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**AN INTRODUCTION TO ELECTRIC  
INDUSTRY RESTRUCTURING**

**Joel F. Eisenberg  
Linda G. Berry**

**September 1997**

MANAGED AND OPERATED BY  
LOCKHEED MARTIN ENERGY RESEARCH CORPORATION  
FOR THE UNITED STATES  
DEPARTMENT OF ENERGY

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**Sponsored by  
The Office of State and Community Programs  
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**Oak Ridge National Laboratory  
Oak Ridge, Tennessee 37831-6205  
managed by  
LOCKHEED MARTIN ENERGY RESEARCH CORPORATION  
for the  
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# OVERVIEW

This paper briefly describes the electric industry, its residential markets, industry structure and current trends. Its purpose is to provide Weatherization grants managers with the background necessary to assess their leveraging opportunities in an industry that is experiencing sweeping changes, commonly known as **electric industry restructuring**. The study describes the terrain of a changing industry topography on a national and regional basis, with some state and local information also provided.

Weatherization managers and subgrantees who read this paper should be better able to understand the leveraging opportunities that are **emerging now** in the electricity market place. The reader will be introduced to the basics of the electric industry as it presently operates, the nature of the changes that are in the process of occurring, and the driving forces that are behind those changes. The major industry players are described by type and their interests are explored in further depth. There will also be an overview of the regulatory process as it has operated historically, as well as the changes now underway at both the state and federal levels. Finally, the paper will conclude with a description of some of the assets and opportunities available to those who may be interested in participating in the restructuring process in order to expand or protect low-income programs in their own states.

## ***THE RESIDENTIAL ELECTRIC MARKET: THE UNIVERSAL SOURCE***

Electricity is the universal energy form connected to and used by almost every

American home. Electricity provides the primary power source for lighting and communications, and is the primary source for many appliances that are among the distinguishing characteristics of an adequate standard of living in our modern society. An estimated 96.6 million households, including virtually all low-income households, are electricity consumers. Electric energy is also used for water heating by 38 percent, and for space heating by 26 percent, of all households in the country (Energy Information Administration, 1995).

The growth in the consumption of electricity in the nation's homes and offices has been the signal feature of our energy demand over the past twenty years, growing by 74 percent from 1973 through 1993 while the demand for other energy sources has remained stagnant or diminished. During that same time span natural gas use increased only 1 percent while residential and commercial petroleum use decreased 44 percent (Energy Information Administration, 1994). There are several reasons for this growth in electricity demand. In part it can be attributed to a natural increase in the number of households, all of which use electricity. A second major factor has been the increased penetration of electricity into home heating markets in the 1970's and 1980's. Third, electricity consumption has also increased because of greater appliance and air conditioning usage per household (Energy Information Administration, 1995).

American households collectively spend more of their income for electricity than for all other residential energy resources combined. The Energy Information Administration of DOE reports that in 1993 U.S. households spent \$81 billion on electricity consumption,

approximately 65 percent of *all* residential energy expenditures in that year (Energy Information Administration, 1995). For low-income households the latest available data indicates that approximately \$21.1 billion of their total residential energy expenditures of \$33.6 billion in 1993 were used to purchase electricity. The average low-income expenditure for electricity was \$691 per household. Regardless of region of residence, housing type, or tenure, electricity comprises a major component of low-income living costs (Eisenberg, et al. 1994).

### *AN INDUSTRY IN TRANSITION*

Dramatic changes are underway in the electric industry in the United States. Like the natural gas and telecommunications industries, the electricity market is moving toward increased competition and decreased regulation. The traditional regulated monopoly structure of the electricity business is being replaced by institutional arrangements that promote increased diversity and competition. These changes fall under the general label of *electric industry restructuring*. They are likely to have dramatic impacts on marketers and consumers alike who must now prepare to deal with them.

Electric industry restructuring will certainly foster changes of major significance to the Weatherization community and the households served by it. This is because the very principles and conditions under which electricity has been produced and sold are being changed, and with them the price and availability of electricity and energy efficiency services for low-income households. These changes pose both threats and opportunities for low-income interests in general, and for the leveraging of utility resources for low-income weatherization in particular.

The threats posed by the restructuring to low-income concerns are several. **First**, many of the changes being contemplated for the electric industry involve potential threats to the rates paid by residential consumers for their electricity. At stake in the short run are vast sums, by some reasonable estimates ranging from \$69–185 billion nationwide, that are the regulatory value of utility assets and obligations that are no longer economically competitive in the electric market place (Baxter and Hirst, 1995 and Resource Data International, Inc. 1995). These potentially “stranded assets” are the cause of high electric rates in many parts of the country and many large consumers are trying to avoid paying for them. This poses the danger that these costs will be shifted onto small consumers who have relatively little market power.

**Second**, restructuring may create conditions in which the assurance of access to utility service and consumer protection afforded by state regulations in much of the country will need to be redesigned. Winter shut-off protections, budget payment programs, deposit or arrearage waivers, and extension of consumer credit are now largely a function of these state regulations. A more competitive environment may make it more difficult for state regulators and legislators to extend these types of benefits and protections in the same kind and to the same degree as has been the case in the past.

**Third**, utilities, regulatory commissions and legislatures that have provided ratepayer funding for low-income energy efficiency and assistance in the past may find it more difficult to do so in a competitive environment. They may find themselves squeezed between the perceived need to reduce rates and their desire to sustain societal benefits. This may endanger the survival of as much as 62 percent of the



total utility resources of \$140.7 million for low-income energy efficiency identified in 1992, which was provided by electric or combination gas and electric companies (Brown et al., 1994). Early trends in the states that have lead the restructuring parade have so far been protective of low-income programs, much to the credit of advocates who have participated in the restructuring debate and bargaining.

In the longer run, there is concern that a competitive market for electricity will create advantages for some consumers and not for others. Large customers such as major industrial companies may gain significant price advantages relative to small customers. Even within the residential customer class there is the danger that some consumers will be more attractive to marketers than others, leaving low-income households with fewer choices and higher prices.

The opportunities presented by electric industry restructuring, while perhaps less clear than the threats, are nonetheless quite real. Regulators and legislators in many parts of the country have recognized that "stranded benefits" like low-income energy efficiency, low-income affordability, and consumer access, are major issues that must be confronted along with the problem of "stranded assets" like uneconomic nuclear power plants. The National Association of Regulatory Utility Commissioners passed a resolution to this effect at its Summer meeting in San Francisco in 1995 (National Association of Regulatory Utility Commissioners, 1995). Legislative initiatives on restructuring in California, New Hampshire, Pennsylvania, and Rhode Island have recognized the significance of low-income access, affordability, and efficiency.

In this environment, where the rules for the generation, transmission, and distribution of electricity to consumers are being rewritten, the opportunity exists to consolidate and even expand the availability of low-income programs and protections. Progress in this regard has been made by low-income advocates in New Hampshire, Massachusetts, California, and Montana, among others, where there is representation of low-income interests at the restructuring table.

It is also possible that a more efficient market place, if carefully structured, will substantially lower residential rates as well as those for large consumers, particularly in those parts of the United States where rates under current regulation are very high. Since the structure and function of the electricity industry of the future remain uncertain, it is impossible to say at this juncture what the relative impact on small consumers, and low-income consumers in particular, will be.

## *HISTORICAL OVERVIEW*

There are three key components of the electricity delivery system in the United States. The first is the generation of electricity at power plants using energy sources such as coal, natural gas, uranium, and water. The second component is the transmission of electricity at high voltages from power plants to substations. The third element is the distribution of electricity over a network of lower voltage lines to end users.

Today there are over 3,000 business entities in the electric utility industry. Most of these organizations only distribute electricity to end users. In fact, fewer than 300 organizations generate, transmit, and distribute electricity. Investor-owned utilities typically perform all three of the functions of generation,

transmission, and distribution, and are therefore called “vertically-integrated” companies.

There are four basic types of electric utilities:

- ◆ publicly-owned utilities,
- ◆ investor-owned utilities,
- ◆ federal electric utilities, and
- ◆ rural electric cooperatives.

Each ownership type has its own structure, goals, and financing systems, which are briefly characterized below. (Figures 1 and 2)

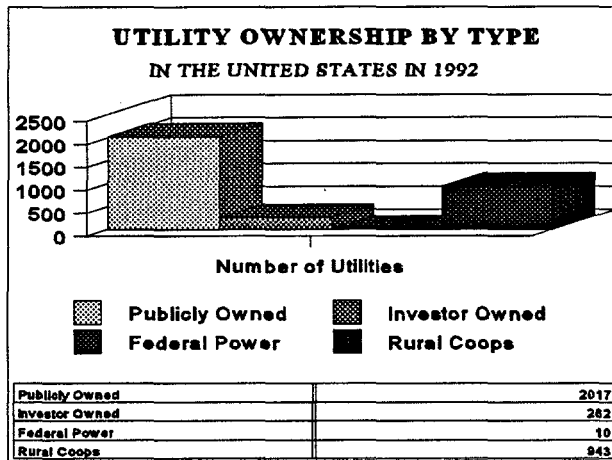


Fig. 1. Utility ownership by type in the United States in 1992.

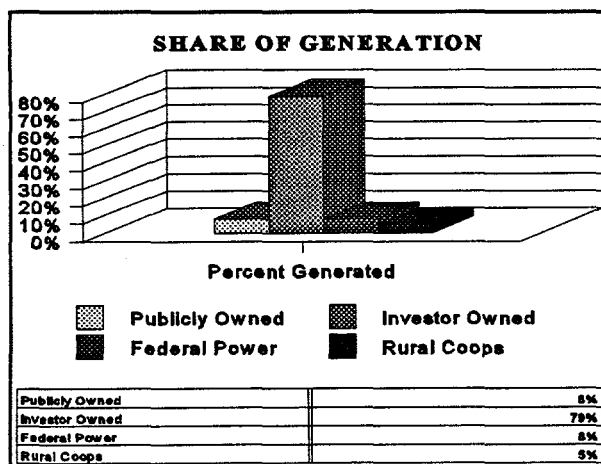


Fig. 2. Share of generation.

**Publicly-owned** electric utilities are nonprofit local government agencies established to serve their communities at cost. Most of them purchase power generated by federal power agencies and investor-owned utilities and distribute it to their customers, although a few also generate power. They are financed from local governmental funds or from revenue bonds secured by earnings from electricity sales. Publicly-owned utilities operate in all states, except Hawaii, which has only private utilities. Publicly-owned utilities are most numerous in the Pacific Northwest, the Tennessee Valley, and the Missouri River Basin. These locations offer low-cost federal hydropower (Edison Electric Institute, 1992). Of the 3,232 utilities in the U.S., 2,017 (62 percent) are publicly owned. However, because publicly-owned utilities are typically much smaller enterprises than investor-owned utilities, they generated 8 percent of the total electricity and earned only 13 percent of the total revenue in 1992 (Flanigan and Hadley, 1994). Among publicly-owned utilities, most of the electricity is generated and sold by the largest ones. Over 57 percent of the power sold by publicly-owned utilities is marketed by the largest 2 percent. The largest publicly-owned utilities include those serving the cities of Los Angeles, Seattle, Memphis, and San Antonio (Flanigan and Hadley, 1994).

**Investor-owned** utilities (IOUs) are privately-owned, profit-oriented businesses. The vast majority of them generate, transmit, and distribute electricity. Sometimes two or more utility operating companies are owned by a single corporation called a holding company. Investor-owned utilities operate in every state except Nebraska (Edison Electric Institute, 1992). They generated 79 percent of the electricity marketed in the U.S. and earned 79 percent of the total revenues in 1992.

Many investor-owned utilities operate in several states, and are regulated by each of the states as well as by the Federal Energy Regulatory Commission (FERC), which is an independent commission within the U.S. Department of Energy. The FERC has jurisdiction primarily in the regulation of the rates of wholesale power transactions. It can order companies to transmit power for wholesale sales, known in the industry as *wheeling*, but not for retail sales.

**Federal electric utilities** such as the power marketing agencies and the Tennessee Valley Authority (TVA), are primarily generators and wholesalers of electricity that sell mainly to publicly-owned utilities. These U.S. government agencies aim to supply power at the lowest cost achievable with sound management practices. They have customers in 34 states. Wholesale Federal producers of electricity include the U.S. Army Corps of Engineers and the U.S. Bureau of Reclamation. The federal power marketing administrations market power produced by these entities. The largest federal producer of electricity, TVA, markets its own power. These federal utilities generated 8 percent of the electricity marketed in the U.S. and earned 1 percent of the revenues (Flanigan and Hadley, 1994).

**Rural electric cooperatives** were typically founded during the New Deal era. They are owned by and provide electricity to their members. Most purchase power from federal power agencies and from investor-owned utilities and distribute it to their customers, although a few generate and transmit electricity. They operate in 46 states and are incorporated under state law. They receive financing from sources such as the Rural Electrification Administration, the National Rural Utilities Cooperative Finance

Corporation, the Federal Financing Bank, and the Bank for Cooperatives. The 943 rural electric cooperatives generated 5 percent of the power marketed in the U.S. and earned 7 percent of revenues from sales to ultimate consumers in 1992 (Energy Information Administration, 1994, b).

A more recent type of power producer is the **qualifying facility (QF)**. The U.S. Public Utility Regulatory Policies Act (PURPA) of 1978 encouraged the use of alternative and renewable energy sources by creating a new class of power producers, known as qualifying facilities. QFs are nonutility power producers that must meet certain operating, efficiency, and fuel-use standards defined by FERC. QFs must generate electricity from renewable or alternative energy resources such as wind, solar, biomass, municipal solid waste, and geothermal energy, or as part of a cogeneration process.

QFs have been guaranteed a market because under PURPA, utilities are required to purchase power from them at prices that reflect the utility's avoided cost. Methods of defining avoided cost, which is the cost the utility would incur to produce or otherwise obtain the same amount of power if it had not purchased it from the QF, are reviewed and approved by state regulators. PURPA has been implemented unevenly across the United States. Its largest impacts have been in Texas, California, and New York (Flavin and Lensenn, 1994).

In recent decades, another type of organization has emerged in the industry—the **independent power producers (IPPs)**. IPPs generate power, but they are not utilities, government agencies, or QFs. IPPs differ from conventional utilities in that they produce and sell their product at wholesale for what ever

the market will bear. They do not have a regulatory obligation to serve a franchised territory. In 1992, IPPs accounted for 7 percent of the nation's generating capacity. Today IPPs are the leading builders of new plants.

### ***INDUSTRY STRUCTURE***

The electric industry, though intensely competitive in its early days in the late 19<sup>th</sup> Century, has come to be characterized by the vertically-integrated regulated monopoly, most often an investor-owned utility (Hyman, 1992). Vertically integrated firms are those where the company owns all three levels of service needed to bring electricity to market—electric generation, power transmission from generating plants, and distribution of electricity to final consumers. Monopoly electric companies are those without competition from other electric companies. They generally have a franchise from the state or local government to serve a particular service area with a companion obligation to serve all consumers requesting service who observe appropriate customer obligations, as will be described in greater depth in a following section dealing with the regulatory compact.

There have been certain features of the production and distribution of electricity that have made it useful to the public interest to forgo the benefits of a competitive market in favor of monopoly organization. Among these are *economies of scale* in production of electricity and the features of *natural monopoly* that characterize certain phases of the business.

**Natural monopoly** conditions exist in a market when, simply put, it costs less to produce a particular good or service with only one producer than it would if there were

multiple competitors (Kahn, 1991). For example, it has been considered costly and inefficient, not to mention unsightly, to have multiple sets of poles carrying competing power supplies through residential neighborhoods. One set of wires will generally do. The same has applied to high voltage transmission lines connecting major power stations into a single integrated power supply network that supplies those distribution wires. In a case where such natural monopoly conditions exist it has generally been presumed that the benefits of these lower costs will be passed on to the public only when regulation is imposed to mitigate the market power of the monopolist to arbitrarily raise prices.

The concept of **economies of scale** is a complicated way of saying that in a particular production process, the larger the production plant, the lower is the cost of a unit produced (Kahn, 1991). Historically economies of scale have applied in the production of electricity. It was one of the major reasons that the average cost of electricity dropped substantially from year to year through the 1940's, 50's and 60's. Ever-larger power plants, costly to erect but with greater and greater efficiencies in fuel use, were the hall mark of this period. It therefore made sense to provide not only monopoly distribution and transmission services but monopoly generation of power as well. Serving large numbers of consumers from a small number of large power plants could produce lower costs for those consumers than would result from competition among a number of suppliers with smaller plants serving only a part of the market. Again the caveat applies that the desired end result will occur only when monopoly power is constrained by regulation.

The production and delivery of electricity by a vertically integrated monopoly is not the only

way that electricity has been produced and distributed. As noted earlier, many publicly-owned utilities and rural cooperatives have been local distribution monopolies that purchased their power elsewhere. In fact, in order to achieve economies of scale in generation, some rural cooperatives have banded together to purchase their power supplies from generation and transmission cooperatives that could give a group of small distribution companies the benefits of lower generating costs. But as a general matter, most American consumers continue to purchase their electricity from privately owned, publicly regulated, vertically integrated monopolists.

It is precisely these underlying assumptions regarding the role of natural monopoly and the application of economies of scale, among others, that are now under challenge in the electric utility business. As these principle foundation stones of the existing industry are questioned, so too is the structure of the businesses and regulatory process that have been built upon them over the past five decades.

### ***THE TRADITIONAL REGULATORY COMPACT***

The present system of public utility regulation was developed over time in response to a wide range of public concerns and policy issues. In most states regulatory authority is invested in a commission or board whose members are either appointed by the Governor or elected by the public. Regulators try to balance the interests of electricity consumers with those of the suppliers. As one of the leading experts in public utility regulation, Alfred Kahn put it,

“...in principle the primary guarantor of acceptable performance is conceived to be (whatever it is in truth) not competition or

self-restraint but direct government controls-over entry (and in many instances exit), and price and conditions of service-exercised by administrative commissions constituted for this specific purpose (Kahn, 1991).”

In most areas of the country a single entity is granted a monopoly franchise on sales to retail customers by the state or local government authority. The holder of the monopoly can be an investor-owned utility, a publicly-owned utility or a rural cooperative (Brockway, 1995). In exchange for the granting of a monopoly the holder must meet regulatory requirements. Regulated electric utilities are typically required to:

- provide safe, reliable, and adequate service;
- provide service at a reasonable cost;
- meet standards for access to service for all customers (the “obligation to serve”); and,
- assure reasonable customer billing and collection practices.

In addition to requiring fair rates and setting standards for service, regulatory commissions also have addressed issues related to environmental quality, energy-efficiency, renewable energy resources, low-income protections, fair competition, and public accountability (Energy Information Administration, 1992).

Regulatory commissions spend most of their time reviewing and establishing the rates charged to ensure that they are just and reasonable. This consists largely of two tasks. The first is to establish a general fair level of compensation due to the utility in payment for

the cost of delivering service to its customers. These consist, not only of the costs of management and labor, fuels used to generate electricity, environmental compliance and the like, but also the cost of capital, invested or borrowed, needed to construct and maintain the utility's physical infrastructure. Once a commission determines what these costs should be the utility is permitted the opportunity to earn them through the rate structure. Investor-owned utilities are given the opportunity, not guaranteed the right, to recover a "fair" rate of return on stockholder investment, as determined in commission proceedings (Kahn, 1991). This is called **Cost-of-Service ratemaking**.

The second major pricing task of the commission is to determine how to allocate the cost of service it has determined is appropriate among customers of the utilities. Typically a utility will have at least three major rate classes—industrial, commercial, and residential, and some will have more depending on whether they provide other services such as municipal street lighting. The utility and commission must allocate the costs of service through rates that are not "unduly discriminatory" between the classes while being "just and reasonable." There are a variety of means under economic and regulatory theories to allocate these costs. A description of the alternative allocation methods used by commissions is beyond the scope of this brief chapter. Suffice it to say that in most cases the average cost of service is allocated based on a combination of economics, regulatory logic, and politics. There is rarely a presumption that the outcome, as reflected in actual rates, is a reasonable representation of what a free market would actually provide.

## ***LOW-INCOME PROGRAMS AND PROTECTIONS***

In most states, low-income customers are currently guaranteed certain rights and are provided with special services. A variety of forms of assistance are offered in various states including:

- **energy-efficiency or weatherization services;**
- **bill payment assistance** from federal and state programs, and charitable fuel funds;
- **special payment arrangements** such as level monthly payments and percentage of income payment plans;
- **bill discounts** such as lifeline or baseline rates;
- **shut-off moratoria** prohibiting service termination in winter months; and,
- **consumer education and budget counseling** (LIHEAP Clearinghouse, 1995).

In Massachusetts, for example, there are extensive regulations governing grounds for the denial of service. In addition, there are notice requirements for service termination, payment plan negotiation obligations, and protections against use of disconnection as a collection tool where the disconnection would expose the household to health and safety risks. Most Massachusetts utilities also provide a discount for certain low-income customers who otherwise would not be in a position to pay their full bill. The discounts are in the 30–40% range, and are typically available to customers who have a demonstrated need, through their receipt of a means-tested public

welfare benefit, or whose income is at or below 150% of the Federal Poverty Level. The electric and gas company rate discounts provide a total of \$38 million in bill reductions to low-income Massachusetts households receiving LIHEAP. Of this, \$26 million, or 70%, represents electricity bill reductions. Another \$1.5 million is expended annually by Massachusetts utilities on energy efficiency directed to low-income households. These important affordability benefits and consumer protections undoubtedly reduce the number of disconnections that otherwise would be suffered by Massachusetts ratepayers (Massachusetts Department of Public Utilities, 1995).

Utility low-income energy-efficiency programs are often closely coordinated with the DOE Weatherization Assistance Program. A 1992 survey of utility energy-efficiency programs for low-income households, identified 132 programs operated by 95 utilities in 33 states. In 1992, a total of \$140.6 million in utility funds was spent on their operation. Sixty-nine percent of these programs (i.e., 79 programs) used the network of the DOE Weatherization Assistance Program to deliver some of all of their weatherization services. The 79 coordinated programs accounted for 83% of the total utility expenditures for low-income weatherization in 1992. Thus, ratepayer funds have been an important source of leveraged funds for the DOE program, and were estimated at 27% of total funding for DOE weatherization activities (Brown et al., 1994).

Most existing utility low-income programs and services were mandated by state regulatory commissions. It is unclear how, and if, such low-income consumer protections, services, and weatherization funding will be provided by utilities in a restructured, less regulated

industry. As will be discussed further below, only some of the possible restructuring scenarios are expected to be able to adequately address low-income needs.

## ***FORCES CAUSING ELECTRIC INDUSTRY RESTRUCTURING***

Changes in the underlying technological, economic, market, and public policy foundations of the electric industry are changing the rules of the game for everyone who buys and sells electricity, including low-income consumers. There continues to be considerable discussion as to whether or not "retail wheeling," the retail deregulation of the industry, is inevitable and what other forms restructuring may take. However there is no doubt that the changes discussed below are real and pervasive and will have a lasting impact on the industry.

### **Technological Change**

The era of ever larger, ever more cost effective power plants is over for now. Where once power stations of 1000 megawatts (1 million kilowatts) and more were considered the desirable way to meet growing power requirements, now combustion turbines that generate from 25 to 250 megawatts are often the units of choice (Comnes et al., 1995). Using natural gas as their fuel, these plants can be installed at one-third to one-half the capital cost per kilowatt of conventional steam generators and provide electricity at lower energy cost than the U.S. retail average. Somewhat larger combined cycle gas units are also considerably less expensive per kilowatt-hour (kWh) of electricity generated than larger coal-fired power plants and faster to install (Energy Information Administration, 1994, b).

### **Economic Change**

Because of this technological change, economies of scale no longer apply, and it is possible to derive a cost-effective mix of generation from a wide variety of smaller power resources rather than from a single plant with a massive capital investment. The installed cost of a base-load fossil generating plant climbed from \$541 per kilowatt in 1980 to \$2,186 in 1991. The estimated cost of a combined-cycle unit was \$596 in 1991 (Energy Information Administration, 1993).

This undermines the need for a monopolist generating company capable of mobilizing huge amounts of capital for individual projects under "natural monopoly" conditions. The barriers to competition in power generation posed by very high capital costs have been lowered and an increasing proportion of the total electricity being generated is coming from independent power producers and cogenerators rather than regulated monopolists. Most important, the consumer can now be better served by multiple providers at the wholesale generating level rather than by a single source. As the mainframe computer has made way for thousands of PCs, electric generation is increasingly becoming cost-effective in smaller units of service.

### **Public Policy**

In 1992, Congress passed the Energy Policy Act (EPAct), which embraced competition in wholesale power markets as the cornerstone of federal electricity policy. EPAct increased pressure for wholesale competition by requiring more open access to utility transmission lines, and encouraging the formation of an entirely new class of producer, the exempt wholesale generator (EWG), who is largely free from federal regulation (Energy Information Administration, 1993). The FERC, with its EPAct authority has been

aggressively encouraging the development of a competitive wholesale market for electricity through its proposals to open monopoly-owned transmission lines on a comparable basis for utility-owned and independently-owned generation facilities. For the first time, transmission lines that were largely constructed to move individual companies' power supplies from their own plants to their customers are being transformed into regional and national grids that will allow the movement of power supplies from suppliers to wholesale buyers across the country. Through its Orders 888 and 889 the FERC has effectively laid the foundation for a competitive wholesale generation market for electricity on a national scale (FERC, 1994).

### **Market Forces**

The price of electricity that is being charged to consumers in many parts of the United States, based on average cost-of-service rate making, now often exceeds the cost to generate and distribute electricity from a newly constructed power plant, as well as the competitive power costs in other parts of the country. For example the average cost of electricity to consumers in New England in May of 1995 was 10.1 cents per kilowatt-hour and in the Middle Atlantic states it was 9.2 cents per kilowatt-hour, whereas the national average was 6.89 cents (Energy Information Administration, 1995, b).

The causes for these differentials are numerous. In part, the technological change described (Table 1) has made the cost of new generation resources more cost-effective. In some places, very expensive power resources such as nuclear power plants, make a major contribution to raising the average cost of generation. In some states power supply contracts for QFs under PURPA, intended to be purchased at avoided cost, have turned out



REGIONAL ELECTRICITY PRICES  
DOLLARS PER KWH IN MAY 1995

	Residential	Commercial	Industrial	Average
New England	0.121	0.097	0.078	0.101
Middle Atlantic	0.119	0.086	0.061	0.095
East North C	0.089	0.074	0.044	0.063
West North C	0.077	0.064	0.043	0.06
South Atlantic	0.08	0.066	0.044	0.065
East South C	0.065	0.063	0.039	0.051
West South C	0.077	0.067	0.04	0.06
Mountain	0.077	0.065	0.041	0.059
Pacific	0.088	0.088	0.051	0.074
U.S. Avg.	0.0855	0.0766	0.0457	0.0676

Table 1. Regional electricity prices.

to be very expensive relative to the real cost of alternative power supplies. Taken together, these “**strandable assets**” contribute to large variation between what regulators are asking consumers to pay their utilities in some states and the prices available in an increasingly competitive wholesale market for power. It is important to note that these assets now contribute to high rates; they become “stranded” only when there is some form of deregulation or reregulation that allows some utility customers to purchase power at less than current regulated rates without providing a means for the utility to recover its costs.

These price differentials have created incentives for industrial consumers to try to get independent access to the transmission lines and bypass the high cost power. This would create, not only competitive wholesale electric markets, but competitive retail markets as well. While there is general agreement that competition is coming and desirable at the generation/wholesale level, there is no such consensus regarding retail competition.

**Retail wheeling**, in which end users can directly access power suppliers and bypass

their traditional utility distribution companies, is subject to state commission regulation. There is no agreement as to who will pay for the stranded assets that could result from a competitive retail market and what the transition should be like to a more competitive world. One fear is that consumers with market and political power, like large industrial companies, will use that power to achieve direct access leaving other consumers to pay the costs of the stranded assets.

There is little doubt that, as long as these substantial price differentials exist between the competitive wholesale market and average-cost prices in some locations, the pressure from large consumers to access the former will continue to create regulatory and market pressure for change.

There is also considerable concern that in a competitive retail market short run price considerations will dominate to the exclusion of environmental and equity concerns. These societal benefits of the utility system include such things as low-income payment and energy efficiency programs previously highlighted, investments in renewable energy sources, research and development activities, and demand-side management programs. Under existing ownership and regulation these benefits can be shared and paid for by everyone through rates. In a competitive market, if there is no explicit agreement to pay for these societal goods, they may become “**strandable benefits**.”

### ***POSSIBLE RESTRUCTURING OUTCOMES***

Restructuring will transform the present vertically integrated structure of the electric industry into other institutional arrangements.

Advocates of restructuring and increased competition believe that it will lead to lower costs, improved economic efficiency, and more rapid technological improvement. Detractors fear that it will result in higher rates, inferior quality of service and less consumer protection for those who lack market power, like residential and small-business customers.

The form that restructuring should take has been the subject of much debate and disagreement. Many possible models have been proposed. In the section below, the key components of the industry, which can be arranged in a variety of ways to form restructured electricity markets, are outlined.

### **Key Elements of a Restructured Electric Utility Industry**

In today's industry the bulk of electricity is generated, transmitted, and distributed to consumers by vertically-integrated, franchise monopolies, as described in previous sections of this paper. In a restructured market, the functions of generation, dispatch and power purchases, transmission, and distribution would be separated or "unbundled" to varying degrees, with supply and some distribution functions subjected to more competition and less regulation. Some of the possibilities for the new-look environment include the following:

- **generation**—Power could be produced by generating companies (GENCOs) that are functionally and/or legally separate from the distribution businesses that sell to consumers (National Council On Competition And The Electric Industry, 1995). In fact, such companies already exist in the form of independent power producers. An ever-increasing share of the nation's generating requirements are being

met by such companies and the proportion will continue to grow under federal regulatory policies which are opening up the interstate transmission network to allow greater competition among power producers. A major question is the degree to which utilities will be allowed to continue to be both generators of power and distributors of that same power to final consumers.

- **transmission**—The ownership, maintenance, and expansion of high voltage power lines, the super highways of the electricity industry, may be functionally separated from the generating and distribution companies or spun-off into separate companies (TRANSCOs) that would sell the use of their transmission wires to any company that pays a regulated transmission fee for access to the system (National Council on Competition and The Electric Industry, 1995). Restructuring models generally assume that there will be open access to transmission lines, in which transmission owners provide comparable service and rates to competing suppliers of generating resources to those that are provided to their own subsidiary power plants. This will allow more buyers and sellers to meet in the wholesale power market place and "wheel," that is to say, transmit power across greater and greater distances. Such access is a major objective of FERC Orders 888 and 889 (Dockets Nos. RM95-8-000 and RM94-7-0001).
- **dispatch**—The transmission network provides the highway for electric power flows but the actual control over the physical process of matching electricity supply to demand is part of the dispatch function. A reliable, safe, and cost-

effective power supply depends on the coordination of demand, or load, with the generating plants that will supply electricity to meet it. This requires the control and maintenance of high voltage lines and substations, the operation of interties and switches, the scheduling of energy purchases and sales and the ability to bring power resources on and off line as needed to meet requirements of the system with adequate margins of safety. This is a complex task, even in a single integrated utility, and it becomes all the more complicated with multiple power producers and consumers. It has been suggested that this should remain a monopoly function in a restructured environment which could be handled by an **independent system operator (ISO)** regulated by the FERC. The ISO would schedule generator use, control outputs, manage transmission congestion, and provide frequency and voltage controls so as to satisfy reliability standards in a broad geographical area. To be able to satisfy reliability requirements the ISO would need immediate control over some generation and the ability to curtail some loads. A large geographic region might therefore have multiple buyers and sellers of power but the coordination of power flows and system reliability across the interconnected transmission system would be the province of a single ISO.

Another way to handle the scheduling and reliability functions is with a **power pool company (POOLCO)**, which would be an independent, but regulated, corporation that would not only perform the functions of the ISO but would also make the market for some or all wholesale power purchases (Budhraj and Woolf 1994). It would do this by matching the least cost

supply that power generators wished to sell at any particular point in time to the demand for power among buyers in the POOLCO's service territory. The market-making functions of the POOLCO do not have to be tied to the performance of the dispatch function, and in fact, the new California PUC restructuring proposal of December 20, 1995, called for separate entities to perform these functions.

- **distribution**—The relationship of the final consumer to the power system is the least clearly defined aspect of the restructuring process. The actual wire connection itself will undoubtedly continue to be provided by a regulated monopoly. Other elements of service such as the power supply itself, billing, energy efficiency, and even metering might be handled in a variety of ways. These could be provided by independent distribution companies (DISCOs) that would purchase and deliver power to retail consumers and provide customer service on a monopoly basis similar to the present system. It is also possible that DISCOs will only own the wires and the meters and that new companies will emerge to package consumers together and match them with a source of supply (National Council on Competition and The Electric Industry, 1995). These companies, just now emerging in the marketplace, have come to be known as **Retail Aggregators**. They would conceivably compete with each other for market share and pay a fee to DISCOs for local distribution and billing services. The DISCOs which would remain local monopolies.

## ***LOW-INCOME ISSUES***

Low-income advocates fear that the lower rates resulting from retail competition would accrue only to those customers, such as large commercial and industrial consumers, with the clout to make a deal. Such large customers could bargain down their rates to a level near the variable costs of running the least expensive plants, and avoid paying the full sunk or fixed costs of the existing system of power plants and transmission lines. In other words, they would pay the lowest amount of fixed costs they could negotiate and the rest of the fixed costs would be passed on to the remaining customers. Thus, if large commercial and industrial customers are allowed to leave, or bypass, the existing electric supply system first to obtain lower rates, the sunk costs of the existing system could be passed on to a shrinking group of "captive" customers, such as low-income ratepayers. As noted previously these "stranded assets" could have a huge cost in excess of \$160 billion. Without continued regulatory attention to the issue of the equitable allocation of fixed costs, however, such cost shifting could occur. In addition, increased competition is likely to produce larger fluctuations in electricity prices. Such volatility would be a serious problem to low- and fixed-income consumers, who cannot adjust to price increases.

Another major issue in the restructuring debate with special relevance to low-income groups is the obligation to serve. If utilities are released from the obligation to serve of traditional regulation, they could reject any customer considered undesirable. "Undesirable" customers might include those whose usage is too low to make providing service to them profitable, or those with poor payment histories. Without an obligation to serve,

utilities could choose their customers and some low-income customers might be unable to obtain service. Thus, the system could change from the dominant one now, where no customer chooses their electricity supplier but all have access to service, to one in which some customers could choose their supplier and some could obtain no service at all.

Existing state regulation typically offers various forms of assistance and protection to low-income consumers. With restructuring, these benefits may or may not be maintained and/or extended. While it is possible to create policies that will protect low-income consumers under many restructuring scenarios, the continuation of such protections is not assured.

Low-income groups have vital interests at stake in the policy decisions that will be made about electric industry restructuring. Low-income groups are vulnerable because in a competitive retail market:

- ◆ they would be the least able to withstand rate increases or fluctuations;
- ◆ they would be the most likely to be denied service, or to receive lower quality and higher priced service; and
- ◆ they would be the least likely to be aware of their service options, or to be able to protect themselves in a competitive market.

Testimony submitted to the Massachusetts Department of Public Utilities on behalf of low-income consumers (Massachusetts D.P.U 95-30) reports that a number of Massachusetts public interest group met in early 1995 to develop a set of principles that should be met

by any restructuring effort. The principles these groups endorsed include:

- Any reform of the electric utility industry must provide for rate fairness. All classes of customers must benefit equitably. Large utility customers must not benefit at the expense of smaller business and residential customers.
- Any reform of the electric utility industry should result in affordable bills for low-income and fixed-income customers. Energy efficiency programs must reach low-income and fixed-income customers (Massachusetts D.P.U. 95-30, p.5).

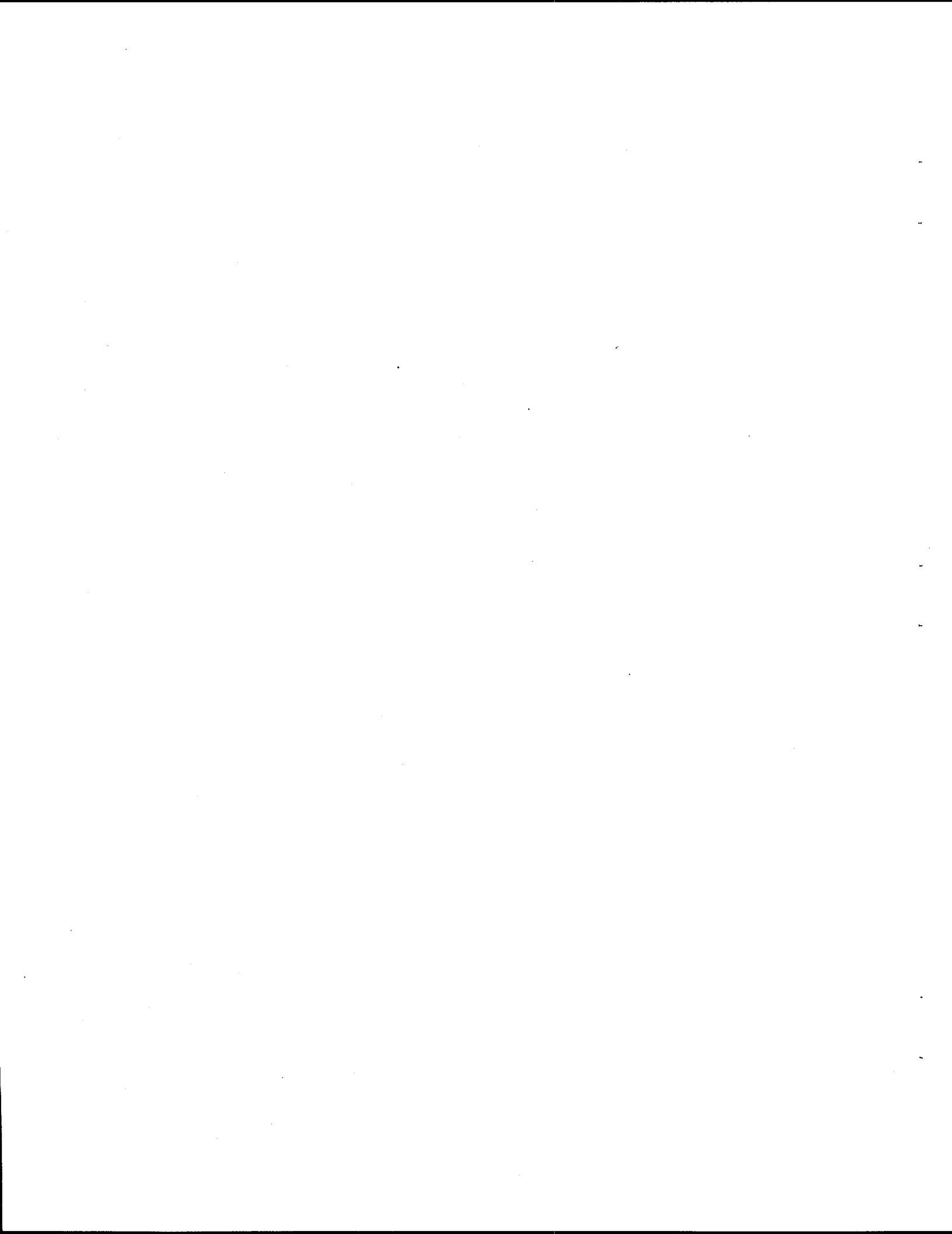
Subsequent efforts have been made to recognize the unique position and needs of low-income households as the electric industry restructuring process unfolds. Of great significance because of its potential national influence, is the resolution on low-income residential consumers passed by the Executive Committee of the National Association of Regulatory Utility Commissioners at its Summer meeting in San Francisco in 1995. The resolution recognized the vulnerability of low-income consumers and the potential for cost shifts among rate classes. It called for utility commissions to maintain fair billing practices, sustain programs aimed specifically at low-income consumers, and insure participation of all citizens in the restructuring debate and process.

Another resolution, composed by the Ad Hoc Coalition of Low-Income Energy Advocates, specifically addresses low-income concerns from an advocacy position. It calls for cost sharing of stranded assets among power providers, industrial consumers, and investors and a sharing of rate benefits of restructuring among all customer classes. First and foremost it calls for affordable access for low-income consumers, which consists of a package of low-income rates, energy efficiency programs, and guaranteed access, and reasonable service terms.

The full text of these resolutions can be found in Appendix B.

#### **NEED FOR ADVOCACY TO PROTECT LOW-INCOME CONSUMERS**

Low-income weatherization providers may wish to consider being active advocates of low-income needs when new regulatory environments emerge in their states. Such advocacy will help to protect low-income consumers from the potentially adverse effects of restructuring. Involvement in the restructuring decision-making process also should help to enhance opportunities to leverage funds for the expansion of low-income weatherization services. Potential partners in such advocacy efforts are the consumer protection organizations and other groups listed in Appendix A.



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## APPENDIX A. ORGANIZATIONS AND RESOURCES THAT CAN HELP

Compiled by the LIHEAP Clearinghouse

P.O. Box 3838  
Butte, MT 59702  
(800) 445-5581  
(406) 494-4572

April 1997

As utilities face increased competition due to the restructuring of both the natural gas and electric industries, all purchasers of energy services will be impacted, including the low income.

With natural gas, the deregulation process has been predominantly impacted by the promulgation of the Federal Energy Regulatory Commission's (FERC) Order 636 in 1992, which restructured the interstate natural gas pipeline system with a goal of providing equal and open access to gas markets, promoting economic efficiency through increased competition, and providing choices for local gas companies and some customers.

The electric utility industry has been primarily affected by the 1992 National Energy Policy Act, which reduced the amount of regulation on independent power producers selling electricity on the wholesale market. Additionally, the Act allows federal regulators to order utilities that own transmission lines to provide use of these lines to third party suppliers and their wholesale customers. One effect has been for utilities to attempt to cut costs and reorganize in order to operate more competitively.

No one can say for certain what the impacts of FERC Order 636 and the Energy Policy Act will be on utility low-income programs. They will undoubtedly vary by region, by state and by utility type, and they will also be dependent upon state regulatory commission decisions.

Across the country, many organizations and individuals are working to ensure that the interests of the low income are considered as utilities reorganize and downsize. Only a few of the groups listed herein focus primarily on low-income issues; most have a broader focus to include all residential and other interests. However, they are listed here because many of their activities, studies and publications may impact or be of interest to low-income advocates. (*Note: Internet and e-mail addresses are listed where available.*)

### AD HOC LOW INCOME DSM ADVOCATES GROUP

Opportunity Council  
314 E. Holly  
Bellingham, WA 98225  
(360) 734-5121  
Chuck Ebert, The Energy Project  
[oppco@pacificrim.net](mailto:oppco@pacificrim.net) (e-mail)

A national group of about 50 persons from conservation and energy advocacy organizations, including some of those listed here, and state and local groups. Its purpose is to disseminate information, especially to legislators, utility regulators, and other decision-makers, on the impacts of utility restructuring on low-income energy programs. Has developed policies that would protect rights of vulnerable customers under utility restructuring.

## AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY

1001 Connecticut Ave. NW, Ste. 801

Washington, DC 20036

(202) 429-8873

<http://www.crest.org/aceee>

A nonprofit dedicated to advancing energy efficiency as a means of promoting both economic prosperity and environmental protection. Recent reports on utilities include: *Energy Efficiency Programs for Low-Income Households: Successful Approaches in a Competitive Environment*, 1996; *Providing Utility Energy Efficiency Services in an Era of Tight Budgets: Maximizing Long-Term Energy Savings While Minimizing Utility Costs*, 1996, and *Ratepayer-Funded Energy Efficiency Programs in a Restructured Utility Industry*, forthcoming in 1997.

## AMERICAN GAS ASSOCIATION

1515 Wilson Boulevard, 11th Floor

Arlington, VA 22209

(703) 841-8400

<http://www.aga.com>

Its government relations committee monitors Congressional actions related to energy assistance funding and informs members. Publishes quarterly a state summary of regulatory and legislative actions affecting gas utilities. An issue brief published in August, 1995, titled *Impacts of Eliminating Funding for the Low Income Home Energy Assistance Program (LIHEAP) on the Natural Gas Industry and Its Customers*, points out impacts on low-income households and on the natural gas industry of federal budget cuts, including a state-by-state breakdown showing the number of LIHEAP households, number of LIHEAP households using gas heat, average assistance amount per household, and total estimated assistance to gas heating customers by state. The group's Web site now features a "Competition and Customer Choice" section on natural gas industry restructuring, including a summary of developments in brining choice of gas supplier to residential customers.

## CENTER FOR NEIGHBORHOOD TECHNOLOGY

2125 W. North Avenue

Chicago, IL 60647

(773) 278-4800

Michael Smith

<http://www.cnt.org>

One of the Center's Community Energy Program projects is "The Electric Restructuring Learning Group," a strategy to identify possibilities for redesigning electricity markets, focusing on opportunities for community involvement and community benefits. A publication that has resulted from the Learning Group is *Power to the Neighborhoods: Bringing Home the Benefits of Utility Restructuring*. The Center's mission is "to promote public policies, new resources, and accountable authority which support sustainable, just and vital urban communities." Besides Community Energy, its other programs areas are Transportation/Air Quality and Sustainable Manufacturing and Recycling. It publishes the bimonthly magazine, *The Neighborhood Works*.

**Con. WEB**

Energy NewsData Corp., Box 900928  
Queen Anne Station  
117 West Mercer  
Seattle, WA 98109  
(206) 285-4848  
<http://www.newsdata.com/enernet>

This on-line publication reports on Pacific Northwest energy resource development, particularly regional utility energy conservation activities and quantitative results. Sponsored by Bonneville Power Administration and a number of Northwest utilities. It replaces *CONSERVATION MONITOR*, which was a hard-copy version. Energy NewsData also publishes *Clearing Up*, a weekly newsletter of Pacific Northwest energy news, and *California Energy Markets*.

**CONSUMER ENERGY COUNCIL OF AMERICA RESEARCH FOUNDATION**

2000 L St. NW, Ste. 802  
Washington, DC 20036  
(202) 659-0404  
Ellen Berman, Executive Director  
[cecarf@dcez.com](mailto:cecarf@dcez.com) (e-mail)

The nation's oldest public interest energy policy organization, it has written or sponsored studies and publications on energy efficiency, demand side management and energy policy. Has created the Electric Utility Restructuring Forum to develop public information on the implications of electric utility restructuring on consumers and stockholders. The forum is comprised of leaders from state utility commissions, FERC, consumer and environmental organizations, investor-owned utilities, municipal utilities, rural electric cooperatives, congressional staff and others. A quarterly publication, *Quad Report*, covers issues and events on energy efficiency and its relationship to the environment.

**CRITICAL MASS ENERGY PROJECT**

c/o Public Citizen  
1600 20th St., NW  
Washington, DC 20009  
(202) 546-4996  
Bill Magavern, Director  
<http://www.citizen.org/CMEP>

A project of Public Citizen, a consumer advocacy group founded by Ralph Nader, the project promotes safe, affordable and environmentally sound energy alternatives. Provides legislative alerts and other information on renewables and energy efficiency as well as nuclear power reactor safety, transportation and fuel economy. It has a listserv, or mailing list group, on utility restructuring, which sometimes has a low-income focus. To subscribe and receive regular alerts on energy policy through the Internet, send the following message to [listproc@essential.org](mailto:listproc@essential.org): SUBSCRIBE CMEP-LIST (plus your name, organization, home state, and e-mail address). The Project's Website features an Electricity Restructuring Clearinghouse, and although it's still under construction, it contains useful background information on the topic. Copies of *A Federal Agenda for Electric-Industry Restructuring* are available by calling CEMP as well. The Agenda is supported by 28 major environmental and consumer groups.

### **ECONOMIC OPPORTUNITY RESEARCH INSTITUTE**

733 15<sup>th</sup> St. NW, Suite 700  
Washington, DC 20005  
(202) 628-4911  
Meg Power, Ph.D.

Economic Opportunity Research Institute is a non-profit research institution that focuses on energy affordability issues. Its particular expertise is in the area of resource leveraging for LIHEAP and Weatherization. It is currently active in the fields of low-income consumer aggregation.

### **EDISON ELECTRIC INSTITUTE**

701 Pennsylvania Avenue, NW  
Washington, DC 20004  
(202) 508-5559  
Mary Ann Bernald, Consumer Affairs  
<http://www.eei.org>

Its consumer affairs division monitors Congressional actions related to energy assistance funding, and it has done some surveys of utility low-income programs.

### **ELECTRIC CONSUMERS' ALLIANCE**

First Indiana Plaza, Ste. 2700  
135 North Pennsylvania Street  
Indianapolis, IN 46204  
(317) 684-5346  
Robert K. Johnson, Executive Director  
<http://www.consumers.com/eachomepage.html>

A broad-based group of consumer, government, and business organizations. The Alliance seeks to provide a united voice for residential and small business consumers on issues affecting the pricing and delivery of electric service. Addresses consumer needs as the electric utility industry makes its transition from monopoly status to the uncharted territory of a restructured, competitive industry. Has developed an "Electric Consumers Bill of Rights" whose tenets members believe should be the basis of electric utility restructuring. Tenets include benefits for all consumers, costs paid by those who cause them, support for environmental and social policies and direct consumer input. About 60 groups have signed the Bill of Rights including those representing seniors, consumer and ratepayer advocates, churches, community action agencies, and the disabled. Publishes newsletter *Current Connections*.

### ***ELECTRIC UTILITY WEEK'S ENERGY SERVICES & TELECOM REPORT***

McGraw-Hill, Inc.  
1221 Avenue of the Americas, 36<sup>th</sup> Floor  
New York, NY 10020  
(212) 512-3935—phone and (212) 512-2723—fax  
Rob Ingraham, Editor

Published every other week by McGraw Hill, Inc. Reports on utility communications technologies and demand-side management strategies and also follows major utilities' restructuring developments. Subscriptions: \$615/year.

### **ENERGY AND HOUSING REPORT**

9124 Bradford Road  
Silver Spring, MD 20901-4918;  
(301) 565-2532.  
Allan L. Frank, Editor and Publisher

A monthly newsletter on residential energy and consumption trends, focusing on activities of federal and state energy agencies and utilities. Occasionally summarizes restructuring plans in states, especially regarding DSM, residential and environmental issues, as well as states' progress toward adopting federal standards for integrated resource planning. Subscriptions: \$192/year.

### **FISHER, SHEEHAN, AND COLTON, PUBLIC FINANCE AND GENERAL ECONOMICS**

34 Warwick Road  
Belmont, MA 02178  
(617) 484-0597  
Roger Colton

Specializes in regulatory economics, low-income energy and poverty issues. Recent publications (1996) include *Funding Stranded Benefits in a Restructured Electric Industry: A State Data Book*, *Funding Fuel Assistance: State and Local Strategies to Help Pay Low-Income Home Energy Bills*, and *Financing a National Universal Service Fund for Residential Home Energy*. Other publications include *DSM Planning in a Restrictive Environment*, an analysis of DSM programs in the context of low-income customers, including how to market such programs, and *Energy Efficiency and the Low Income Consumer: Planning, Designing and Financing*, which presents a comprehensive low-income DSM program proposal for utilities.

### **LCG CONSULTING**

4962 El Camino Real, Ste. 112  
Los Altos, CA 94022  
(415) 962-9670  
<http://www.energyonline.com>

This group's Website, Energy Online®, provides timely summaries of key restructuring developments on the state and national levels, often noting specifics about public benefits, including low-income programs.

### **LEAP (LEGISLATIVE ENERGY ADVISORY PROGRAM) LETTER**

William A. Spratley and Associates, Inc.  
7870 Olentangy River Road, Ste. 209  
Columbus, OH 43235  
(614) 888-9716 (fax)  
<http://www.spratley.com/leap>

A bimonthly newsletter on utility restructuring, including key restructuring decisions and state-by-state summary of legislative, regulatory activities and decisions. Identifies dockets, and key players. While the focus is not low-income, it does monitor relevant actions. It also includes guest editorials on pertinent competition and retail wheeling issues confronting decision-makers. The *LEAP Letter* was formerly published through grants, primarily on behalf of the National Conference of State Legislatures; it is now commercial and costs \$200 for nonprofits or government, \$495 for others. It is also available on the Internet.

**MICHAEL KARP & ASSOCIATES**

Public Interest Housing and Energy Consulting  
31 Appaloosa Road  
Bellingham, WA 98226  
(206) 647-3215  
Michael Karp, Director

This firm has an emphasis on the special needs of low-income households and has done consulting, intervention and training for national groups representing low income energy providers, state and regional groups and utilities. Karp is co-author of *Integrated Resource Planning and the Low Income Customer, Leveraging Federal WAP funds with Utility DSM Dollars*.

**MSB ENERGY ASSOCIATES**

7507 Hubbard Avenue, Suite 200  
Middleton, WI 53562-3135  
(608) 831-1127, ext. 304  
Geoffrey Crandall  
[crandall@msbnrg.com](mailto:crandall@msbnrg.com) (e-mail)

Provides expert testimony, litigation support, regulatory guidance, participation in low-income collaboratives, training and staff development. Has analyzed and proposed modifications to utility DSM programs in over a dozen states and presented workshops on restructuring and low-income DSM issues around the country. Has researched and published information on lessons that can be learned from natural gas deregulation and their implications for low-income customers. Recently investigated the potential impact of electric restructuring on low-income customers in Michigan, Iowa, and Ohio. Produced a report titled "Regulation of Distribution Monopolies" for the California Regulatory Research Project in August 1996.

**NATIONAL ASSOCIATION OF  
REGULATORY UTILITY COMMISSIONERS**

1201 Constitution Avenue, NW, Ste. 1102  
P.O. Box 684  
Washington, DC 20044  
(202) 898-2200  
<http://www.erols.com/naruc>

Tracks utility conservation and DSM programs, both gas and electric. Some publications monitor low-income energy programs, including *Survey of Electric and Natural Gas Utility Uncollectible Accounts and Service Disconnections for 1990*, which summarized special policies and rates for low-income and elderly households. Published *Affected with the Public Interest: Electric Utility Restructuring in an Era of Competition* in 1994. At its summer 1995 meeting, NARUC's Executive Committee passed the first of many resolutions recognizing the vulnerability of low-income customers as a result of utility restructuring and calling for utility commissions to sustain programs aimed specifically at low-income customers and to ensure participation of all citizens in the restructuring debate and process. Also has an Internet Home Page with many downloadable publications, plus links to all state public utility commission Websites.

## **NATIONAL ASSOCIATION OF STATE UTILITY CONSUMER ADVOCATES**

1133 15th Street, NW, Ste. 550

Washington, DC 20005

(202) 727-3908

Charles Acquard, Director

A national organization comprised of 41 state-designated agencies from 38 jurisdictions charged by law to represent utility ratepayers before their respective public utility commissions. Not specifically concerned with low-income issues, but represents all consumers served by investor-owned utilities. Has drafted a resolution urging state and federal regulators to adopt safeguards designed to protect all customers and to explicitly consider the unique circumstances of the low income in the restructuring process. Bi-monthly newsletter *NASUCA News*, also published *Least-Cost Utility Planning Manual*, a guide for state consumer advocates and others interested in least-cost planning.

## **NATIONAL CENTER FOR APPROPRIATE TECHNOLOGY**

P.O. Box 3838

Butte, MT 59702

(406) 494-4572

Ron Kroese, Executive Director

<http://www.ncat.org>

A private nonprofit, conducts research and information dissemination in the areas of renewable energy sources, resource conservation, sustainable agriculture, affordable housing, and the environment under contract to government agencies, utilities and foundations. Maintains an extensive energy library. Publications catalog available (bibliographies, consumer booklets, research reports). Since 1988 has operated the LIHEAP Clearinghouse for the Department of Health and Human Services; the Clearinghouse collects, develops, organizes, and disseminates information relevant to the LIHEAP program to state and tribal grantees, utilities, and other interested parties. Newsletter, the *LIHEAP Networker*, is published four times yearly.

## **NATIONAL CONSUMER LAW CENTER**

18 Tremont Street

Boston, MA

(617)523-8010

Nancy Brockway

1875 Connecticut Avenue, Ste. 510

Washington, DC 20009

(202) 986-6060

Phyllis Kimmel

It operates a low-income restructuring project, publishes the newsletter *Energy and Utility Update*, and has numerous publications on low-income energy topics. Recent publications are: *A Low Income Advocate's Introduction to Electric Industry Restructuring and Retail Wheeling*, and *Energy and the Poor: The Crisis Continues*, a state-by-state examination of the burden that energy costs place on low-income households. Staff also testify in rate cases, assist intervenors, and advise on low-income energy program design.



## NATIONAL COUNCIL ON COMPETITION AND THE ELECTRIC INDUSTRY

c/o National Conference of State Legislators

1560 Broadway, Ste. 700

Denver, CO 80202

(303) 830-2200, ext. 183

Matthew Brown, Director of Energy Programs for NCSL

<http://www.ncsl.org/programs/esnr/nccei.htm>

A joint project of NARUC and the NCSL, with funding from the DOE and EPA, whose purpose is to provide quality information on restructuring to state decision-makers—legislators and utility commissioners. Its 6-part Electric Industry Restructuring Series features three October 1996 papers of particular interest to low-income advocates: “Assessing Impacts on Small-Business, Residential and Low-Income Customers,” “Stranded Benefits in Electric Utilities Restructuring,” and “The Unintended Impacts of Restructuring.” The entire series is available on-line at the Website listed above. The NCSL also published its own series of reports discussing the legislative role in electric industry restructuring. *Competing Utilities and Energy Efficiency, Renewable Energy and Low-Income Customers* is one report. The NCSL Website also provides links to all state legislature Websites.

## NATIONAL ENERGY ASSISTANCE DIRECTORS' ASSOCIATION

5505 Connecticut Avenue NW

Washington, DC 20015-2601

(202) 237-5199

Mark Wolfe, Executive Director

Promotes information exchange among states regarding LIHEAP administrative, programmatic, and other procedural issues; provides training and technical assistance in LIHEAP program management; promotes interchange of policy development as it relates to LIHEAP planning, implementation and evaluation; provides information to the Department of Health and Human Services and appropriate committees of the National Governor's Association regarding LIHEAP policies, operation, statistics, and innovative state programs. Coordinates with other national human service organizations.

## NATIONAL FUEL FUNDS NETWORK

P.O. Box 7171

Silver Spring, MD 20910

(301) 718-0030

Ruth Lampi, Executive Director; Kathleen Walgren, Chair

Grass-roots nonprofit organization dedicated to increasing financial resources available to address energy needs of low-income households through technical information, policy analysis and advocacy. Members are fuel funds, community agencies, utilities, government, legal services and individuals. Goals are to: increase awareness and understanding of nature and magnitude of low-income energy problems, formulate and advance low-income energy policy through compilation, analysis, and dissemination of data and information; provide technical assistance in creation and development of fuel funds; and promote development of statewide and regional low-income energy coalitions. Publishes a newsletter, *National Energy Assistance Report, Fuel Funds: A Community Response to Low-Income Energy Problems*, a guide to how to start a fuel fund; *1994 Summary of Fuel Funds in the United States*, summary of funds operating in 1993; and *How To Build a State Energy Assistance Coalition*. In December 1996, NFFN published *Meeting Basic Energy Needs Public*

*Policy Summit*," a summary of an April 1996 meeting in Detroit whose purpose was to develop broadly-supported options and recommendations for new policies to meet the energy needs of low-income households

#### **NATIONAL LOW-INCOME ENERGY CONSORTIUM**

1000 LaGrande Rd.

Silver Spring, MD 20903

(301) 431-2170

Susan Present, Executive Director; Vicki Mroczek, Chair

A public-private partnership representing organizations that share the belief that "how energy affects the nation's poor" is everyone's best interest, and works toward coordinated solutions to low-income energy problems. Represents public, private, local and national institutions including utilities, consumer organizations, religious groups, trade associations, social service agencies, private fuel funds, energy service companies, etc. Issues include inadequate funding of energy assistance programs; offers members information, survey data, analysis of low-income energy issues, and the opportunity to help shape fair and workable solutions for the future. Organizes annual conference on low-income energy; the 1995 and 1996 conferences highlighted utility restructuring and its impacts on low-income programs, as will the 1997 conference.

#### **NATIONAL REGULATORY RESEARCH INSTITUTE**

The Ohio State University

1080 Carmack Road

Columbus, OH 43210

(614) 292-9666

John Hoag

<http://www.nrri.ohio-state.edu>

Established by the National Association of Regulatory Utility Commissioners (NARUC) to provide research, educational services, and technical services to the state regulatory commissions. Relevant publications include *Unbundling the Retail Gas Market—Current Activities and Guidance for Serving Residential and Small Customers* (1996). The Institute's Website features a regularly updated survey on electric utility restructuring and tracks developments in each state. It also provides links directly to all the state Web pages set up explicitly to provide restructuring information.

#### **NATIONAL TRAINING & INFORMATION CENTER**

810 North Milwaukee Avenue

Chicago, IL 60622

(312) 243-3035

Bobbi Bennett, Energy Coordinator

A nonprofit organization providing consultation, research and training to neighborhood and community groups. Publishes *Disclosure*, the national newspaper of neighborhoods, six times yearly, reviewing housing, energy, environmental, and community issues.

**NATURAL RESOURCES DEFENSE COUNCIL**

40 W. 20th Street  
New York, NY 10011  
(212) 727-2700  
<http://www.nrdc.org>

Nonprofit organization dedicated to protecting America's natural resources and to improving the quality of the environment. Publishes *Amicus Journal*, a quarterly. Involved in collaboration with utilities, public service commissions, and other public and private groups in writing integrated resource plans and reviewing and testifying regarding current restructuring proposals.

**STRATEGIC ENERGY LTD.**

Two Gateway Center  
Pittsburgh, PA 15222  
(412) 394-5600  
<http://www.sel.com/retail.html>

This firm's "Electricity Competition Update" site provides easily accessible synopses of each state's restructuring progress. It doesn't specifically cover public benefits, but is a good source for up-to-date general and utility-specific news.

**U.S. DEPARTMENT OF ENERGY, OFFICE OF STATE AND COMMUNITY PROGRAMS**

Oak Ridge National Laboratory  
P.O. Box 2008  
Oak Ridge, TN 37831  
(615) 574-6304  
<http://www.ornl.gov>

Joel Eisenberg  
ORNL Washington Office  
600 Maryland Avenue, S.W.  
Suite 306  
Washington, D.C. 20024  
(202) 479-0439 [I2J@ornl.gov](mailto:I2J@ornl.gov)  
Fax (202) 479 0575

ORNL has published a series of reports on DSM and integrated resource planning over the last several years. Reports include: *Low-Income DSM Programs: Methodological Approach to Determining the Cost-Effectiveness of Coordinated Partnership* reviews six coordinated low-income DSM programs, examines common features, strengths and weaknesses, and cost-effectiveness issues; *Utility Investments in Low-Income Energy-Efficiency Programs* reviews 132 low-income utility programs operating in 1992, identifies expenditures, measures, whether programs were mandated, targeted populations, etc. Most recently, Oak Ridge has begun the STAAR Project for DOE's Weatherization Assistance Program, to provide information on utility resource leveraging, utility restructuring, and other market-oriented opportunities to leverage federal funds.

Published *Public Policy Responsibilities in a Restructured Electric Industry—An Analysis of Values, Objectives, and Approaches* in 1996.

## REGIONAL/STATE ASSOCIATIONS

### THE CALIFORNIA-NEVADA COMMUNITY ACTION ASSOCIATION (CAL-NEA)

225 30<sup>th</sup> Street, Ste. 200

Sacramento, CA 95816

(916) 443-1721

Joy Omania

<http://www.cal-neva.org>

Founded in 1976, its members include most of the locally-based community action agencies in California and Nevada. Active participant in the California Public Utilities Commission's utility restructuring proceedings. Coordinated the CPUC's Low-Income Working Group in 1996.

### THE ENERGY PROJECT

Opportunity Council

314 E. Holly

Bellingham, WA 98225

(360) 734-5121

Chuck Ebert

[oppco@pacificrim.net](mailto:oppco@pacificrim.net)

Operated by the Washington State Association of Community Action Agencies, it monitors energy issues of interest to the Pacific Northwest, including issues affecting the Bonneville Power Administration's conservation programs. It publishes a newsletter and solicits input on energy issues.

### LATINO ISSUES FORUM

785 Market Street, 3<sup>rd</sup> Floor

San Francisco, CA 94103

(415) 284-7224

Susan E. Brown, Legal Counsel, Roxanne, Figueroa, Policy Analyst

A nonprofit devoted to advocacy to improve the lives of Latinos and low-income persons. Extensively involved in electric utility restructuring in California to ensure that low-income customers and public purposes programs are protected in the deregulation process. Susan E. Brown, the group's legal counsel, is a member of the Low-Income Energy Governing Board, a group appointed by the California Public Utilities Commission to oversee the state's low-income programs as they are transferred from utility stewardship to that of an independent administrative body.

**NEW ENGLAND LOW-INCOME ENERGY ADVOCATES NETWORK**

c/o NCLC  
18 Tremont Street  
Boston, MA  
(617)523-8010  
Nancy Brockway  
*hno639@handsnet.org*

An ad hoc group composed of legal services and community action agency representatives in the New England states.

**NORTHWEST CONSERVATION ACT COALITION**

217 Pine Street, Ste. 1020  
Seattle, WA 98101  
(206) 621-0094  
*http://www.oz.net/ncac/home.html*

A region-wide alliance of environmental organizations consumer advocates, community action and other human service agencies, business, civic groups and utilities. Its program of advocacy, outreach and education emphasizes conservation and environmentally benign renewable resources for the region. Testifies and advocates on behalf of low-income consumers in the Northwest region's utility restructuring debate. Its Website features a primer on electric utility deregulation, plus fact sheets on deregulation in Washington, Oregon, Idaho, and Montana.

**PUBLIC UTILITY LAW PROJECT**

39 Columbia Street  
Albany, NY 12207-2717  
(518) 449-3375 Ext. 19  
Bob Pillar, Director

A project of the Legal Aid Society of Northeastern New York, Inc., serving the needs of New York State's low income utility consumers. Advocates on behalf of these consumers in utility rate cases, rulemaking proceedings, class actions and other litigation. Trains local advocates, writes manuals.

**TEXAS ROSE (RATEPAYERS' ORGANIZATION to SAVE ENERGY, Inc.)**

815 Brazos Street, Ste. 1100  
Austin, TX 78701-2509  
(512) 472-5233  
Carol Biedrzycki, Executive Director

A nonprofit dedicated to reducing environmental damage and consumer utility bills through increased investments in energy efficiency and renewable energy. Within that broad mission is also an objective to ensure that low-income customers have equal access to energy conservation benefits. Along with the Texas Legal Services Center has been active in utility commission proceedings concerning individual utility rate cases and restructuring proceedings.

**THE UTILITY REFORM NETWORK (TURN)**

711 Van Ness Avenue, #350

San Francisco, CA 94102

(415) 929-8876 (415) 929-1132 (Fax)

Nettie Hoge, Executive Director

One of California's most active intervenor groups before the California Public Utilities Commission. TURN is a statewide, non-profit organization with over twenty years experience representing the interests of residential and small commercial consumers of the state's gas, electricity and telephone utilities. Has advocated on behalf of the interests of California's low-income customers and will continue to seek to ensure that the access of all Californians to essential services at reasonable prices will be maintained and improved even in the face of industry deregulation and restructuring.

## **APPENDIX B. NARUC AND LOW-INCOME ADVOCATES RESOLUTIONS**

### **NARUC RESOLUTION ON THE IMPACT OF ELECTRIC INDUSTRY RESTRUCTURING ON LOW-INCOME RESIDENTIAL CONSUMERS**

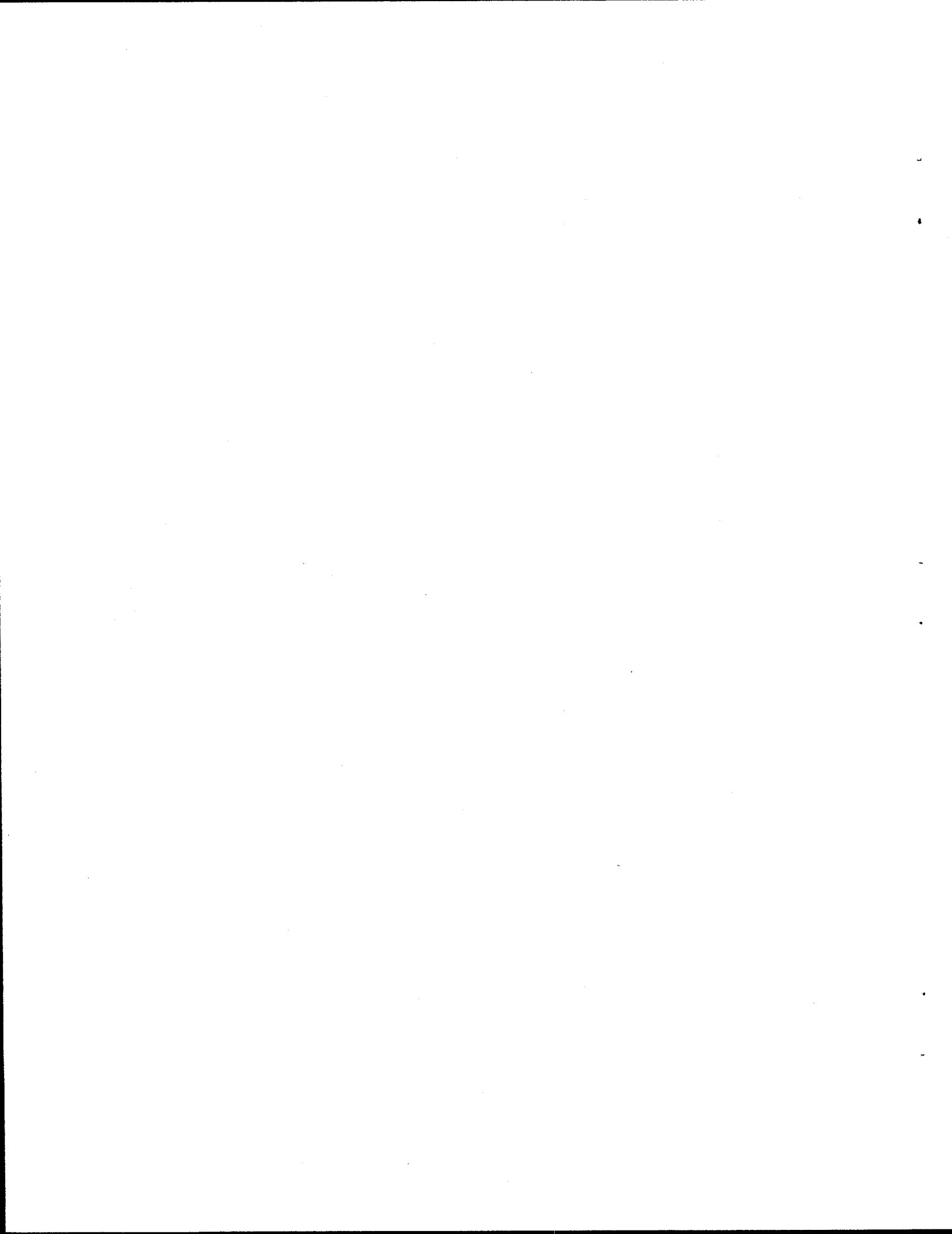
WHEREAS, as a result of actions taken by Federal and State regulators, the electric utility industry is now undergoing significant structural and operation changes as more market oriented policies are implemented; and

WHEREAS, while the injection of greater competition into electricity markets has the potential to improve the efficiency of utilities, there is also the possibility that these changes could lead to cost shifts among customer classes in ways that increase costs and disproportionately affect low-income residential customers; and

WHEREAS, on average, low-income households pay a larger share of their incomes for electricity than any other customer class, now, therefore be it

RESOLVED, that the Executive Committee of the National Association of Regulatory Utility Commissioners (NARUC), convened at its 1995 Summer Meeting in San Francisco, California urges the Federal Energy Regulatory Commission and individual States, when implementing policies to restructure electric utility services and operations, to protect low-income customers from adverse impacts of such restructuring by including safeguards which, among other policies a State may deem appropriate:

- \* Prevent unfair cost-shifting between customer classes;
- \* Make available the benefits of a competitive market to each customer class without undue discrimination;
- \* Maintain fair and reasonable billing and collection practices;
- \* Sustain commission-approved low-income energy efficiency and rate programs;
- \* Limit disproportionate environmental impact in low-income neighborhoods; and
- \* Ensure the effective participation of all citizens in the restructuring debate.





## **Policies to Protect the Rights of Vulnerable Customers in the Restructuring of the Electric Utility Industry**

September 23, 1995

**Whereas, many states and the Federal Energy Regulatory Commission are considering proposals to restructure the electric utility industry that could change how electricity services are priced and provided; and**

**Whereas, electricity is necessary to maintain health and safety for fixed-income and low-income customers in this modern era, that as a group these households use the least amount of electricity but pay the highest percentage of their income for this need; and**

**Whereas, fixed- and low-income households with children, older persons, disabled people and minority customers are the most likely to be exposed to the toxic and environmental effects of electricity generation and transmission; and**

**Whereas, customers on fixed- and low-incomes face unique market barriers to obtaining energy efficiency services through the open market, are the least likely to be in a position to exercise meaningful customer choice in any restructured electricity market, and the most likely to be captive customers; and**

**Whereas, the National Association of Regulatory Utility Commissioners Executive Committee unanimously passed a resolution on July 27, 1995, on the impact of electric industry restructuring on low-income residential customers, and set forth broad policy recommendations to protect low-income customers from the adverse impacts of said restructuring; and**

**Whereas, to carry out the goal of protecting low-income households, the specific policies articulated below must be implemented; and**

**Whereas, restructuring of the electric utility industry suggests a radical change in public policy that redistributes benefits and costs; now therefore be it hereby**

**Resolved that if restructuring shifts responsibility for paying costs onto captive customers, the revenues needed should be collected only with state legislative approval; and be it further**

**Resolved that in their deliberations over the restructuring of the electric industry, state and federal regulators are urged to adopt the following policies, at a minimum, necessary to protect residential customers on fixed- and low-incomes:**

### **1) Affordable Access**

**Any alternative structure must include all of the following:**

- A. Maintain the obligation of utilities and/or other providers to serve as the provider of last resort for vulnerable customers, such as fixed- and low-income consumers;**

- B. Enable fixed- and low-income customers to obtain electricity essential to health and safety;
- C. Require utilities and/or other providers to provide affordable service to low- or fixed-income customers;
- D. Provide comprehensive energy conservation and efficiency grant programs. These must improve the efficiency of energy services for fixed- and low-income customers, address indoor air quality, and make optimum use of the existing network of low-income weatherization providers;
- E. Provide affordable deposit and deferred payment policies; and
- F. Prevent mandatory use of service limiters, prepayment cards, or other forms of degraded service.

## 2) Fair Billing and Collection Procedures

Any alternative industry structure must ensure freedom from abusive and unfair collection procedures and from unfair disconnect practices. It must:

- A. Provide adequate notice of proposed termination of services;
- B. Provide reasonable payment arrangement options for current and deferred bills;
- C. Provide access to customer service representatives who are knowledgeable in the areas of customer assistance, bill assistance, different rate and weatherization programs, energy education, and payment options;
- D. Prohibit disconnections that threaten the health and safety of vulnerable customers;
- E. Maintain the right to appeal an unfair utility action to an impartial regulator.

## 3) Participation in Setting Public Policy

Low- and fixed-income customers must be able to participate in collaborative or any other form of decision-making relative to electric industry restructuring issues, with funding for full participation.

## 4) Environmental Justice

Historically, low income and minority communities have been disproportionately harmed by local generation and transmission siting. Any alternative industry structure must avoid adverse environmental and safety impacts on low-income and minority communities.

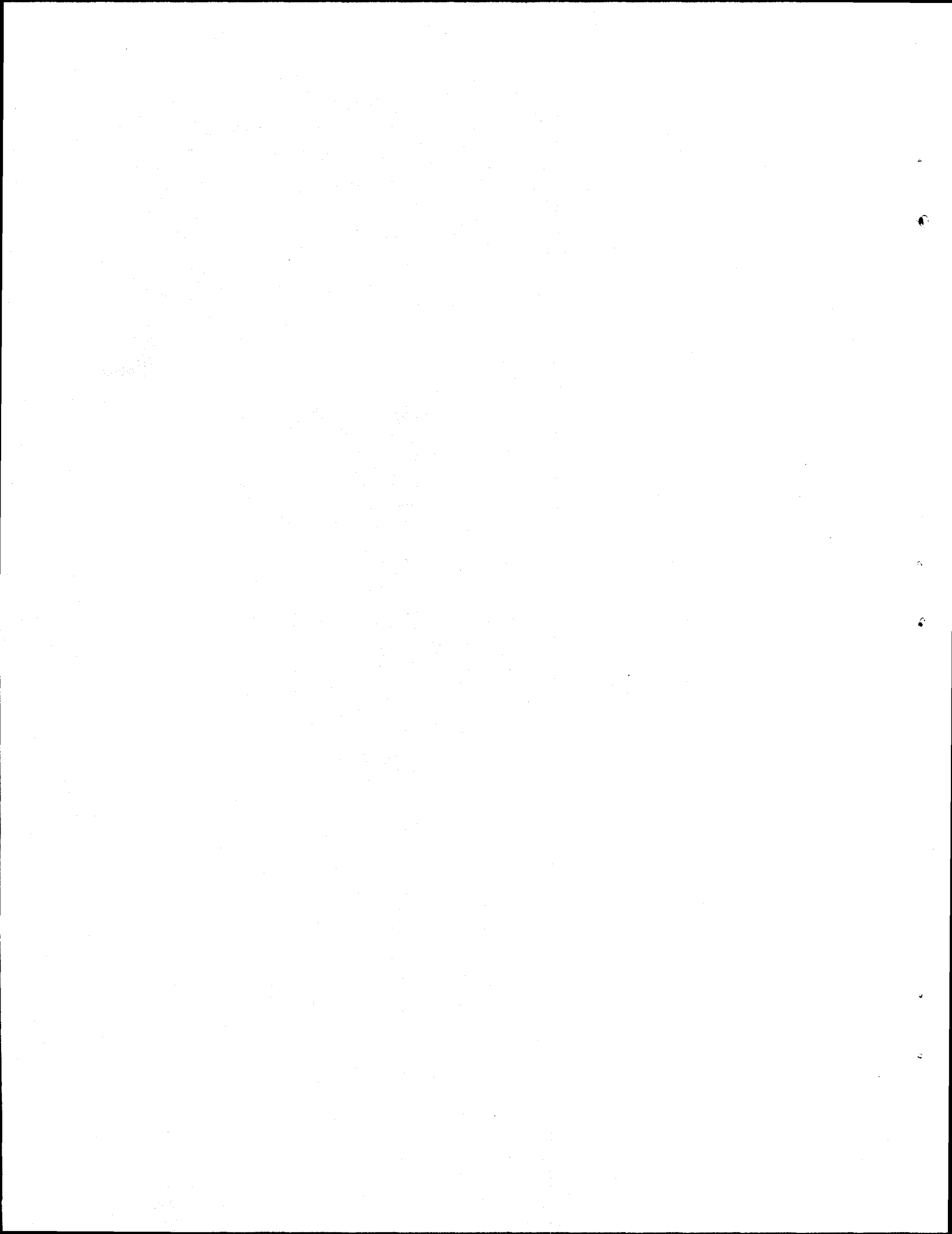
## 5) Long Term Perspective

Any alternative industry structure must provide a balanced portfolio of energy resources that are affordable, sustainable, reliable, environmentally and societally responsible, and economically efficient. Such an alternative industry structure must prevent environmental degradation and maximize employment. Long-term goals must not be sacrificed for a short-term perspective which may reduce rates for some customers while increasing bills for fixed- and low-income customers and exposing them to unacceptable environmental risks.

**6) Fair Allocation of Costs and Benefits**

- A. The costs resulting from past decisions in the electric industry, especially those that built load for industrial customers' demand, must not be borne by the low-income customer.
  - 1. Stranded investments must be borne by providers, industrials, and investors through non-bypassable charges.
  - 2. Stranded cost must be borne by utilities now through rate reductions for all customers without waiting for final resolution of the restructuring issue.
- B. All customers, including fixed- and low-income customers, must share in the benefits of a restructured electric industry. Restructuring must not go forward unless bills go down for everyone.

**APPENDIX C. GLOSSARY**





The National Council on Competition and the Electric Industry (NCCEI)

Glossary of Electric Utility Restructuring Terms

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1996

**Above-market Cost** The cost of a good or service that is in excess of the price of comparable goods and services in the market. Typically refers to the cost of a public good or stranded benefit that exceeds or would increase the short-term marginal cost of delivered electricity alone or lacking such public good characteristics.

**Access Charge** A charge levied on a power supplied, or its customer, for access to a utility's transmission or distribution system. It is a charge for the right to send electricity over another's wires.

**Affordability Programs** Any of a number of utility programs to render utility bills affordable, especially for low-income customers. Such programs include free DSM, charitable fuel funds, discount rates, percentage of income payment programs, arrearage forgiveness, as well as budget billing, required payment arrangements, and arguably extreme weather disconnection protections (especially where coupled with arrearage forgiveness). Such programs can be run in collaboration with government-sponsored social service efforts, or can be offered to qualified customers on a stand-alone basis.

**Aggregator** – An entity that puts together customers into a buying group for the purchase of a commodity service. The vertically integrated investor owned utility, municipal utilities and rural electric cooperatives perform this function in today's power market. Other entities such as buyer cooperatives or brokers could perform this function in a restructured power market. This is opposed to marketer which will be defined as an entity that represents different suppliers.

**Ancillary Services** Additional generation and transmission services provided by generating units and some types of transmission equipment that are needed to ensure the reliable operation of the transmission system and facilitate power transfers. Some of these services, include: scheduling, system control and dispatch; reactive power supply, voltage support, and voltage control; regulation and frequency control; energy imbalance (short-term load following); standby generation; operating reserves, including spinning and supplemental reserves; compensation for real power or transmission losses; dynamic scheduling of generation in response to fluctuations in specific loads; and restoration of generation service or black start capabilities.

**APPA** The American Public Power Association is a trade association representing the interests of municipal utilities. (See also Public Utility)

**Arrearage** Money owed on past bills.

**Average Cost** The revenue requirement of a utility divided by the utility's sales. Average cost typically includes the costs of existing power plants, transmission, and distribution lines, and other facilities used by a utility to serve its customers. It also included operating and maintenance, tax, and fuel expenses.

**Avoided Cost** The cost the utility would incur but for the existence of an independent generator or other energy service option. Avoided cost rates have been used as the power purchase price utilities offer independent suppliers (Qualifying Facilities).



**Biddable Franchise** (See Competitive Franchise).

**Bilateral Contract** A direct contract between the power producer and user or broker outside of a centralized power pool or POOLCO.

**Bottleneck Facility** A point on the system, such as a transmission line, through which all electricity must pass to get to its intended buyers. If there is limited capacity at this point, some priorities must be developed to decide whose power gets through. It also must be decided if the owner of the bottleneck may, or must, build additional facilities to relieve the constraint.

**BPA -- Bonneville Power Administration.** One of five federal power marketing administrations that sell low-cost electric power produced by federal hydro electric dams to agricultural and municipal users. BPA serves Idaho, Oregon, and Washington as well as parts of Nevada and Wyoming.

**Broker --** A retail agent who buys and sells power. The agent may also aggregate customers and arrange for transmission, firming and other ancillary services as needed.

**Bulk Power Supply --** Often this term is used interchangeably with wholesale power supply. In broader terms, it refers to the aggregate of electric generating plants, transmission lines, and related-equipment. The term may refer to those facilities within one electric utility, or within a group of utilities in which the transmission lines are interconnected.

**Buy Through --** An agreement between utility and customer to import power when the customer's service would otherwise be interrupted.



**Capacity Release --** A secondary market for capacity that is contracted by a customer which is not using all of its capacity.

**Captive Customer** A customer who does not have realistic alternatives to buying power from the local utility, even if that customer had the legal right to buy from competitors.

**Certification** The process of granting permission to do business or to sell a particular product. A device states can use to enforce standards of conduct and quality on competitive suppliers, on pain of penalties including civil fines, suspension of certification, and revocation of certification to do business. Similar to licensure. Contrast registration, which requires providing information, including perhaps proof of financial and technical capability to the state, but does not provide for penalties or revocation of the right to do business upon violation of the norms of conduct.

**Commercialization --** Programs or activities that increase the value or decrease the cost of integrating new products or services into the electricity sector. (See "Sustained Orderly Development.")

**Competitive Franchise \_** A process whereby a municipality (or group of municipalities) issues a franchise to supply electricity in the community to the winner of a competitive bid process. Such franchises can be for bundled electricity and transmission/distribution, or there can be separate franchises for the supply of electricity services and the transmission and distribution function. Franchises can be, but typically are not, exclusive licenses. Through the terms of the request for proposals and the negotiation of the franchise agreement, the

community can seek suppliers willing to provide electricity consistent with local values, such as energy efficiency, renewable resource development, job creation, and the like. See "value-driven aggregator." Sometimes called a "biddable franchise."

**Competitive Transition Charge (CTC)** A "nonbypassable" charge generally placed on distribution services to recover utility costs incurred as a result of restructuring (stranded costs - usually associated with generation facilities and services) and not recoverable in other ways.

**Contract Path** -- The most direct physical transmission tie between two interconnected entities. When utility systems interchange power, the transfer is presumed to take place across the "contract path," notwithstanding the electrical fact that power flow in the network will distribute in accordance with network flow conditions. This term can also mean to arrange for power transfer between systems. (See also Parallel path flow)

**Contracts for Differences (CFD)** -- A type of bilateral contract where the electric generation seller is paid a fixed amount over time which is a combination of the short-term market price and an adjustment with the purchaser for the difference. For example, a generator may sell a distribution company power for ten years at 6/kWh. That power is bid into Poolco at some low /kWh value (to ensure it is always taken). The seller then gets the market clearing price from the pool and the purchaser pays the producer the difference between the Poolco selling price and 6/kWh (or vice versa if the pool price should go above the contract price).

**Control Area** -- An electric system bounded by transmission lines that are equipped with metering and telemetry equipment to track and report power flows with adjacent control areas. A control center for each control area controls the operation of generation within its portion of the transmission grid, schedules interchanges with other control areas, and helps to stabilize the frequency of alternating current in the interconnection. Control centers are currently operated by individual utilities or power pools and in the future may be operated by an ISO or POOLCO.

**Co-op** -- This is the commonly used term for a rural electric cooperative. Rural electric cooperatives generate and purchase wholesale power, arrange for the transmission of that power, and then distribute the power to serve the demand of rural customers. Co-ops typically become involved in ancillary services such as energy conservation, load management and other demand- side management programs in order to serve their customers at least cost.

**Customer Service Protections** -- The rules governing grounds for denial of service, credit determinations, deposit and guarantee practices, meter reading and accuracy, bill contents, billing frequency, billing accuracy, collection practices, notices, grounds for termination of service, termination procedures, rights to reconnection, late charges, disconnection/reconnection fees, access to budget billing and payment arrangements, extreme weather, illness or other vulnerable customer disconnection protections, and the like. In a retail competition model, would include protections against "slamming" and other hard-sell abuses.



**Deintegration** -- (See disaggregation)

**Demand Charge** -- A fee based on the peak amount of electricity used during the billing cycle. Residential customers are generally not levied a demand charge.

**Demonstration** -- The application and integration of a new product or service into an existing or new system. Most commonly, demonstration involves the construction and operation of a new electric technology interconnected with the electric utility system to demonstrate how it interacts with the system. This includes the impacts the technology may have on the system and the impacts that the larger utility system might have on the functioning of the technology.



**Deregulation** -- The elimination of regulation from a previously regulated industry or sector of an industry.

**Derivatives** A specialized security or contract that has no intrinsic overall value, but whose value is based on an underlying security or factor as an index. A generic term that, in the energy field, may include options, futures, forwards, etc.

**Direct Access** -- The ability of a retail customer to purchase commodity electricity directly from the wholesale market rather than through a local distribution utility. (See also Retail Competition)

**Disaggregation** -- The functional separation of the vertically integrated utility into smaller, individually owned business units (i.e., generation, dispatch/control, transmission, distribution). The terms "deintegration," "disintegration" and "delamination" are sometimes used to mean the same thing. (See also "Divestiture.")

**Distributed Generation** -- A distributed generation system involves small amounts of generation located on a utility's distribution system for the purpose of meeting local (substation level) peak loads and/or displacing the need to build additional (or upgrade) local distribution lines.

**Distribution** The delivery of electricity to the retail customer's home or business through low voltage distribution lines.

**Distribution Utility (Disco)** -- The regulated electric utility entity that constructs and maintains the distribution wires connecting the transmission grid to the final customer. The Disco can also perform other services such as aggregating customers, purchasing power supply and transmission services for customers, billing customers and reimbursing suppliers, and offering other regulated or non-regulated energy services to retail customers. The "wires" and "customer service" functions provided by a distribution utility could be split so that two totally separate entities are used to supply these two types of distribution services.

**Divestiture** -- The stripping off of one utility function from the others by selling (spinning-off) or in some other way changing the ownership of the assets related to that function. Most commonly associated with spinning-off generation assets so they are no longer owned by the shareholders that own the transmission and distribution assets. (See also "Disaggregation.")

**DSM (Demand-Side Management)** -- Planning, implementation, and evaluation of utility-sponsored programs to influence the amount or timing of customers' energy use.



**Economic Efficiency** -- A term that refers to the optimal production and consumption of goods and services. This generally occurs when prices of products and services reflect their marginal costs. Economic efficiency gains can be achieved through cost reduction, but it is better to think of the concept as actions that promote an increase in overall net value (which includes, but is not limited to, cost reductions).

**Economies of Scale** Economies of scale exist where the industry exhibits decreasing average long-run costs with size.

**EEI** -- Edison Electric Institute. An association of electric companies formed in 1933 "to exchange information on industry developments and to act as an advocate for utilities on subjects of national interest."

**ELCON** -- Electricity Consumers Resources Council. ELCON is an association of 28 large industrial consumers of electricity. ELCON members account for over five percent of all electricity consumed in the United States. ELCON was formed in 1976 "to enable member companies to "work cooperatively for the development of coordinated, rational and consistent policies affecting electric energy supply and pricing at the

federal, state, and local levels."

**Electric Utility** -- Any person or state agency with a monopoly franchise (including any municipality), which sells electric energy to end-use customers; this term includes the Tennessee Valley Authority, but does not include other Federal power marketing agency (from EPAct).

**Embedded Costs Exceeding Market Prices (ECEMP)** -- Embedded costs of utility investments exceeding market prices are: 1) costs incurred pursuant to a regulatory or contractual obligation; 2) costs that are reflected in cost-based rates; and 3) cost-based rates that exceed the price of alternatives in the marketplace. ECEMPs may become "stranded costs" where they exceed the amount that can be recovered through the asset's sale. Regulatory questions involve whether such costs should be recovered by utility shareholders and if so, how they should be recovered. "Transition costs" are stranded costs which are charged to utility customers through some type of fee or surcharge after the assets are sold or separated from the vertically-integrated utility. "Stranded assets" are assets which cannot be sold for some reason. The British nuclear plants are an example of stranded assets which no one would buy. (Also referred to as Transition Costs.)

**End-use Services** -- The provision of energy, power and related services, such as energy efficiency or on-site generation, to the ultimate consumer.

**Energy Efficiency** -- Using less energy/electricity to perform the same function. Programs designed to use electricity more efficiently -- doing the same with less. For the purpose of this paper, energy efficiency is distinguished from DSM programs in that the latter are utility-sponsored and -financed, while the former is a broader term not limited to any particular sponsor or funding source. "Energy conservation" is a term which has also been used but it has the connotation of doing without in order to save energy rather than using less energy to do the same thing and so is not used as much today. Many people use these terms interchangeably.

**EPA** -- The Environmental Protection Agency. A federal agency charged with protecting the environment.

**EPAct** -- The Energy Policy Act of 1992 addresses a wide variety of energy issues. The legislation creates a new class of power generators, exempt wholesale generators (EWGs), that are exempt from the provisions of the Public Utilities Holding Company Act of 1935 and grants the authority to FERC to order and condition access by eligible parties to the interconnected transmission grid.

**ESCO** -- Efficiency Service Company. A company that offers to reduce a client's electricity consumption with the cost savings being split with the client.

**Exempt Wholesale Generator (EWG)** Created under the 1992 Energy Policy Act, these wholesale generators are exempt from certain financial and legal restrictions stipulated in the Public Utilities Holding Company Act of 1935.



**Feebates** -- A feebate is a revenue neutral strategy which imposes a fee on polluting resources and rebates those fees to cleaner technologies. This can be accomplished directly through the revenue paid to generators by the Poolco or through incorporation of these values into the dispatch/pricing mechanism of the pool.

**Federal Energy Regulatory Commission (FERC)** -- The Federal Energy Regulatory Commission regulates the price, terms and conditions of power sold in interstate commerce and regulates the price, terms and conditions of all transmission services. FERC is the federal counterpart to state utility regulatory commissions.

**Fire Wall** -- The line of demarcation separating residential and small commercial customers from all other

customers preventing the shifting of costs between customer classes as a result of special rate discounts or other restructuring activities.

**Forwards** A forward is a commodity bought and sold for delivery at some specific time in the future. It is differentiated from futures markets by the fact that a forward contract is customized, non-exchange traded, and a non-regulated hedging mechanism.

**FPA -- Federal Power Act of 1935.** Established guidelines for federal regulation of interstate energy sales. It is the primary statute governing FERC regulation of the electric sector.

**Fuel Diversity --** The situation in which a given supply portfolio is made up of plants using several different types of fuel to generate electricity, for the purpose of avoiding over-reliance on one fuel, and the related risk of supply interruption and price spikes. A form of hedging by maintaining a diverse portfolio of fuel inputs.

**Functional Unbundling --** The functional separation of generation, transmission, and distribution transactions within a vertically integrated utility without selling or "spinning off" these functions into separate companies. (See also divestiture)

**Futures Contract --** A standardized financial agreement for the purchase or sale of a commodity or product at a specified price that is traded in an open auction under the rules of an exchange and that requires delivery on or settlement through the sale or purchase of an offsetting contract by a specified future date.

**Futures Market --** Arrangement through a contract for the delivery of a commodity at a future time and at a price specified at the time of purchase. The price is based on an auction or market basis. Standardized, exchange-traded, and government regulated hedging mechanism.



**Generation Company (Genco) --** A regulated or non-regulated entity (depending upon the industry structure) that operates and maintains existing generating plants. The Genco may own the generation plants or interact with the short term market on behalf of plant owners. In the context of restructuring the market for electricity, Genco is sometimes used to describe a specialized "marketer" for the generating plants formerly owned by a vertically-integrated utility.

**Generation Dispatch and Control --** Aggregating and dispatching (sending off to some location) generation from various generating facilities, providing backup and reliability services. Ancillary services include the provision of reactive power, frequency control, and load following. (Also see "Power Pool" and "Poolco" below.)

**Green Markets / Marketing --** Sales and purchases of power from renewable or otherwise environmentally desirable resources and efficiency services.

**Grid** A system of interconnected power lines and generators that is managed so that the generators are dispatched as needed to meet the requirements of the customers connected to the grid at various points. Gridco is sometimes used to identify an independent company responsible for the operation of the grid.



**Hedging Contracts --** Contracts which establish future prices and quantities of electricity independent of the

short-term market. Derivatives may be used for this purpose. (See Contracts for Differences, Forwards, Futures Market, and Options.)

**Independent System Operator (ISO)** -- A neutral and independent organization with no financial interest in generating facilities that administers the operation and use of the transmission system. ISOs exercise final authority over the dispatch of generation to preserve reliability and facilitate efficiency, ensure non-discriminatory access, administer transmission tariffs, ensure the availability of ancillary services, and provide information about the status of the transmission system and available transmission capacity. Under some proposals, an ISO may make some transmission investment decisions.

**Integrated Resource Planning (IRP)** -- A public planning process and framework within which the costs and benefits of both demand- and supply-side resources are evaluated to develop the least-total-cost mix of utility resource options. In many states, IRP includes a means for considering environmental damages caused by electricity supply/transmission and identifying cost-effective energy efficiency and renewable energy alternatives. IRP has become a formal process prescribed by law in some states and under some provisions of the Clean Air Act Amendments of 1992.

**Integrated Resource Planning Principles** -- The underlying principles of IRP can be distinguished from the formal process of developing an approved utility resource plan for utility investments in supply- and demand-side resources. A primary principle is to provide a framework for comparing a variety of supply- and demand-side and transmission resource costs and attributes outside of the basic provision (or reduction) of electric capacity and energy. These resources may be owned or constructed by any entity and may be acquired through contracts as well as through direct investments. Another principle is the incorporation of risk and uncertainty into the planning analysis. The public participation aspects of IRP allow public and regulatory involvement in the planning rather than the siting stage of project development.

**IOU** -- An investor owned utility. A company, owned by stockholders for profit, that provides utility services. A designation used to differentiate a utility owned and operated for the benefit of shareholders from municipally owned and operated utilities and rural electric cooperatives.

**IPP** -- Independent Power Producer. An private entity that operates a generation facility and sells power to electric utilities for resale to retail customers.

**ISDN** -- Integrated Services Digital Network. A 128 Kbps (kilobytes per second) digital telephone service available in many parts of the country though not universally available that may be able to substitute for fiber optic cable in every respect except possibly television transmission.

**ISO** -- Independent System Operator. A neutral operator responsible for maintaining instantaneous balance of the grid system. The ISO performs its function by controlling the dispatch of flexible plants to ensure that loads match resources available to the system.



**Jurisdictional** -- Utilities, ratepayers and regulators (and impacts on those parties) that are subject to state regulation in a state considering restructuring.

**Kilowatt (kW)** -- This is a measure of demand for power. The rate at which electricity is used during a defined period (usually metered over 15-minute intervals). Utility customers generally are billed on a monthly basis; therefore, the kW demand for a given month would be the 15- minute period in which the most power is consumed. Customers may be charge a fee (demand charge) based on the peak amount of electricity used during the billing cycle. (Residential customers are generally not levied a demand charge.)

**Kilowatt-hour (kWh)** -- This is a measure of consumption. It is the amount of electricity that is used over

some period of time, typically a one-month period for billing purposes. Customers are charged a rate per kWh of electricity used.



**Load Centers** A geographical area where large amounts of power are drawn by end-users.

**Long-Range Planning** -- The process of forecasting long-term loads, determining a reasonable set of potential resources to meet such loads (including reduction of loads through energy efficiency), analyzing the costs (sometimes including externality costs) of several possible mixes of such resources, and identifying the resources to be secured to meet such future needs.



**Marginal Cost** In the utility context, the cost to the utility of providing the next (marginal) kilowatt-hour of electricity, irrespective of sunk costs.

**Market-Based Price** A price set by the mutual decisions of many buyers and sellers in a competitive market.

**Marketer** -- An agent for generation projects who markets power on behalf of the generator. The marketer may also arrange transmission, firming or other ancillary services as needed. Though a marketer may perform many of the same functions as a broker, the difference is that a marketer represents the generator while a broker acts as a middleman.

**Monopoly** -- The only seller with control over market sales.

**Monopsony** -- The only buyer with control over market purchases.

**Municipalization** -- The process by which a municipal entity assumes responsibility for supplying utility service to its constituents. In supplying electricity, the municipality may generate and distribute the power or purchase wholesale power from other generators and distribute it.

**Municipal Utility** A provider of utility services owned and operated by a municipal government.



**NARUC** -- The National Association of Regulatory Utility Commissioners. An advisory council composed of governmental agencies of the fifty States, the District of Columbia, Puerto Rico and the Virgin Islands engaged in the regulation of utilities and carriers. "The chief objective is to serve the consumer interest by seeking to improve the quality and effectiveness of public regulation in America."

**NASUCA** -- The National Association of Utility Consumer Advocates. NASUCA includes members from 38 states and the District of Columbia. It was formed "to exchange information and take positions on issues affecting utility rates before federal agencies, Congress and the courts."

**Natural Monopoly** -- A situation where one firm can produce a given level of output at a lower total cost than can any combination of multiple firms. Natural monopolies occur in industries which exhibit decreasing

average long-run costs due to size (economies of scale). According to economic theory, a public monopoly governed by regulation is justified when an industry exhibits natural monopoly characteristics.

**NCSL** -- The National Conference of State Legislatures. A national advisory council which provides services to state legislatures "by bringing together information from all states to forge workable answers to complex policy questions."

**NERC** -- The North American Electric Reliability Council is the coordinating arm of the nine member regional reliability councils. (See also Reliability Councils)

**Non-bypassable Charge** -- Any of a number of charges that would apply to all end-users of electricity, and could not be bypassed except by totally disconnecting from the grid. Includes systems benefits charges, public goods charges, wires charges, access charges, and the like. Typically is a fee of some kind for use of the wires or access to the grid.

**Non-jurisdictional** -- Utilities, ratepayers and regulators (and impacts on those parties) other than the state-regulated utilities, regulators and ratepayers in a jurisdiction considering restructuring. Examples include utilities in adjacent state and non-state regulated, publicly owned utilities within restructuring states.

**NOPR** -- A Notice of Proposed Rulemaking. A designation used by the FERC for some of its dockets.

**NRTA** - Northwest Regional Transmission Association. A subregional transmission group within the Western Regional Transmission Association.

**NUG** -- A non-utility generator. A generation facility owned and operated by an entity who is not defined as a utility in that jurisdictional area.



**Obligation to Serve** The obligation of a utility to provide electric service to any customer who seeks that service, and is willing to pay the rates set for that service. Traditionally, utilities have assumed the obligation to serve in return for an exclusive monopoly franchise.

**Oligopoly** -- A few sellers who exert market control over prices.

**Opt Out** -- A right of an individual end-use customer to decide not to buy from a given aggregator. Typically used in situations where one or more aggregators are identified as the primary suppliers in an area, as in the case of a standard offer, a competition for a competitive franchise, a community access entity, or a co-op.

**Options** An option is a contractual agreement that gives the holder the right to buy (call option) or sell (put option) a fixed quantity of a security or commodity (for example, a commodity or commodity futures contract), at a fixed price, within a specified period of time. May either be standardized, exchange-traded, and government regulated, or over-the-counter customized and non-regulated.



**Parallel Path Flow** -- As defined by NERC, this refers to the flow of electric power on an electric system's transmission facilities resulting from scheduled electric power transfers between two other electric systems. (Electric power flows on all interconnected parallel paths in amounts inversely proportional to each path's resistance.)

**Peak Load or Peak Demand** The electric load that corresponds to a maximum level of electric demand in a specified time period.

**Performance-Based Regulation (PBR)** -- Any rate-setting mechanism which attempts to link rewards (generally profits) to desired results or targets. PBR sets rates, or components of rates, for a period of time based on external indices rather than a utility's cost-of-service. Other definitions include light-handed regulation which is less costly and less subject to debate and litigation. A form of rate regulation which provides utilities with better incentives to reduce their costs than does cost-of-service regulation.

**POOLCO** -- (SEE ALSO *Spot Price Pool and Independent System Operator*) Poolco refers to a specialized, centrally dispatched spot market power pool that functions as a short-term market. It establishes the short-term market clearing price and provides a system of long-term transmission compensation contracts. It is regulated to provide open access, comparable service and cost recovery. A poolco would make ancillary generation services, including load following, spinning reserve, backup power, and reactive power, available to all market participants on comparable terms. In addition, the Poolco provides settlement mechanisms when differences in contracted volumes exist between buyers and sellers of energy and capacity.

**Portfolio Management** -- The functions of resource planning and procurement under a traditional utility structure. Portfolio management can also be defined as the aggregation and management of a diverse portfolio of supply (and demand-reduction) resources which will act as a hedge against various risks that may affect specific resources (i.e., fuel price fluctuations and certainty of supply, common mode failures, operational reliability, changes in environmental regulations, and the risk of health, safety, and environmental damages that may occur as a result of operating some supply resources). Under a more market-driven power sector with a "power pool" or POOLCO wholesale market structure, a portfolio manager would: aggregate and manage a diverse portfolio of spot-market purchases, contracts-for-differences, futures contracts and other market-hedging-type contracts and mechanisms.

**Portfolio Requirements** -- Requirements on suppliers of electricity that set of generators from which they obtain supply meets certain standards. Typically refers to requirements that a minimum percentage or amount of supply be from renewable sources. Occasionally loosely applied to the more general concept of requirements or standards applying to supplier behavior.

**Power Authorities** Quasi-governmental agencies that perform all or some of the functions of a public utility.

**Power Pool** -- An entity established to coordinate short-term operations to maintain system stability and achieve least-cost dispatch. The dispatch provides backup supplies, short-term excess sales, reactive power support, and spinning reserve. Historically, some of these services were provided on an unpriced basis as part of the members' utility franchise obligations. Coordinating short-term operations includes the aggregation and firming of power from various generators, arranging exchanges between generators, and establishing (or enforcing) the rules of conduct for wholesale transactions. The pool may own, manage and/or operate the transmission lines ("wires") or be an independent entity that manages the transactions between entities. Often, the power pool is not meant to provide transmission access and pricing, or settlement mechanisms if differences between contracted volumes among buyers and sellers exist.

**Power Exchange (See also: Spot Price Pool)** -- A spot price pool that is governed and operated separately from the independent system operator (ISO). In a Power Exchange/ISO model, the spot price pool schedules generation and provides price bids to the ISO. The ISO may then use the sets of price bids provided by the Power Exchange to establish congestion prices, match actual demand to available supply, and facilitate the efficient short-term operation of the integrated generation and transmission system.

**Prepayment Meters** -- Prepayment meters are electric meters that allow the customer to pay a specified amount of money in advance of service to guarantee some level of minimum service while allowing low-income customers to keep within their budget. Such meters may be accompanied by a discount reflecting the lower level of service and reduced collection costs to the utility.



**Provider of Last Resort** -- A legal obligation (traditionally given to utilities) to provide service to a customer where competitors have decided they do not want that customer's business.

**Public Good** -- A good (or a service) that will not be produced and delivered if we rely solely on the free market. These are called "public goods" by economists because they are consumed by the public, and their use cannot be restricted to the benefit of a single buyer or group of buyers. Economists call this characteristic "non-excludability." There is no way to produce a public good without producing a value to society at large. This in turn makes it all the more unlikely that an individual would pay out of his own pocket to see that the good is produced.

**Public Interest Goals** -- Public interest goals of electric utility regulation include: 1) inter-and intra-class and intergenerational equity); 2) the equal treatment of equals (horizontal equity); 3) balancing long- and short-term goals that have the potential to affect intergenerational balance; 4) protecting against the abuse of monopoly power; and 5) general protection of the health and welfare of the citizens of the state, nation, and world. Environmental and other types of social costs are subsumed under the equity and health and welfare responsibilities.

**Public Utility** -- A utility operated by a non-profit governmental or quasi-governmental entity. Public utilities include municipal utilities, cooperatives, and power marketing authorities.

**Publicly Owned Utilities (POU)** -- Municipal utilities (utilities owned by branches of local government) and/or co-ops (utilities owned cooperatively by customers).

**PURPA** The Public Utility Regulatory Policy Act of 1978. Among other things, this federal legislation requires utilities to buy electric power from private "qualifying facilities," at an avoided cost rate. This avoided cost rate is equivalent to what it would have otherwise cost the utility to generate or purchase that power themselves. Utilities must further provide customers who choose to self-generate a reasonably priced back-up supply of electricity.

**PUHCA** -- The Public Utility Holding Company Act of 1935. This act prohibits acquisition of any wholesale or retail electric business through a holding company unless that business forms part of an integrated public utility system when combined with the utility's other electric business. The legislation also restricts ownership of an electric business by non-utility corporations.



**Qualifying Facility (QF)** Under PURPA, QFs were allowed to sell their electric output to the local utility at avoided cost rates. To become a QF, the independent power supplier had to produce electricity with a specified fuel type (cogeneration or renewables), and meet certain ownership, size, and efficiency criteria established by the Federal Energy Regulatory Commission.

**Real-Time Pricing** -- The instantaneous pricing of electricity based on the cost of the electricity available for use at the time the electricity is demanded by the customer.

**Regional Reliability Councils (RRC)** -- Regional organizations charged with maintaining system reliability even during abnormal bulk power conditions such as outages and unexpectedly high loads.

**Retail Service Company** -- A company that provides the ultimate consumer of electricity with end-use services such as power, energy efficiency services, metering and billing, on-site generation, and other unbundled services.

**Reliability** -- Electric system reliability has two components -- adequacy and security. Adequacy is the ability of the electric system to supply the aggregate electrical demand and energy requirements of the customers at all



times, taking into account scheduled and unscheduled outages of system facilities. Security is the ability of the electric system to withstand sudden disturbances such as electric short circuits or unanticipated loss of system facilities.

**Reliability Councils** -- Regional reliability councils were organized after the 1965 northeast blackout to coordinate reliability practices and avoid or minimize future outages. They are voluntary organizations of transmission-wiring utilities and in some cases power cooperatives, power marketers, and non-utility generators. Membership rules vary from region to region. They are coordinated through the North American Electric Reliability Council (NERC). There are nine major regional councils plus the Alaska Systems Coordinating Council.

**Renewable Resources** -- Renewable energy resources are naturally replenishable, but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Some (such as geothermal and biomass) may be stock-limited in that stocks are depleted by use, but on a time scale of decades, or perhaps centuries, they can probably be replenished. Renewable energy resources include: biomass, hydro, geothermal, solar and wind. In the future they could also include the use of ocean thermal, wave, and tidal action technologies. Utility renewable resource applications include bulk electricity generation, on-site electricity generation, distributed electricity generation, non-grid-connected generation, and demand-reduction (energy efficiency) technologies.

**Reregulation** -- The design and implementation of regulatory practices to be applied to the remaining regulated entities after restructuring of the vertically-integrated electric utility. The remaining regulated entities would be those that continue to exhibit characteristics of a natural monopoly, where imperfections in the market prevent the realization of more competitive results, and where, in light of other policy considerations, competitive results are unsatisfactory in one or more respects. Reregulation could employ the same or different regulatory practices as those used before restructuring.

**Research and Development (R&D)** -- Research is the discovery of fundamental new knowledge. Development is the application of new knowledge to develop a potential new service or product. Basic power sector R&D is most commonly funded and conducted through the Department of Energy (DOE), its associated government laboratories, university laboratories, the Electric Power Research Institute (EPRI), and private sector companies.

**Reserve Margin** -- Capacity over and above anticipated peak loads, maintained for the purpose of providing operational flexibility and for preserving system reliability.

**Resource Efficiency** -- The use of smaller amounts of physical resources to produce the same product or service. Resource efficiency involves a concern for the use of all physical resources and materials used in the production and use cycle, not just the energy input.

**Restructuring** -- The reconfiguration of the vertically-integrated electric utility. Restructuring usually refers to separation of the various utility functions into individually-operated and -owned entities.

**Retail Competition** a system under which more than one electric provider can sell to retail customers, and retail customers are allowed to buy from more than one provider. (See also Direct Access)

**Retail Market** -- A market in which electricity and other energy services are sold directly to the end-use customer.

**Retail Wheeling** -- *See Direct Access.*

**RD&D** -- Research, development and demonstration (see definitions above for "Research and Development" and "Demonstration").

**Rural Electric Cooperatives** -- These are electric cooperatives located in rural areas of the country and established and operating under rules established by congress.

**RTG** -- A Regional Transmission Group. A voluntary organization of transmission owners, users, and other entities interested in coordinating transmission planning, expansion, operation, and use on a regional and inter-regional basis. Such groups are subject to FERC approval.

**Rules of Conduct** -- Rules set in advance to delineate acceptable activities by participants, particularly participants with significant market power.



**Securitize** -- The aggregation of contracts for the purchase of the power output from various energy projects into one pool which then offers shares for sale in the investment market. This strategy diversifies project risks from what they would be if each project were financed individually, thereby reducing the cost of financing. Fannie Mae performs such a function in the home mortgage market.

**Self-Generation** -- A generation facility dedicated to serving a particular retail customer, usually located on the customer's premises. The facility may either be owned directly by the retail customer or owned by a third party with a contractual arrangement to provide electricity to meet some or all of the customer's load.

**Self-Service Wheeling** -- Primarily an accounting policy comparable to net-billing or running the meter backwards. An entity owns generation that produces excess electricity at one site, that is used at another site(s) owned by the same entity. It is given billing credit for the excess electricity (displacing retail electricity costs minus wheeling charges) on the bills for its other sites.

**Service Delimiter Adapters** -- This technology is designed especially for low-income customers to allow them to control the level of electric service they receive. For electric service, the adapter is inserted between the electric meter and the electric socket. It contains a circuit breaker which is tripped when the usage limit is exceeded. An external reset button allows the customer to restore service after cutting back on usage.

**Special Contracts** -- Any contract that provides a utility service under terms and conditions other than those listed in the utility's tariffs. For example, an electric utility may enter into an agreement with a large customer to provide electricity at a rate below the tariffed rate in order to prevent the customer from taking advantage of some other option that would result in the loss of the customer's load. This generally allows that customer to compete more effectively in their product market.

**Spot Markets** -- Any of a number of venues in which purchases and sales, as of electricity, are made by a large number of buyers and sellers, with new transactions being made continuously or at very frequent intervals. Typically, the phrase refers to a market in which the prices, amounts, duration and firmness of the purchases and sales is publicly known, at least shortly after the transaction is completed, if not simultaneously.

**Spot Price Pool (See also: POOLCO or Power Exchange)** -- A neutral and independent organization with no interest in generating facilities that provides an open access spot market for power. A spot price pool typically accepts hourly or half-hourly price bids no more than a day in advance. Suppliers are selected on the basis of economic dispatch taking into consideration price bids, congestion and other transmission costs. Transactions in the pool, as in any competitive market, are settled, at market clearing prices or the bid of the highest priced generator scheduled to deliver power in each time period and major area in the transmission system. Spot price pools, whether voluntary or mandatory, are designed to co-exist with and facilitate markets in bilateral contracts.

**Stable Prices** -- Prices that do not vary greatly over short time periods. Different customers value stability in different ways. Residential and small business customers typically prefer to have prices that do not vary more frequently than annually, or at most quarterly. Very large customers may find changing hourly spot prices to be "stable" enough for their uses.

**Standard Offer** -- Any one of a number of packages of bundled electricity, related services, and distribution services, provided by the former monopoly utility, during a transition period to competition in generation supply. Usually proposed for the stated purpose of giving "customers who choose not to choose" the option of remaining with their existing supplier of electricity.

**Strandable Benefit(s)** -- A benefit would be a stranded benefit if the industry were restructured without providing for the continued delivery of this public good or service.

**Stranded Benefits** -- Public interest programs and goals which could be compromised or abandoned by a restructured electric industry. These potential "stranded benefits" might include: environmental protection, fuel diversity, energy efficiency, low-income ratepayer assistance, and other types of socially beneficial programs.

**Stranded Costs/Stranded Assets** -- See Embedded Costs Exceeding Market Prices.

**Sunk Cost** In economics, a sunk cost is a cost that has already been incurred, and therefore cannot be avoided by any strategy going forward.

**Supply-Side Activities** conducted on the utility's side of the customer meter. Activities designed to supply electric power to customers, rather than meeting load through energy efficiency measures or on-site generation on the customer side of the meter.

**Sustained Orderly Development** -- A condition in which a growing and stable market is identified by orders that are placed on a reliable schedule. The orders increase in magnitude as previous deliveries and engineering and field experience lead to further reductions in costs. The reliability of these orders can be projected many years into the future, on the basis of long-term contracts, to minimize market risks and investor exposure. (See also "Commercialization.")

**SWRTA** -- The Southwest Regional Transmission Association. A subregional RTG within WRTA, and awaiting FERC approval.

**System Benefits Charge** -- Any of a number of nonbypassable charges imposed to collect funds to cover the above-market costs of providing public goods (system benefits) that otherwise would be stranded.

**System Integration (of new technologies)** -- The successful integration of a new technology into the electric utility system by analyzing the technology's system effects and resolving any negative impacts that might result from its broader use.



**Taking** -- Reducing the value of someone's property through government action without just compensation.

**Tariff** -- A document, approved by the responsible regulatory agency, listing the terms and conditions, including a schedule of prices, under which utility services will be provided.

**Time-of-Use (TOU) Rates** -- The pricing of electricity based on the estimated cost of electricity during a particular time block. Time-of-use rates are usually divided into three or four time blocks per twenty-four hour period (on-peak, mid-peak, off-peak and sometimes super off-peak) and by seasons of the year (summer and winter). Real-time pricing differs from TOU rates in that it is based on actual (as opposed to forecasted) prices which may fluctuate many times a day and are weather-sensitive, rather than varying with a fixed schedule.

**Transition Costs** -- See Embedded Costs Exceeding Market Prices.

**Transmission-Dependent Utility** A utility that relies on its neighboring utilities to transmit to it the power it buys from its suppliers. A utility without its own generation sources, dependent on another utility's transmission system to get its purchased power supplies.

**Transmitting Utility (Transco)** -- This is a regulated entity which owns, and may construct and maintain, wires used to transmit wholesale power. It may or may not handle the power dispatch and coordination functions. It is regulated to provide non-discriminatory connections, comparable service and cost recovery. According to EPAct, any electric utility, qualifying cogeneration facility, qualifying small power production facility, or Federal power marketing agency which owns or operates electric power transmission facilities which are used for the sale of electric energy at wholesale. (See also "Generation Dispatch & Control" and "Power Pool.")



**Unbundling** -- Disaggregating electric utility service into its basic components and offering each component separately for sale with separate rates for each component. For example, generation, transmission and distribution could be unbundled and offered as discrete services.

**Universal Service** -- Electric service sufficient for basic needs (an evolving bundle of basic services) available to virtually all members of the population regardless of income.

**Utility** -- A regulated entity which exhibits the characteristics of a natural monopoly. For the purposes of electric industry restructuring, "utility" refers to the regulated, vertically-integrated electric company. "Transmission utility" refers to the regulated owner/operator of the transmission system only. "Distribution utility" refers to the regulated owner/operator of the distribution system which serves retail customers.



**Value-driven Aggregator** -- An aggregator created to arrange supplies of electricity and related services from supplies in a manner consistent with a set of values, particularly including non-price criteria. The aggregator can be a co-op, a municipality administering a competitive franchise, or a community access entity.

**Variable Prices** -- Prices that vary frequently. Prices that are not stable. (See Stable Prices.)

**Vertical Integration** An arrangement whereby the same company owns all the different aspects of making, selling, and delivering a product or service. In the electric industry, it refers to the historically common arrangement whereby a utility would own its own generating plants, transmission system, and distribution lines to provide all aspects of electric service.

**Volumetric Wires Charge** A type of charge for using the transmission and/or distribution system that is based on the volume of electricity that is transmitted.



**VATSCO** -- The Western Association for Transmission System Coordination.

**Wheeling** -- The transmission of electricity by an entity that does not own or directly use the power it is

transmitting. Wholesale wheeling is used to indicate bulk transactions in the wholesale market, whereas retail wheeling allows power producers direct access to retail customers. This term is often used colloquially as meaning transmission.

**Wholesale Competition** A system whereby a distributor of power would have the option to buy its power from a variety of power producers, and the power producers would be able to compete to sell their power to a variety of distribution companies.

**Wholesale Power Market** – The purchase and sale of electricity from generators to resellers (who sell to retail customers) along with the ancillary services needed to maintain reliability and power quality at the transmission level.

**Wholesale Transmission Services** – The transmission of electric energy sold, or to be sold, at wholesale in interstate commerce (from EPAct).

**Wires Charge** A broad term which refers to charges levied on power suppliers or their customers for the use of the transmission or distribution wires.

**WRTA** – The Western Regional Transmission Association, an RTG.

**WSSCC** – The Western System Coordinating Council. A voluntary industry association created to enhance reliability among western utilities.

**WSSP** – The Western Systems Power Pool. A FERC approved industry institution that provides a forum for short-term trades in electric energy, capacity, exchanges and transmission services. The pool consists of approximately 50 members and serves 22 states, a Canadian province and 60 million people. The WSSP is headquarter in Phoenix, Arizona.



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### Why a glossary?

One of the difficulties with discussing restructuring the electric industry is that terms mean different things to different people. This results in poor communication and misunderstandings about the proposals being discussed. To avoid some of this confusion, the following glossary is provided to clarify what the Council means when it uses certain terms. The glossary from the NARUC publication "Affected with the Public Interest" was used as the base of this list. Supplemental material was taken from many sources, including the Public Utilities Commission of Ohio, and a report by the Texas Ratepayers' Organization to Save Energy, Inc. titled "Electric Utility Restructuring, Can the Small Consumer Afford It?"