclear, natural gas, petroleum, and renewable energy.

Competitive Electricity Prices: An Update
(http://www.eia.doe.gov/oiaf/issues98/cep.html)

This document, published in July 1998, is an update to the report listed below. The projected competitive electricity prices in this report are on average 0.5 cents per kilowatt-hour lower in 2005 and beyond than those presented in the August 1997 report. The reasons include assumptions of lower construction costs and lower operations and maintenance costs, as well as improved historical calibration of general and administrative expenses. These updates were made during the preparation for the Annual Energy Outlook 1998 (AEO98), upon which this analysis is based. The earlier report was based on the AEO97.

Electricity Prices in a Competitive Environment: Marginal Cost Pricing of Generation Services and Financial Status of Electric Utilities: A Preliminary Analysis Through 2015
(http://www.eia.doe.gov/cneaf/electricity/eu_comprice/eu_comprice_sum.html)

The emergence of competitive markets for electricity generation services is changing the way that electricity is and will be priced in the United States. This report, published in August 1997, presents the results of an analysis that focuses on two questions: (1) How are prices for competitive generation services likely to differ from regulated prices if competitive prices are based on marginal costs rather than regulated "cost-of-service" pricing? and (2) What impacts will the competitive pricing of generation services (based on marginal costs) have on electricity consumption patterns, production costs, and the financial integrity of electricity suppliers?

Other EIA Electricity Related Documents:

- *Annual Energy Outlook 2000*
- *Annual Energy Review, 1998*
- *Cost and Quality of Fuels for Electric Utility Plants 1998 Tables*
- *Effects of Title IV of the Clean Air Act Amendments of 1990 on Electric Utilities: An Update*
- *Electric Power Annual 1998, Volume I*
- *Electric Power Annual, 1998 Volume II*
- *Electric Power Monthly*
- *Electric Sales and Revenue, 1998*
- *Electric Trade in the United States, 1996*
- *Electricity Generation and Environmental Externalities: Case Studies*
- *Electricity Reform Abroad and U.S. Investment*
- *Financial Impacts of Nonutility Power Purchases on Investor-Owned Electric Utilities*
- *Financial Statistics of Major U.S. Investor-Owned Electric Utilities, 1996*
- *Financial Statistics of Major U.S. Publicly Owned Electric Utilities, 1998*
- *Inventory of Power Plants in the United States as of January 1, 1999*
- *Issues in Midterm Analysis and Forecasting, 1998*
- *Performance Issues for a Changing Electric Power Industry*
- *Privatization and the Globalization of Energy Markets*
- *Public Utility Holding Company Act of 1935: 1935-1992*
- *Reducing Nitrogen Oxide Emissions: 1996 Compliance with Title IV Limits*
- *Renewable Electricity Purchases: History and Recent Developments*
- *Transmission Pricing Issues For Electricity Generation From Renewable Resources*
- *U.S. Electric Utility Demand-Side Management, 1998*

NOTES

NOTES

For further information regarding the contents of this booklet, contact Robert M. Schnapp, Director, Electric Power Division, by phone on (202) 426-1211 or via Internet at robert.schnapp@eia.doe.gov, or Rebecca A. McNerney by phone on (202) 426-1251 or via Internet at rebecca.mcnerney@eia.doe.gov.