The nation's electric and gas utilities face significant legislative, regulatory, and institutional barriers to cost-justified participation in conservation and renewable resource development activities. This paper examines the disincentives or prohibitions created by the Public Utility Holding Company Act of 1935; National Energy Conservation Policy Act of 1978; Energy Tax Act of 1978; Crude Oil Windfall Profit Tax Act of 1980; Public Utility Regulatory Policies Act of 1978. Also examined are the regulations promulgated by the Treasury Department, Securities and Exchange Commission, Internal Revenue Service, and Department of Energy in support of these laws.

Treatment of construction work in progress, regulation in a competitive environment, and allowed rates of return for high-risk ventures are also examined as institutional disincentives to utility involvement in conservation and renewable resource development.
INTRODUCTION

The Edison Electric Institute (EEI) is an association of the nation's investor-owned electric utilities. EEI member companies supply more than 77 percent of all electric power generated in the United States and serve more than three-fourths of all ultimate customers for electricity. As the representative of this segment of the energy industry, the Institute is keenly aware of the technical and policy aspects of implementing energy efficiency and renewable resource applications in buildings. We are particularly interested in examining the legislative and regulatory activities which may affect our ability to supply an adequate amount of electrical energy in a reliable, least-cost manner. This interest in these three concepts of reliability, cost, and adequacy are, on the bottom line, the criteria by which we are judged by our customers—the people who pay periodic electric service bills.

The Institute views the role of regulators and legislators as goal planners, facilitators, and guardians of the social and economic objectives of society, a concept which many find at odds with the perceived objectives of the electric industry. This, of course, is not so, because reliability, cost, and adequacy of electric power are inextricably a part of the economic and social goals of this nation. This is and should be the focal point for relationships between government and private industry, and we appreciate the opportunity to participate in this examination of barriers to full exploitation of the potential for wise and efficient energy use in buildings.

Gas and electric utilities play a central role in the nation's energy system. State regulatory authorities, working with the utility industry, make many of the decisions that affect the operating policies and priorities of utilities. National energy goals plainly affect decisions made by utility companies and by state utility commissions, and the effort to address some of these questions—in particular those involving ratemaking issues identified in the Public Utilities Regulatory Policies Act—is just now beginning.
One of the major challenges we face in energy policy today is an institutional or delivery problem. What methods and what institutions can most effectively accelerate the pace at which both individuals and organizations improve energy productivity, by taking concrete actions to increase (1) the efficiency with which current energy resources are used, and (2) the use of renewable sources of energy? Utilities represent one of several possible institutional mechanisms to accelerate energy productivity and they are a particularly promising one.

A cooperative effort should be undertaken in an effort to encourage utilities to examine a variety of approaches to meeting their customers' needs for energy services. In particular, utilities should be encouraged, as they plan ways to meet their future demands and invest their financial resources, to review all investment alternatives, including in particular investments in end-use energy efficiency, renewable resource technologies, and for electric utilities, load management and decentralized generation (e.g., cogeneration), to determine the most effective and economical combination of investments to serve customer needs.

In most utility service areas, these alternative investments can contribute directly to the national goal of reducing our dependence on imported oil and gas, as well as providing significant advantages in the more efficient use of domestic resources and in reduced environmental impacts.

The goal of national energy policy is to facilitate the transition from the era of cheap, abundant supplies of oil and natural gas to the era of diverse, energy-efficient resources, including renewable energy sources, and to achieve greater end-use efficiency in the use of energy. However, a number of the recent legislative initiatives designed to satisfy these goals, as well as existing regulatory policies, have also had the effect of either prohibiting or discouraging the participation of one important element of the energy delivery system, the electric utilities. This exclusion, or discrimination, is patently counterproductive to the expeditious realization of the nation's energy goals.
In the first place, it would be in the nation's best interest to use all existing institutions involved in the exploration, development, financing, production, and delivery of energy in the pursuit of our common national goals. The arbitrary exclusion of any element in either the existing or the potential energy supply system would have the effect of reducing resources that could help find solutions to the nation's energy problems. The electric utilities, in particular, can contribute much experience and expertise. Current legislative and regulatory disincentives must be removed to provide an equal, competitive business opportunity for utilities, thus encouraging the application of their talents and resources to the tasks at hand.

Second, many of the decentralized electrical energy technologies will require the need for backup power and/or markets for excess energy. The electric utilities can provide both capabilities and the systems and resources for more effective integration of both centralized and decentralized energy technologies.

Third, utilities have a unique knowledge of the energy consumption patterns of their customers and frequent contact with them. This knowledge and access should be utilized; consumers' confidence in the technical abilities of utilities, as well as their permanence, make them an ideal institution to promote the development of new technologies and conservation techniques.

Finally, arbitrary exclusion of any institution could have the effect of creating pressures to preserve those affected institutions, precluding the development of new means of energy production.

Therefore, it is in the public interest to remove legislative and regulatory barriers and disincentives to utility participation in any conservation, load management, or renewable resource technologies or markets. Most of this paper will deal with the identification of current legislation which urgently requires modification.
As we enter this new energy era, a subject that deserves far more study than has yet been undertaken is the broad area of regulation of franchised monopolies, specifically electric utilities. To the extent that competition becomes more prevalent, it may become an appropriate substitute for price regulation. Regulatory obstacles to ensuring a cost minimizing approach to the development of conservation, load management, and renewable resource technologies will also be discussed.

**LEGISLATIVE BARRIERS TO UTILITY PARTICIPATION**


Section 11(b) of the Public Utility Holding Company Act of 1935 restricts the activities of a registered holding company or subsidiary thereof to activities that are "reasonably incidental" or "economically necessary or appropriate" to the operation of the integrated public utility system. This limitation might be used, for example, to prevent a public utility from producing and selling medium-Btu gas produced from coal or similar synthetic fuels, if its primary business was to generate and sell electricity. However, as an incentive to the development of these synthetic fuels, a utility should be permitted to develop and market synthetic fuels with no restrictions as to use or ultimate customers. To restrict a utility's ability to market synthetic fuel beyond its own needs for generating fuels would reduce the economic viability of many combined synthetic fuel and cogeneration projects.

Section 11(b) of the Public Utility Holding Company Act may also be construed to prohibit a utility company from operating a business which would include the financing, installation, and maintenance of energy conservation or renewable resource equipment, such as thermal windows or solar panels. The Securities and Exchange Commission might conclude that such activities are not "reasonably incidental" or "economically necessary or appropriate" to the operation of an integrated public utility system. Such a restriction would prevent a utility from operating a business to provide the complete range of services necessary for financing, installation, operation, or maintenance of energy conservation or
renewable resource facilities. Legislation is needed to clarify that the participation of a utility in such a business would not violate the Holding Company Act. If a utility were permitted to participate in this sector of the energy business, and such a utility were able to offer products and services at a competitive price, the result would be an increased potential for energy conservation and renewable resource development in both residential and business sectors. To prohibit a utility from engaging in this business is to ignore the expertise that a utility can bring to this area. Technical expertise, financial resources, and business incentives are all required to maximize the potential of energy conservation and renewable resource development.

**National Energy Conservation Policy Act (42 U.S.C. 8201 et seq.)**

Under the National Energy Conservation Policy Act, public utilities are prohibited from supplying, financing, and/or installing end-use items related to residential energy conservation, such as solar panels, insulation, or thermal windows. This Act generally provides that no utility may (1) supply or install residential energy conservation measures, or (2) make a loan to any residential customer for the purchase or installation of any residential energy conservation measures. Certain exemptions for installation and financing are provided for furnace modifications, clock thermostats, and load management devices, and general "grandfather clause," exemptions are included where such actions were permitted by law at the time of the Act's passage. The Energy Security Act, signed on June 30, 1980, removed the prohibition on lending activities but did not completely remove the prohibition on installation activities.

Utilities are in a unique position to implement many conservation measures, due to their relationship with the residential customer, and it would be in the national interest for utilities to be authorized to enter this area of business.
An example of how the present law works might be illustrative. A homeowner desiring to reduce his energy costs by installing solar panels or thermal windows is required to make the original investment himself. Although he may receive certain tax benefits associated with such expenditures, as outlined later in this paper, the initial cash requirement may be a substantial deterrent to such an expenditure. This is especially true during inflationary times for most individuals and families. If the utilities were permitted to enter this business area, which could include the financing, installation, maintenance, and operation of such equipment, the needs of the homeowner would be met by a reduction in his energy costs, and the interests of the utility would be met by providing another avenue for business investments. Removing these impediments to such business investment would be in the interest of the homeowner, the business community, and the nation as a whole, in that it would encourage and expedite the actions required by individuals and businesses to conserve energy.

Energy Tax Act of 1978 (P.L. 95-618) and
Crude Oil Windfall Profit Tax Act of 1980 (P.L. 96-223)

The Energy Tax Act of 1978 provided a general exclusion from the Energy Tax Credit (ETC) for property which is owned or leased by a public utility. In the Crude Oil Windfall Profit Tax Act (Internal Revenue Code Section 48(l)(17)), property which would otherwise qualify for the additional ETC will not qualify if it is public utility property; such property includes solar, wind, biomass, recycling, and cogenerating equipment. Many of the kinds of property to which the public utility exclusion applies are directly related to the function of generating electricity; this exclusion is specifically applicable to cogeneration equipment as defined by the Crude Oil Windfall Profit Tax of 1980 (I.R.C. Sec. 48(1)(14)). Cogeneration facilities would provide for energy conservation by additional use of energy that would otherwise be wasted. Ownership of cogeneration facilities by utilities, as well as nonutilities, should be encouraged. Accordingly, if incentives are available for nonutility owners of cogeneration facilities, they should
also be extended to utilities. Since conservation by cogeneration can be substantial when applied to industrial uses, it is inconsistent with the national goal of encouraging energy conservation to exclude such utility-owned cogeneration facilities from the additional ETC.

The Energy Tax Act of 1978 provided for a residential energy tax credit for qualified energy conservation expenditures and qualified renewable energy source expenditures (I.R.C. Sec. 44C). However, this credit is available only to individual taxpayers. The thrust of this provision is to provide incentives to the residential homeowner or tenant to make either conservation expenditures (i.e., insulation, thermal windows, weatherstripping, cost-of-usage meters, devices modifying flue openings to increase efficiency, and furnace burner replacements to increase combustion efficiency) or renewable resource expenditures (i.e., residential installations related to solar, geothermal, or wind energy). If a utility were to make this same type of investment in a business facility, it should be entitled to the same tax benefits as the individual taxpayer. The potential for energy conservation in the business sector of the economy is substantial, and to ignore this potential is inconsistent with the national goal of energy conservation in all sectors of the economy.

Further, if a utility were permitted to lease to others, including businesses, the types of devices or equipment enumerated above, it should also be able to receive the tax benefits associated with such energy conservation and renewable resource expenditures. This option would encourage conservation where an individual homeowner, tenant, or business may not be able to furnish the original investment necessary for such an expenditure. This is a reality for many people, particularly in these inflationary times.

Title II of the Crude Oil Windfall Profit Tax Act specifically provides for tax incentives for the production of fuel. The principal incentive is an income tax credit for the production of alternate fuels sold to unrelated persons (I.R.C. Sec. 44D). Thus, a public utility could not take advantage of this incentive if the fuel were being produced for its own use in serving its customers. If a public utility
were to use a qualifying fuel for its own use in a cogeneration facility, it would not be eligible for the tax benefits outlined above. This is inconsistent with the principle of providing appropriate incentives to those businesses and individuals who redirect their resources toward alternate fuel use.

The Crude Oil Windfall Profit Tax Act also provided for a specific allocation of 15 percent of revenues that will be generated by the windfall profit tax to energy and transportation programs. No further allocation of such revenues has been made. Utilities should not be excluded from the benefits of those programs, which should be designed to achieve the goals of a national energy policy efficiently. Careful consideration should be given to the possible use of such funds to increase the ability of utilities to finance their contribution to national energy policy. Specifically, these funds could be used to assist utilities in financing the development of alternative energy sources or electric vehicle commercialization programs to assist in the reduction of oil-fired generation.

The duration of any tax incentives applicable to utility facilities or products must be for a sufficient number of years to allow for the time required to construct new facilities or enter new markets.


The regulations issued pursuant to Section 201 of the Public Utility Regulatory Policies Act (PURPA) of 1978 established if that a utility owns more than 50 percent of a cogeneration facility, that facility will not be a "qualified cogeneration facility" and is not eligible for the rates and exemptions outlined in the regulations issued under Section 210 of PURPA. The ETC available with respect to cogeneration property is not allowed for "public utility property." However, a utility cogeneration facility that is "qualified" under the PURPA regulations might not be considered "public utility property" as defined in Treasury Regulations, Section 1.46-3(g)(2), in that such property is not regulated in the traditional cost-of-service manner. Therefore, a public utility is able to take advantage of the ETC only if it owns 50 percent or less of
a cogeneration facility. Any restriction on utility ownership percentages acts as a disincentive for utilities interested in cogeneration and should be removed. Further, the tax benefits applicable to owners of "qualified cogeneration facilities" should be made available to utilities on an equal basis.

It is clear that the regulations issued pursuant to Section 210 of PURPA were intended to stimulate industrial firms to develop the market for cogeneration. For large industries, cogeneration may be a feasible option. However, small industries, for the most part, lack the capabilities, systems, and resources necessary for their own development of cogeneration potential. In the case of "energy park" complexes, wherein numerous small industries form an integral part of an overall cogeneration operation, the utility may offer the best option for project design, operation, and system integration. Smaller industries require expertise and financial resources available through utilities to develop cogeneration projects. Thus, the tax benefits available to owners of "qualified cogeneration facilities" should be available to utilities without regard to the relative magnitudes of their ownership in such facilities, to ensure that the potential for cogeneration is realized by as wide a spectrum of the market as possible. To prevent utilities from assisting small industries in utilizing our scarce energy resources more efficiently would be to prevent the nation from reaping the full advantages of decentralized energy systems.

PURPA also specifies that sales of electricity by a qualified cogenerator to a utility are to be priced at the "avoided cost," as opposed to the traditional cost-of-service price. The avoided cost essentially represents the total of all costs foregone by virtue of the pertinent cogeneration energy's displacing energy which would otherwise have been produced by a utility-owned generating facility. Given both the effect of rising costs associated with new generating plant construction and the economic dispatch of utility generating facilities on the basis of plant running costs, the avoided costs will almost always be substantially greater than the embedded costs that form the basis for traditional cost-of-service pricing.
Under the regulations promulgated pursuant to Section 210 of PURPA, a qualified cogenerator would be paid the relatively high avoided cost for each unit of electricity purchased by a utility, while at the same time the utility would price electricity sold to that cogenerator, acting as a utility customer, on the basis of the relatively low embedded cost. In selling electricity to that cogenerator at a price less than the price paid to the cogenerator for electricity generated at a qualified facility, the utility would, of necessity, be forced to recover the loss through transactions from all customers. Thus, a "subsidy" will flow from utility customers as a whole to qualified cogenerators. Such incentives toward cogeneration should be avoided. Further, utilities should be allowed to price all energy generated by utility-owned cogeneration facilities which flows into their transmission grids at the avoided cost to recognize the greater risk associated with cogeneration-produced power.

REGULATORY RESTRAINTS

Treatment of Construction Work in Progress for Alt. Energy Development

There is no uniform policy among regulatory jurisdictions as to the rates applied to construction work in progress (CWIP). Essentially, two treatments of CWIP exist. First, CWIP may be included in a utility's rate base, upon which the utility is allowed the opportunity to earn a return equal to its investment. Alternatively, an allowance for funds used during construction (AFUDC) may be accrued by the utility throughout construction. AFUDC is a noncash form of earnings, which upon completion of construction is included in the utility's rate base along with the construction cost of the newly constructed utility facilities. Thus, when CWIP is included in a utility's rate base the utility earns during construction actual cash returns on the capital used to finance that construction. Conversely, when AFUDC is accrued, cash returns are deferred to the point at which the plant is serving the public, and a noncash return is accrued instead during the period of construction.
From the standpoint of the financial markets, potential investors prefer current cash earnings to current noncash earnings that are deferred to a later point in time. Utilities that are not permitted to include CWIP in the rate base are placed at a significant disadvantage with respect to other utilities and nonutilities in their ability to attract investment and thus maintain their capital requirements. When considered along with the dual effects of the tremendously eroding impact on earnings of inflation and regulatory lag, regulatory policies that do not permit the inclusion of CWIP in utility rate bases create a severe competitive disadvantage for affected utilities and erode their positions in the capital markets. If alternative technologies are to begin making significant contributions to the nation's energy needs, limitations on financing must be reduced as much as possible. A uniform, nationwide acknowledgement that CWIP should be allowed in the rate base—at least for construction pertaining to conservation, load management, and alternative energy source development—would materially improve the ability of utilities to respond to those needs.

Regulation in a Competitive Environment

The rationale for regulating electric utilities is that such firms are "natural monopolies," due to the fact that one supplier of electric service in a given geographic area may serve the entire public more efficiently than several suppliers. Regulation of prices charged by electric utilities is intended to act as substitute for competition. Yet, in many instances, utility involvement in alternative energy source development and conservation does not carry with it the natural monopoly element. Utilities that actively pursue the development of solar energy in their markets will be competing with solar equipment suppliers and installers whose primary business activity is in that area. Thus, a free competitive market may well exist in the development of many decentralized energy technologies, of which solar is but one example. The by-products of many cogeneration arrangements may well be subject to a competitive environment. Retrofitting existing structures to achieve a higher degree of efficiency in energy use represents a potential business opportunity for a number of industries and institutions, including electric utilities. Indeed, the very nature of an energy service
company organized to meet the overall energy needs of its customers, as distinguished from their electric energy needs only, dictates that it operate, in part, in a competitive market.

Therefore, compelling reasons exist for reexamining the need for price regulation of a utility operating in a competitive market environment. That portion of a utility’s business which, of necessity, operates in competition with unregulated firms should itself be unregulated. Earnings derived from a utility’s operations in a competitive market should not be considered in setting the rates and tariffs charged within the more traditional, regulated segment of its operations.

If utilities are allowed to compete in a free market, the goal of public policy should be to ensure that treatment is equitable, compared with other companies that have access to that market.

Rates of Return Appropriate for High-Risk Ventures

If utilities are not allowed to operate in competitive markets without regulation, regulators must at least recognize that utilities providing service in such areas as alternative energy source development and conservation will be subject to greater risks and will require greater returns on invested capital to compensate for such risks. Since the development of alternative energy sources and conservation requires that a firm operate in a competitive market, the greater risk of competition must be met with higher allowed returns on capital invested in these markets to stimulate such investment.

Higher allowed returns should be considered in circumstances in which utilities entering the conservation market may realize some degree of earnings erosion as a result of their stimulation of conservation. For example, utilities that install energy-conserving equipment in customers’ structures will realize immediate and sustainable energy sales reductions. The full amount of cost savings attributable to conservation will not be realized by a utility, however, until additions to generating capacity can be deferred. A near-term erosion of earnings will result. Utilities should be compensated for such erosion by being permitted rates of return that act as an incentive to enter the market for
CONCLUSION

As discussed above, legislation and regulations that prevent or discourage a utility from directing its expertise towards and investing its capital in, energy conservation and renewable resource facilities are not consistent with our national energy goals and tend only to delay the development of an economy that is not overly dependent on scarce resources for its energy needs. Preventing a utility from providing a more complete package of energy services to the customer only tends further to inhibit the development of the country's energy conservation and renewable resource potential.