Potential Fiscal Impact of Electric Utility Deregulation on Florida's Public Education Capital Outlay (PECO) Program

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Executive Summary

The purpose of the report

The electric utility industry in the United States has shown signs of transforming itself from a regulated natural monopoly to a competitive industry. Competition is already present at the wholesale level within the industry as a result of the Public Utility Regulatory Policy Act of 1978 (PURPA) and the National Energy Policy Act of 1992 (EPA), and some states are now gradually moving towards legislation or regulation that would allow competition at the retail level. Nineteen states have already moved to implement competition by either enacting the necessary laws or endorsing restructuring.[1] Restructuring requires legislators to examine a wide array of policy issues, including the effect such a sweeping structural change may have on tax revenues.

In Florida, the largest state tax source that will be affected by changes in the electricity industry is the gross receipts tax which supports the state's Public Education Capital Outlay (PECO) program. Currently, a tax of 2.5% is imposed on the gross receipts of firms providing electricity, gas and telecommunications services (including utilities operated by governmental entities) and cogenerated electrical power transmission. Gross receipts tax collections are earmarked for expenditure for capital outlay funding for public schools, community colleges and state universities. A portion of the receipts is directly spent to fund these capital outlays, but the vast majority is used to support the issuance of bonds for educational capital outlay (PECO bonds).

Gross receipts tax collections for FY 1998-99 are expected to total $ 620.6 million,[2] of which 50.6% will be collected from electric utilities. Public Education Capital Outlay appropriations for 1998-99 total $627.3 million, $179.4 million from collections and $447.9 from bonds.

The primary purpose of this report is to examine the extent to which gross receipts tax revenues would be affected by future statutory and regulatory changes that would bring about competition at either the wholesale or retail level (or both) among electric utilities. These changes are then followed through the PECO borrowing program to determine the likely impact on the availability of resources for education capital outlay.

Secondarily, this report considers the potential effect of electricity deregulation on sales tax collections. The state's 6.0% sales tax is levied against non-residential electricity sales. Of the state's estimated $13.9 billion sales tax revenues in 1998-99, approximately

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[1]California, Connecticut, Illinois, Maine, Massachusetts, Montana, Nevada, New Hampshire, Oklahoma, Pennsylvania, Rhode Island, and Virginia have enacted restructuring legislation while Arizona, Maryland, Michigan, and New York have issued comprehensive regulatory rules. Arkansas, New Jersey and Vermont have endorsed restructuring in some form.

[2]Revenue Estimating Conference, November 11, 1998.

$250 million (1.8%) is expected to be collected from sales of electricity to non-residential customers. These funds are deposited in the general revenue fund and are not used for borrowing.

Dimensions of the deregulation issue

The market for electricity has historically been considered a *natural monopoly*; that is, a business that is only economically feasible if there is just one provider in a market area. A natural monopoly occurs when the amount of plant and equipment necessary to enter a business is so large that production can only profitably take place on a very large scale. Electricity has historically been the textbook case of a natural monopoly because of its dependence on enormous generating facilities and a vast transmission and distribution network. In the past, it has been taken for granted that it would be infeasible to have competing power providers in part because providers are vertically integrated--they generate and deliver electricity--and unbundling these services was not considered. However, it is possible to separate the activities of the industry into three distinct functions:

1. generation, the actual production of electricity;

2. transmission, the transportation of electricity (at high voltage levels) between generating plants and distribution sites through a nationwide grid of large volume lines; and

3. distribution, the delivery of electricity to retail customers in a usable (low voltage) form.

The transmission and distribution functions are likely to continue to be natural monopolies since it is clearly impractical to set up competing facilities within a single geographic area. Discussions of electricity competition (and deregulation) do not extend to these aspects of the business. Transmission and distribution will be regulated natural monopolies for the foreseeable future. Generation, on the other hand, is not a natural monopoly because the existence of a nationwide transmission system allows power generators to deliver their product beyond their local markets, thus setting up the conditions for competition. Also, changes in technology have resulted in significant reductions in cost per kilowatt-hour and significant increases in fuel efficiency. The lower capital cost and higher efficiency has in some cases, made it economically feasible for large consumers to install and operate their own generation. Recent changes in federal law have also opened the door for non-utility generators to compete in wholesale, and in some states, retail markets. Essentially, distribution systems, or consumers directly, could purchase power from a variety of sources for delivery over the regulated transmission and distribution system.[3]

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[3]Electricity providers in Florida (and other states) already purchase power from each other (and from providers in other states) for resale in their own service areas to meet seasonal or peak load demands.

Thus, the discussion of competition and deregulation is limited to the generation aspect of the electricity industry and does not envision deregulation of transmission or distribution services.

Effects of competition

The expected impact of competition in electric power generation is a general lowering of prices (although there will probably be differences in the extent to which prices are lowered for consumers of various sizes). Lower prices will reduce the amount of gross receipts of electric utility firms, the tax base for the gross receipts tax, and reduce the dollar volume of sales of electricity to non-residential customers, the tax base for this portion of the sales tax. Three factors will largely determine the magnitude of these impacts:

1. the extent of competition among producers;

2. the extent of any offsetting increase in consumption in response to the reduction in prices; and

3. the extent of any allowance made for stranded costs.

As in any competitive environment, the more producers in a market, the greater the downward pressure on prices. Because of Florida's geographic isolation, the competing power producers will principally consist of the state's existing power generators. Some competition from Georgia and Alabama producers is possible, particularly in the northern part of the state, but the cost of transmission will offset their competitiveness in south Florida.

Also affecting the extent of competition will be the price of electricity in other states, especially those along Florida's border. Florida's average cost per kilowatt-hour is high by regional standards (see Table 1-3 in Chapter 1), approximately 13% higher compared to Georgia's and 35% higher than Alabama's. The disparity is even wider with respect to slightly more distant states such as Kentucky. This disparity in average rates suggests the potential for successful competition with local power producers in Florida and the possibility of significant price reductions for Floridians.

Offsetting the potential future impact of competition is the fact that Florida's existing power producers have begun to lower prices for their largest current customers in exchange for entering into long-term supply contracts. Thus, existing Florida firms are already effectively lowering electricity prices in anticipation of having to make the transition to a competitive environment. These actions are already lowering gross receipts tax collections and thereby mitigating the future impacts of competition.

Also mitigating the impact of a price reduction on electric utility gross receipts and on the total value of electricity sales, is the impact of lower prices on consumption. With respect to normal goods, a reduction in price typically brings about an increase in the quantity of the product purchased. Thus, a reduction in prices due to competition may reduce individual conservation efforts as the principal motivation for so doing is reduced. Large quantity consumers (those who are likely to experience the largest percentage price decrease) are probably the most sensitive to price reductions. Household consumers, whose bills are typically much smaller, are not as likely to increase their consumption in response to a price decrease of the magnitude likely as a result of deregulation. Current literature suggests that a price decrease of 10% would bring about an overall increase in consumption of only 1.5%.[4]

Finally, the impact of competition on prices (and tax collections) will probably be mitigated by an allowance made for *stranded costs*. Stranded costs refer to existing investments in plant and equipment, which would not be able to produce power at the deregulated market price and which, has not yet fully depreciated. Cost recovery calculations were originally made with the anticipation of continued (higher) regulated rates. A precipitous switch to competition would affect the financial stability of some of Florida's electric companies (and municipalities, in the case of municipal power companies). In other states, the allowance for stranded costs amounts to a surcharge on electric bills that lasts for approximately a decade. The effect of this allowance is to prop up prices during the period it is in force, and along with prices, tax receipts. A discussion of the stranded cost issue is found in Chapter 1.

Impact on state taxation

Since neither the extent of the price reduction nor the magnitude of the mitigating effects attributable to deregulation can be known in advance with any precision, assumptions were made to generate an array of possible outcomes. The following assumptions were used to generate the estimates presented below:

1. Competition would not take effect until FY 2001-02 to permit a sufficient transition period.[5]

2. Stranded cost recovery would take place on a declining basis over a 10-year period. Three different amounts of stranded costs were modeled: high, $5.8 billion; medium, $1.8 billion; and low, no stranded costs.

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[4]US Department of Energy, Energy Information Administration, "Electricity Prices in a Competitive Environment", August 1997.

[5]According to an analysis prepared by the Florida Public Service Commission in response to legislation proposed during the 1998 session (SB 1888) a five-year transition period would be necessary. A slightly less generous three-year transition period was assumed in EDR's calculations.

3. There would be no offsetting increase in consumption in response to the price reduction (the worst case scenario from the standpoint of state revenues).

4. Three price reductions were simulated: 10.5%, 8.5% and 6.5%.

The tables below show the results of these calculations. The first two tables pertain to the gross receipts tax and available resources from the PECO program (i.e., the maximum possible appropriations). The third table pertains to the sales tax. The top line of each of the three tables shows the baseline forecast; that is, amount of money expected during each year of the forecast ***under the current regulatory environment***. The lines that follow show the dollar amount of difference from the baseline; i.e., the anticipated loss of revenue.

Estimated Effect of Electric Industry Deregulation on Gross Receipts Taxes

($millions)

Electric Share of 11/98 REC Gross Receipts revenue forecast	**FY 00-01**	**FY 01-02**	**FY 02-03**	**FY 03-04**	**FY 04-05**	**FY 05-06**	**FY 06-07**	**FY 07-08**	**FY 08-09**	**FY 09-10**
	330.6	341.5	352.0	363.3	374.2	385.8	397.0	408.9	421.2	433.8

SCENARIO		CHANGE FROM BASELINE									
Price Change	Stranded Costs										
-6.5%	*None*	0.0	-25.4	-27.8	-28.9	-29.9	-31.0	-32.0	-33.0	-34.1	-35.3
	Moderate	0.0	-18.7	-20.4	-20.8	-24.1	-24.6	-25.1	-29.3	-30.0	-30.8
	High	0.0	-1.8	-2.0	-.08	-9.5	-8.8	-7.8	-19.8	-19.7	-19.6
-8.5%	*None*	0.0	-32.5	-35.1	-36.5	-37.8	-39.2	-40.4	-41.7	-43.1	-44.6
	Moderate	0.0	-25.7	-27.7	-28.4	-31.9	-32.8	-33.5	-38.0	-39.0	-40.1
	High	0.0	-8.9	-9.3	-8.4	-17.4	-16.9	-16.2	-28.5	-28.7	-28.9
-10.5%	*None*	0.0	-39.6	-42.4	-44.0	-45.6	-47.3	-48.9	-50.4	-52.1	-53.9
	Moderate	0.0	-32.8	-35.0	-36.0	-39.8	-41.0	-41.9	-46.6	-48.0	-49.4
	High	0.0	-15.9	-16.6	-15.9	-25.2	-25.1	-24.6	-37.2	-37.7	-38.1

Source: Office of Economic and Demographic Research, Florida Legislature

Estimated Effect of Electric Industry Deregulation on PECO Program
($ millions)

Baseline Forecast (11/98 REC)	**FY 00-01**	**FY 01-02**	**FY 02-03**	**FY 03-04**	**FY 04-05**	**FY 05-06**	**FY 06-07**	**FY 07-08**	**FY 08-09**	**FY 09-10**
	462.4	504.5	514.0	540.0	554.1	579.4	599.6	621.7	643.3	707.3

SCENARIO		CHANGE FROM BASELINE									
Price Change	Stranded Costs										
-6.5%	*None*	0.0	-62.8	-191.2	-158.8	-30.3	-21.5	-19.9	-19.5	-19.1	-20.2
	Moderate	0.0	-45.4	-141.0	-116.4	-25.5	-30.9	-25.3	-20.5	-37.3	-32.8
	High	0.0	-2.0	-15.6	-10.7	-13.4	-54.5	-38.8	-23.1	-82.6	-64.4
-8.5%	*None*	0.0	-80.8	-242.6	-199.4	-37.1	-27.0	-25.1	-24.6	-24.2	-26.5
	Moderate	0.0	-63.5	-192.4	-157.0	-32.1	-36.5	-30.6	-25.7	-42.3	-38.2
	High	0.0	-20.1	-67.1	-51.2	-20.0	-60.1	-44.1	-28.2	-87.6	-69.7
-10.5%	*None*	0.0	-99.0	-294.1	-239.8	-43.7	-32.7	-30.4	-29.7	-29.2	-30.9
	Moderate	0.0	-81.5	-243.9	-197.5	-38.9	-42.1	-35.8	-30.8	-47.4	-43.3
	High	0.0	-38.1	-118.5	-91.7	-26.7	-65.7	-49.2	-33.5	-92.7	-74.9

Source: Office of Economic and Demographic Research, Florida Legislature

Estimated Effect of Electric Industry Deregulation on Sales Taxes
($ millions)

Baseline Sales Tax Collections from Electricity (2/98 REC)	**FY 00-01**	**FY 01-02**	**FY 02-03**	**FY 03-04**	**FY 04-05**	**FY 05-06**	**FY 06-07**	**FY 07-08**	**FY 08-09**	**FY 09-10**
	273.7	283.2	293.9	305.1	315.3	327.3	336.6	347.8	359.4	371.4

SCENARIO		CHANGE FROM BASELINE									
Price Change	Stranded Costs										
-6.5%	*None*	0.0	-20.1	-22.0	-22.9	-23.7	-24.6	-25.3	-26.1	-27.0	-28.0
	Moderate	0.0	-14.8	-16.2	-16.5	-19.1	-19.5	-19.9	-23.2	-23.8	-24.4
	High	0.0	-1.4	-1.6	-0.6	-7.5	-6.9	-6.1	-15.7	-15.6	-15.5
-8.5%	*None*	0.0	-25.7	-27.8	-28.9	-29.9	-31.0	-32.0	-33.0	-34.1	-35.3
	Moderate	0.0	-20.4	-22.0	-22.5	-25.3	-26.0	-26.5	-30.1	-30.9	-31.7
	High	0.0	-7.0	-7.4	-6.6	-13.7	-13.4	-12.8	-22.6	-22.7	-22.9
-10.5%	*None*	0.0	-31.4	-33.6	-34.8	-36.1	-37.5	-38.7	-39.9	-41.3	-42.7
	Moderate	0.0	-26.0	-27.8	-28.5	-31.5	-32.4	-33.2	-36.9	-38.0	-39.1
	High	0.0	-12.6	-13.2	-12.6	-20.0	-19.8	-19.5	-29.5	-29.9	-30.2

Source: Office of Economic and Demographic Research, Florida Legislature

With respect to the PECO program the pattern of losses is initially quite high, peaking during the second and third years, and then declining significantly, because the amount of borrowing permitted during any year is tied to a 24 month moving average of tax receipts. Therefore, the impact of a tax reduction would not be fully felt until two years had passed. The impact falls dramatically in the fourth year because borrowing is based on the *change* in revenues each year and after the third year (when the impact of the tax reduction is fully absorbed into the 24 month moving average) further changes in the 24 month average of tax receipts are relatively small.

Under nearly any scenario, the dollar amount of loss from PECO appropriations capacity, after the third year, is small enough (in the $35 million range in the moderate scenario) to be absorbed from other sources such as the normal amount of non-recurring revenue that is available from unspent appropriations from the previous year. The second and third year losses ($192 million and $157 million, respectively) would be consequential but might well be manageable through a transitional surtax for a two-year period.

Despite the potential loss of future revenues relative to the current baseline forecast, it should be borne in mind that PECO funds continue to grow, albeit at a slower rate, during the forecast period. Total funds available for PECO appropriation for the ten years beginning in 2000-01, under the middle scenario (an 8.5% price reduction in electricity and a moderate allowance for stranded costs) are projected to be:

2000-01	$462.4 million	2005-06	$542.9 million
2001-02	$441.0 million	2006-07	$569.0 million
2002-03	$321.6 million	2007-08	$596.0 million
2003-04	$383.0 million	2008-09	$601.0 million
2004-05	$522.0 million	2009-10	$669.1 million

These projections of funds available for appropriation have been made under the assumption of continuation of a debt service coverage ratio of at least 1.11 throughout the forecast period. Given the continuation of existing coverage, as well as the general obligation commitment carried by these bonds, bondholders should have no reason to be alarmed should the Legislature wish to consider a move toward competition.

Moreover, the entire gross receipts tax loss, and consequent loss of PECO borrowing capacity, can be avoided through a statutory change that would shift the base of the tax from the gross receipts of electric utilities to a tax on electricity distribution services. Although this change would require an adjustment in the tax rates, the tax base would narrow (from total receipts to receipts attributable to electricity distribution) so consumers would experience no tax increase . Nor would the change discourage energy conservation efforts; consumers who used less electricity would pay less gross receipts tax. Shifting the tax to distribution rather than generation would also make Florida's electricity generators slightly more competitive in sales to other states by making their product exempt from (Florida) state taxation. Therefore, the fiscal consequence of deregulation, at least as concerns PECO, can be avoided by a relatively simple legislative action ***that would not constitute a tax increase***. In consequence, there need be no reduction in the PECO program as a result of deregulation.

With respect to the sales tax, a reduction in tax receipts is unavoidable, but relatively small in the context of the $18 billion general revenue fund. As can be seen in the third table, tax losses in the middle scenario (an 8.5% price reduction in electricity and a moderate allowance for stranded costs) are in the $20-$30 million range throughout the forecast period. All of the benefit of this tax reduction would be experienced by non-residential power consumers since residential use of electricity is exempt from sales taxation. Therefore, non-residential (i.e., commercial, industrial and institutional) electricity customers would receive a reduction in electricity rates because of deregulation and would additionally receive a reduction in taxation of $20-$30 million annually.

Unlike the case of the gross receipts tax, there is no obvious way to neutralize the sales tax consequences of competition in the electricity industry, however, the impact is so small relative to the size of general revenue fund (the destination of approximately 90% of all sales tax revenues) that it will be scarcely distinguishable from the routine "noise" in receipts.

Conclusions

The potential impact of competition in the electricity industry has been a source of considerable concern for those responsible for funding the capital outlays of Florida's public schools, community colleges and universities. However, it is clear from the analysis presented in this report that the probable fiscal consequences are minor and can, in fact, be entirely avoided. Therefore, although there may be numerous other legitimate policy concerns attendant to competition and deregulation, the fiscal consequences for state government need not be among them.

Chapter

1

The Electric Utility Industry

Electric Utilities: A Regulated Industry

Regulated industries are so called because they are subject to both price and entry regulation. Regulation is considered necessary because of the natural monopoly nature of the industry. A natural monopoly occurs when any feasible level of demand can be met at a lower cost by a single firm than by two or more firms. In such a case, only one firm is able to operate at minimum efficient scale[6]. Large fixed costs associated with setting up production imply efficient production only at a very large quantity of output. Unregulated natural monopolies provide a clear opportunity for the exploitation of monopoly power, especially if the demand for the product (electric power) is relatively invariant with price. The firm can set high prices and make abnormally high profits. In any other industry, such profits would eventually be driven down by the entry of new firms. This would not occur with a natural monopoly because the large minimum efficient scale constitutes a barrier to entry.

The task facing regulators of electric utilities (or any other natural monopoly) is that of deciding on a price of electricity which allows the companies to earn fair rates of return on their large investments and at the same time does not impose an unfair burden on consumers. An unregulated firm can set prices in different ways depending on the structure of the industry. In a competitive industry, price is simply set to the additional cost of production of a unit of product. A monopolist sets prices such that the additional revenue gained from selling a unit of the product is equal to the additional cost incurred in producing it (marginal revenue is equal to marginal cost[7]). With a natural monopoly, it is usually the case that average cost of production exceeds the additional cost of producing a unit (marginal cost) because of large fixed costs necessary for production. Marginal cost pricing implies losses for a natural monopolist firm[8]. A second best solution is to allow the firm to recover costs (including a normal rate of return on capital) and price at average cost[9]. This is called rate of return regulation and is the most commonly used form of utility regulation in the US.

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[6] Minimum efficient scale is the level of production at which the average cost of a firm is at its lowest.
[7] The monopolist thus charges a price greater than marginal cost. The difference between marginal revenue and marginal cost is the monopoly rent.
[8] A formal discussion of pricing under different market structures can be found in appendix B.
[9] One of the driving forces behind restructuring is that average cost of electricity is lower for the newer gas fired power generators compared to existing generators.

Rate of return regulation is also referred to as cost-of-service regulation since it allows companies to pass through necessary costs as determined by the regulators. Specifically, the regulated utility is allowed to set prices so as to recover legitimate expenses and earn a reasonable rate of return on a portion of its assets. This is referred to as the rate base, and includes most assets[10]. A problem with this approach is that since earnings are a function of the size of the rate base, there is a clear incentive to maximize the value of these assets. Firms have an incentive to substitute capital for labor and adopt an inefficient capital-labor ratio, which raises the firm's average costs. While this behavior[11] is possible, there is no clear evidence that that it goes on to such an extent as to preclude rate of return regulation. The rate of return regulation approach also has the significant merit of allowing representation of the public in matters regarding price setting, rates of return, and investment so that utilities do not restrain output and realize monopoly profits.

Electric utilities usually charge different prices to different types of consumers. The market is segmented into residential, industrial, and commercial users. The three segments are distinct from one another because of different usage characteristics that affect cost of service. Utilities also practice what is known as peak load pricing which involves charging different prices based on time of day. Users are charged higher rates during heavy demand times than at times of light use. The marginal cost of providing electricity is higher during heavy demand periods because of congestion problems as production approaches capacity. Peak load pricing allows more efficient use of scarce resources but is not all that prevalent.

Evolution of the Electric Utility Industry

The electric utilities began to form as a monopoly franchise system in the early part of the twentieth century. In exchange for exclusive franchise rights, utilities were placed under an obligation to meet the needs of all customers within a defined geographical area. Regulatory oversight was gradually shifted to the state level (public service commissions) and became the standard in most states. PUHCA and EPA[12], enacted at the federal level, governed the increasingly important interstate trade in electricity as isolated utilities became progressively more interconnected. This state of affairs continued until the seventies with the industry enjoying steady expansion, financial stability and falling prices. The energy crisis of 1973-74 changed the stable nature of the industry. Volatile energy prices, high interest rates, a declining manufacturing base, all contributed to lower growth in demand for power. The old practice of concentrating new generating capacity in a small number of plants with long lead times became inappropriate under such demand conditions since economies of scale of building larger plants was no longer declining as plant size increased.

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[10] The cost of service for utilities can be broken down into four components: operation and maintenance, depreciation, cost of capital and taxes.
[11] This behavior is referred to as the Averch-Johnson effect.
[12] Public Utility Holding Company Act of 1935 and the Federal Power Act of 1992.

In response to the rising production costs, smaller decentralized sources of electric energy emerged, based on shorter lead times, modular construction, and simpler technology. Examples of such technologies include hydropower, and cogeneration. The problem with this new trend was that the vertically integrated monopoly structure of the market effectively prevented entry. Utilities were unwilling to buy electric power from the smaller companies and thus set the stage for regulatory reform. This reform was instituted in the form of a minor provision of PURPA[13] in 1978. The main intent of PURPA was to promote energy conservation and reduction of oil imports. In line with these objectives, Section 210 of the act mandated the purchase of electricity from certain cogeneration and small power production facilities at a rate based on the utilities' avoided costs of generating the power themselves. This provision effectively opened up the utility industry to limited competition in wholesale bulk power markets. Also, some large customers started self-service generation to reduce their dependence on retail purchases from utilities.

Progressive refinements in existing technologies and industry practices spurred by open competition allowed alternative power producers to offer more economically efficient and environmentally attractive supplies. During this period, development of advanced gas turbine technology with steam recovery boilers (combined cycle units) resulted in smaller sized units, lower capital cost, and higher fuel efficiency. Given the low cost of natural gas, the new technology became cost competitive with conventional technologies such as coal and oil. Currently, industry sources[14] estimate that independent power producers have built about 10% of US generation capacity using such new technologies.

The Energy Policy Act (EPA) of 1992 evolved out of a desire to develop a national energy policy that would involve all fuel sources, reduce dependence on oil imports, and fully utilize domestic natural gas reserves. EPA contains two specific provisions which aids restructuring of the utilities and promotes competition at the wholesale level. First, EPA allowed the creation of exempt wholesale generators (EWG). Single corporations, (including those not previously engaged in power transactions as well as investor-owned utilities) could own generation facilities that sell power in wholesale markets while remaining exempt from the definition of an electric utility under PUHCA or qualifying facility (QF) under PURPA. EPA authorizes FERC[15] to require the owner of transmission facilities to carry electricity over its transmission lines from an EWG to wholesale customers. All transmission owning investor owned utilities were required to provide nondiscriminatory access to transmission facilities at the same price they would charge themselves. Under the Federal Power Act and EPA, FERC does not have the authority to mandate retail competition. Each state could determine the level of retail competition within its borders. States that want to implement retail competition will need to pass appropriate legislation.

[13] Public Utilities Regulatory Policy Act.
[14] Niagara Mohawk Power Corporation, "The Impacts of Emerging Competition in the Electric Utility Industry", April 7, 1994.
[15] Federal Energy Regulatory Commission

EPA also amended PURPA to the extent of encouraging utilities to use integrated resource planning and by requiring states to consider ratemaking reforms dealing with demand-side management and energy efficient power generators. FERC has also encouraged the formation of regional transmission groups, which would facilitate open access wholesale transmission of power. The intention is that that these groups would establish prices and terms and conditions for access to the existing regional transmission grid and eventually interconnect to form a national electricity transmission grid. Utilities will need to compete for customers and strive for superior customer service while pricing competitively and creating shareholder wealth. A growing response of the utilities to EPA under these circumstances appears to be divestiture of generation facilities and a degree of consolidation through mergers and acquisitions.

Organizational and Physical Structure of Electric Utilities

Utilities have been in existence since the latter part of the 19th century and are organized as one of the following types of entities:

Investor-owned companies: These are taxable companies owned by shareholders and regulated on a cost-of-service basis by a government authority such as the Florida Public Service Commission. Florida Power & Light Company (FPL) is an example of such a utility.

Municipal Utilities: These are publicly owned utilities designed to provide power to consumers within local government jurisdictions. City of Tallahassee utility is an example of this type of entity[16]. The Florida Municipal Power Agency provides generation and transmission service to non-generating member municipal utilities.

Rural Electric Cooperatives: These are owned by the people it serves and often do not own any power generating capacity. These cooperatives were originally created in an effort to bring electricity to rural America. Florida Keys Electric Cooperative, Inc., (generating) and Clay Electric Cooperative, Inc., (non-generating) are examples of this type of entity.

Federal Electric Utilities: These mostly produce power for resale. Southeastern Power Administration (SEPA) is an example in Florida. SEPA resells power to municipal utilities in North Florida.

Independent power Producers: These entities include EWGs and non-utility generators and are not subject to price regulation.

Electricity supply consists of three separate functions:

1. Generation: Electricity is generated using a variety of energy sources which include steam turbines powered by fossil fuels, nuclear fuel, internal combustion engines, etc.

[16] There are 33 such entities in Florida. These are listed in Appendix B.

Generation may be owned by utilities or purchased in the wholesale market for retail delivery. This function may include more complex tasks such as scheduling and dispatch of power generation in order to balance loads, management of equipment failure, power network synchronization, etc.

2. Transmission: This is the transportation of electricity between generating plants and distribution sites.

3. Distribution: The delivery of electricity to ultimate consumers such as businesses and residences in a usable form (lower voltage).

Joskow[17] points out that the above separation of functions is somewhat misleading. The generation and transmission functions are connected both from an operational as well as from an investment perspective. Significant cost complementarities exist between the two functions since a transmission system has to coordinate dispersed generating facilities in order to fulfill its function of transporting electricity. Generating facilities provide significant support to the transmission systems efforts to coordinate changing demand and supply (equipment outages) conditions. In order to provide a reliable supply of electricity, transmission and generating facilities must operate together in an economically efficient manner. The functions are also connected from an investment point of view since the location of generation capacity involves tradeoffs between costs of generation and transmission.

The interconnectedness of the functions makes the task of implementing a competitive structure in the electric utility industry complex. It is difficult to devise a set of tradeable ownership or property rights that accounts for all the externalities of the transmission network system and comes up with an efficient allocation of scarce resources. The very nature of electricity as a good is such that there is no economical storage, which implies that prices must change in response to network constraints and the network operation must respond to price changes in a continuous manner.

The long run presents additional problems since transmission capacity must be increased in the long run. These investments are characterized by their lumpy nature, effects on the economic value of generator location, and passage through some kind of environmental approval process. The characteristics of the transmission are such that certain operating functions that require service from the generators are a natural monopoly along with the physical facilities of the transmission network.

The structure of the utilities has obviously been driven by the operating and investment complementarities that exist between generation and transmission as well as technological advances in integrated networks that allow reduction in the cost of reliable delivery of electricity. The natural byproduct of this was that most utilities became vertically integrated as far as generation and transmission were concerned. In the US, integration of proximate monopoly distribution franchises with the generation and

[17] Joskow, P.L., " Restructuring to Promote Competition in Electricity: In General and Regarding the Poolco vs. Bilateral Contracts Debate", Presentation at AEA meetings, January 6, 1996.

transmission functions is common. The common ownership of all three pieces implies a lack of actual prices for services between the three segments. The final consumer prices are thus regulated on the basis of the costs incurred by the vertically integrated firm.

The transmission function is also characterized by horizontal integration in the US. The US system consists of three integrated networks with over 140 separate "control areas[18]" superimposed. The control areas typically correspond to the portions of the network that a vertically integrated utility owns or operates. These utilities are responsible for generator dispatch, network operations, and maintaining reliability on specific portions of each of the three networks. A large number of unintegrated or partially integrated municipal and cooperative distribution entities are embedded in the control areas and depend on its operator to deliver power to them.

The US power industry has developed a complex set of operating protocols and agreements designed to preserve reliability, to facilitate trades of power between control areas and facilitate coordinated operations. The protocols are developed through the NERC,[19] nine regional reliability councils, and a number of sub-regional reliability organizations.

The generation segment of the industry clearly presents opportunities for the introduction of competition primarily in the wholesale market. The PURPA provision, which requires utilities to buy cogenerated power from unregulated sources, has already laid the groundwork for competitive power generation. Economies of scale are relatively limited and can be captured by owning and operating plants in different parts of the country. Smaller efficient units based on new combustion turbine technology placed at multiple locations can replace large centrally located plants.

The transmission network as well as some of its support functions are natural monopolies and provide means by which competition in the generating segment can work. Open access to the network, appropriate support service pricing, and necessary scheduling and operating protocols are essential in order to have a competitive generation sector. In order to achieve this, the natural monopoly transmission facilities need to be separated out of the current vertically integrated utilities[20]. The operation of these facilities will continue to require regulation. Transmission prices that provide adequate revenues to support efficient investments in transmission capacity will have be to allowed. Network constraints have to be priced such that scarce network capabilities are rationed efficiently.

The actual wires part of the distribution segment is a natural monopoly and will require regulation even in a competitive environment. If a separate distribution company is carved out of the current vertically integrated utilities, it can operate in a couple of different ways. First, the company can contract on a competitive basis with third party generators and supply electricity to retail customers. This is current practice in Florida.

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[18] A control area is an electrical area or region that may encompass several utilities in which generation is matched to load.
[19] North American Electric Reliability Council
[20] One way of doing this would be divestiture.

Second, retail customers could simply rent wires from the distribution company and contract directly with generator companies. Joskow points out that the second method requires some type of real time metering in order to track contractual arrangements and settle imbalances. If wires can be rented separately, functions such as metering, meter reading, billing, collection, and credit could also be provided on a competitive basis under either method.

Models of Competition in the Electric Utility Industry

Competition in the electricity market can be structured in a variety of ways. In broad terms, competition can occur at the wholesale level or at the retail level. Under wholesale competition, utilities would continue to provide retail service to consumers while purchasing electricity in a competitive wholesale market. This type of competition is currently in place in Florida. Retail competition on the other hand, implies that consumers have the option of purchasing electricity from producers other than the local utilities. These producers could be power generators, utilities from other service areas, or utilities in other states. The distribution companies carry power to the ultimate consumers through wires owned by them in a wholesale competition scenario. Under retail competition, the distribution company provides wire services only, which can be used by consumers to get power from any entity they choose to contract with.

Wholesale Competition

The structural characteristics of the electric utility industry allow the introduction of competition at different levels provided vertical de-integration of the utilities takes place. Competition at the wholesale level implies no direct choice of electricity supplier for the retail customer. Two basic models of wholesale competition have emerged, Poolco and Bilateral Contracts. In California the two types of competition exist side by side since direct access contracts between retail consumers and suppliers are allowed. Under the Poolco model, generation for all distribution companies would be pooled and a central dispatcher or “Poolco” would control dispatch. The Poolco could also be the owner and/or operator of the transmission facilities. This entity is called the Power Exchange (PX) in California. Another entity, the Independent System Operator[21] (ISO) is responsible for running an hourly sealed bid type auction aimed at supplying energy to meet projected demand a day ahead. Once the bids are ready, the ISO can construct a generation supply curve simply by arranging them in order of lowest to highest bid. The ISO then dispatches sufficient power to meet forecasted demand, subject to transmission and other system constraints. The pool spot price of electricity in this model is the market clearing price or the bid price of the last generator used to meet demand. The cost of ancillary system services provided by the ISO would be included in a regulated system administration and transmission charge. The distribution companies would add on these fixed regulated charges to the variable (changing every hour) spot price determined by

[21] In California the PX and ISO are two separate entities. The PX does the price bidding and matching . Once deals are made, the ISO coordinates the dispatch and transmission arrangements to ensure the deal is consummated.

the ISO. The system charges paid by these companies can be allowed to vary based on location to reflect system losses.

Prices of electricity from the poolco can be very volatile since load and available resources are constantly changing. Bilateral contracts[22] can be entered into between generation and distribution companies to hedge against the spot price. These contracts require the generator to supply a given amount of electricity at a given price to the distributor and serves to protect both sides against the spot price fluctuations. The contract prices reflect a producer's long term fixed and operating costs and expectations about the behavior of the spot price in the future. These contracts can be either be administered by the ISO or may occur outside of the pool. In California, mainly large retail customers are executing these bilateral contracts. The market is yet to develop for small residential consumers. Generation providers are finding it more profitable to sell bulk power over the PX rather than direct sales to small end use customers.

The Bilateral Contracts model of wholesale electricity competition extends the above concept and replaces the "poolco" component of the ISO with this type of contract. In a commodity market such as electricity, the production origin of the goods is of no direct consequence to the buyer who simply wants reliable delivery of electricity service. However, the production origin of electricity is of indirect importance to the buyer since the physical properties of the generation and transmission network affect reliability and delivery. Individual generating companies can contract with distribution companies via some kind of middleman or directly with retail customers. An ISO is necessary in this model to provide transmission and other ancillary network services.

The ISO role remains important in this model because of the transmission and realtime management requirements of electricity supply. The certain imbalances between contract deliveries and actual consumption has to be managed physically by the ISO with accompanying contracts with other generators able to fill short-term supply needs. The bilateral contract between generators and consumers of electricity is a financial contract, which is physically managed by the ISO with some additional financial contracts[23]. The model can almost be described as a "Multi-Poolco" model if the middleman bringing the generating companies and the retail consumers together is thought of as "poolco" by itself. The main difference between this model and the first one is that the ISO does not have the job of determining the supply curve of electricity and managing the dispatch order of generators.

Overall, it appears that the transaction costs would be lower under the more centralized Poolco model due to the pooling activity of the ISO[24]. The bilateral contracts model

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[22] A bilateral contract is defined as an agreement between specific buyers and sellers to provide specific quantities of goods or services at a specified price, and provides penalties for breach of these commitments.
[23] These financial contracts can be between customers and the ISO for network services and/or between ISO and generators for additional electricity supply when necessary.
[24] Power pool opponents have argued that poolcos do not send appropriate price signals since they are based on hourly prices. However, even with large number of bilateral contracts, the spot market operated by the poolco will be important since it determines the price expectations against which the bilateral

appears to offer more business opportunities for middlemen to seek out ways of reducing transaction costs but does require the existence of multiple pooling agents to manage all the contracts and dealing with billing and metering of individual consumers.

Retail Wheeling

If the models described above are taken a step further and end-use customers are free to contract directly with electricity generators or buy directly from the spot market, full-fledged retail competition or wheeling would occur. Electricity would be transmitted and distributed by regulated natural monopolies but electricity pricing would be unbundled into delivery and commodity components. The commodity prices would be set in competitive markets by contracts while transmission, local distribution, and network charges would be set by a regulatory agency.

Retail competition can be limited or partial depending on which customers are allowed to purchase electricity directly. Retail competition could start with large industrial customers contracting directly with electricity suppliers. Residential and commercial customers are likely to require a third-party aggregator to aggregate the load of several consumers and negotiate prices with electricity producers. The distribution company may[25] perform this role along with its regulated role of providing low-voltage distribution of electricity within its service area.

Retail wheeling is thought to have the advantage of not requiring central planning for power supply resources since consumers and suppliers would be communicating directly. This direct interaction of market forces may allow better matching of supply and demand and eliminate the need for expensive excess capacity. The disadvantage of retail wheeling stems from its potential impact on small consumers of electricity who would be less able to take advantage of time-of-use pricing of electricity due to small loads and high metering costs. Large industrial consumers can reschedule their consumption to take full advantage of such pricing. Within the small consumer group, low-income consumer groups are likely to be hit harder because of higher prices during peak demand periods.

In summary, the wholesale poolco model requires the pooling of all power generation. An entity called poolco would be responsible for controlling supply based on price bids by the power generating companies. Normally, the transmission system operator would be part of the poolco. In the wholesale bilateral contracts model, distribution companies procure generation through bilateral commodity contracts with specific electricity producers. The transmission system operator as in the poolco model controls dispatch of generation. Under retail competition or retail wheeling as it is popularly referred to, the consumer is able to purchase electricity directly, either through contracts with producers or in the open spot market for electricity. Table 1-1 summarizes the characteristics of the different models of competition.

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contracts will be written. It also provides strong incentives for incremental generation and load management when demand exceeds supply.

[25] Aggregation services may also be provided by separate companies.

The models outlined above indicate that it is feasible to create structures to support the development of a competitive generation sector. These structures can get complicated and may or may not produce the desired level of savings and service for all consumers. Policy makers can choose the level to which competition will be allowed to filter. An examination of potential efficiency gains under both retail and wholesale competition by Bohi and Palmer[26] shows that there is no clear winner. In the retail model, the contract market may work more efficiently since individual preferences are better accounted for. Also, a greater variety of products may be offered at a faster rate. The transaction costs are likely to be lower and investment in transmission capacity may occur at a more socially desirable rate in a wholesale competition scenario. It is difficult to say which scenario offers higher total efficiency gains.

Table 1-1 - Wholesale and Retail Competition in Electricity Generation

Features	**Wholesale Competition**	**Retail Competition**	**Current System**
Basic Structure	Utilities purchase power in an open competitive market and resell to retail customers	Retail customers[27] can choose their electricity providers and purchase power directly from various suppliers	Utilities generate power, purchase from IPPs, and purchase in a partially competitive market. Utilities resell to retail customers.
Mechanism for replacing prices	Wholesale prices paid by utilities are established competitively; retail prices paid by consumers are established through regulation.	Consumers and unregulated service providers enter into direct contracts. Transmission and distribution prices are established through regulation.	Wholesale costs are established through contract and regulation. Retail prices are established through regulation.
Monopoly functions retained by utilities	Transmission, distribution, and retail sales.	Transmission and distribution.	Transmission, distribution, and retail sales. Generation is a partial monopoly.
Stranded Investment	Uncompetitive utility plants and IPP contracts will results in stranded	Uncompetitive utility plants and IPP contracts will result in stranded investment. Utilities and	Utilities will fully recover their prudent investments, and IPP contracts will be

[26] Bohi, Douglas., and Karen L. Palmer, "The Efficiency of Wholesale vs. Retail Competition in Electricity", The Electricity Journal, October, 1996.
[27] Large retail consumers like industrial plants can have independent contracts with power producers. Residential consumer demand would probably be bundled together by brokers.

	investment. Utilities and IPPs may be expected to forego some recovery of their stranded investment.	IPPs may be expected to forego some recovery of their stranded investment.	fulfilled.
Impacts on various customer classes	Utilities' costs will continue to be allocated among customer classes by PSC.	Allocation of costs will be left to the market; large customers may be able to save money because of their bargaining power and economies of scale.	Utilities' costs will continue to be allocated among customer classes by PSC.
Safety and reliability	The safety and reliability of the distribution and transmission system will continue to be regulated. Planning for generating reserves could be a market or power pool function.	The safety and reliability of the distribution and transmission system will continue to be regulated. Planning for adequate generating reserves would be primarily a market function.	The safety and reliability of the distribution and transmission system will continue to be regulated. Planning for generating reserves is regulated through integrated resource planning.
Utility Workers	Workers in generating facilities may be affected.	Workers in many functions may be affected.	Workers have experienced layoffs.
Environmental factors in generating choices	Competitive process could consider environmental factors.	Retail customers could consider environmental factors.	State law requires consideration of environmental factors.
Utility Sponsored energy efficiency	Utilities can continue to provide efficiency services.	Efficiency services would be more dependent on market forces.	PSC requires utilities to implement energy efficiency programs.

Source: New York Legislature, "The Electric Industry in New York", 1996.

Transition to Competition: Stranded Costs

The important task with regard to competition is coming up with an acceptable market structure and engineering a smooth transition to the new regime. A major problem for states desiring to make the transition is the stranded cost or investment problem. Stranded costs are defined as the investments or cost commitments made by existing utilities under the current regime of cost-of-service regulation which will not earn their expected rates of return from electricity prices expected to prevail under competition. Stranded costs are the difference between average cost (price under regulation) and marginal cost (price under competition) and represents sunk costs[28] for the incumbent utilities. To the extent that generation costs are greater than market value, the question is whether such gains should be distributed back to consumers or retained by utility shareholders[29].

There is some debate about whether or not investors should be compensated for stranded costs in the first place. The argument against compensating the utilities is that investors bear the risk of losses and gains in all industries and utilities should do the same. Since the electric utility investors will not be taxed at higher than normal tax rates on gains, why provide special insulation to them from losses. The basic analysis is similar to that of moral hazard and insurance – should the government provide subsidized flood insurance for people who choose to live in flood plains.

The argument in favor of paying for the stranded costs is that implicit and explicit promises have been made by regulators to accept customer responsibility but defer recovery of certain costs. These regulatory assets can only be recovered if the regulated natural monopoly regime is allowed to continue. Investors in non-utility assets have discretion regarding investments. Managers of regulated companies probably do not have that discretion being burdened with the obligation to serve the public interest. Tye and Graves[30] have argued that these costs represent "negative barriers to entry" since incumbent firms are burdened with the sunk costs arising from a prior regulatory regime. Stranded costs thus create an artificial competitive asymmetry in favor of entrants who suffer no such handicaps from the current regulatory regime. This is a reversal of the more usual case where sunk costs are positive barriers to entry due to their long cost recovery time periods.

Regardless of the arguments for or against recovery of stranded costs, it is reasonable to expect that competition will be difficult to implement without some recovery mechanism. The required vertical de-integration of investor owned utilities may be legally contested and thus produce delays. The method of cost recovery can obviously be debated but the process needs to meet certain guidelines. Tye and Graves suggest the following:

- Provide a mechanism for reliable collection of the revenues required to fully amortize the legacy of stranded costs;

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[28] Sunk costs are somewhat different from fixed costs, which are independent of the scale of production and are locked in the short run. Sunk costs are investment costs that produce benefits over a long time horizon and can never be recouped if the project is abandoned. The difference between the two concepts is of degree rather than of characteristics. The cost of an environmental study prior to building a power plant is a sunk cost while cost of plant equipment is a fixed cost.

[29] Some utilities have reportedly sold generation capacity at values much greater than the book value of such assets. In such cases there are no stranded costs and the question is how such profits should be treated in determining overall stranded costs.

[30] Tye, William B. & Frank C. Graves, "The Economics of Negative Barriers to Entry: How to Recover Stranded Costs and Achieve Competition on Equal terms in the Electric Utility Industry", The Brattle Group, May 14, 1996.

- Allow incumbents and entrants the opportunity to compete on equal terms to recover fixed costs not sunk in the current regulatory regime and not stranded as a result of the transition;

- Limit the duration and magnitude of the recovery to true stranded costs and encourage mitigation and sunsetting of costs;

- Allow all competitors to realize the competitive advantage of any true efficiencies they have going forward;

- Promote price and service competition among competing suppliers so that true efficiency gains will tend to benefit customers in the long run;

- Minimize transaction costs of administering the transition; and

- Ensure that the transition costs are borne equitably by customers.

FERC identified the stranded cost problem as one associated with exiting customers and concluded that recovery of transition costs will permit utilities to compete on a more equal footing[31]. FERC has the following formal definition of stranded costs:
Wholesale stranded cost means any legitimate, prudent and verifiable cost incurred by a public utility or a transmitting utility to provide service to:

1. a wholesale requirements customer that subsequently becomes, in whole or in part , an unbundled wholesale transmission services customer of such public utility or transmitting utility; or
2. a retail customer, or newly created wholesale power sales customer, that subsequently becomes, in whole or in part, an unbundled wholesale transmission services customer of such public utility or transmitting utility.

FERC advocated a "revenues lost" approach to the calculation of stranded costs. Recoverable stranded costs are the difference between a customer's revenues expected under regulation and expected revenues under competition. Under certain assumptions[32], stranded costs can be calculated as the difference between revenue in the competitive case less the sum of the fixed and variable costs of providing electric service under competition, and the fixed cost obligations. Fixed cost obligations are depreciation expense, return to investors, purchased power contracts and regulatory assets incurred under regulation.

[31] FERC, "Promoting Wholesale Competition through Open Access Non-Discriminatory Transmission Service by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities", Order No. 888, Final Rule, issues April 24, 1996.
[32] See Energy Information Administration, Office of Integrated Analysis and Forecasting, US Department of Energy, "Electricity Prices in a Competitive Environment: Marginal Cost Pricing of Generation Services and Financial Status of Electric Utilities: A Preliminary Analysis Through 2015", August 1997.

Stranded cost measurement has three different dimensions[33]. The first choice is whether to use the bottom-up or top-down approach. The bottom-up approach involves calculation of the amount of each investment that would be stranded while the top-down method requires the calculation of the aggregate difference between the regulated rate and the market rate for utilities. The second measurement choice is whether to determine the magnitude of the costs before (ex ante) or after (ex post) the onset of the competitive regime. The third dimension to the measurement of stranded costs involves the determination of asset values based either on administrative estimates or on market valuations. The three dimensions can be arranged in different ways to come up with different methods of measurement of stranded costs. Table 1-2 below summarizes these combinations:

Table 1-2 – Methods of Stranded Cost Measurement

	Administrative Valuation (Ex Ante)		**Market Valuation (Ex Ante)**	
Bottom-up	Asset-by-asset value projections	Assets valued after the transition	Assets sold at auction	After-the-fact purchase price adjustment
Top-Down	Projection of regulated rate by customer class	After-the-fact adjustments of regulated prices	Bundles of assets spun off	Deferred valuation of spun-off assets

Source: Oak Ridge National Laboratory; Estimating Potential Stranded Commitments for US Investor Owned Electric Utilities, ORNL/CON-406 (Oak Ridge, TN, Jan 1995, p. 7)

The alternative approaches differ in analytical requirements for forecasting and estimation, risk allocation for market uncertainties, restructuring requirements, and regulatory exposure.

Published estimates of stranded costs vary from $10 billion to $500 billion nationwide. Estimates differ based on the assumptions and methodology used. Pessimistic views of utilities loss of market share, inability to lower prices, or sell at-risk capacity leads to higher estimates of stranded costs. All estimates are of the "what-if" variety, which depend specifically on perspectives about or estimates of:

1. Projected market clearing prices;

[33] See Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels, US Department of Energy, " The Changing Structure of the Electric Power Industry: An Update", December 1996.

2. Share of retail electricity subject to competition;

3. The role of the participants in the market;

4. The level of future natural gas prices;

5. Unamortized costs of non-nuclear and nuclear plants;

6. Plant operating costs;

7. Time period over which transition to competition would occur.

A simulation exercise on a hypothetical utility by Hirst, Hadley, and Baxter[34] showed that the following were the critical factors affecting the magnitude of stranded costs:

- The start date for retail competition
- The percentage of customers that leave the utility
- Differences between wholesale prices and utility marginal production costs
- Utility fixed production costs
- The amount of regulatory assets
- The amount that the utility can charge for capacity related ancillary services.

Moody's Investor Service[35] has estimated total nationwide stranded costs to be between $50 and $300 billion depending on price assumptions. Individual states or utilities may have negative stranded costs. In the most likely scenario, stranded costs are estimated at $135 billion with 40% of it being located in the Northeast and West. Moody's methodology consists of calculating the difference between competitive market price (marginal cost) and break-even prices (includes fixed production costs, variable costs, and deferred asset expenses) for utilities. DRI[36] estimated total stranded costs at $88 billion based on the differences between regional industrial electricity price and long range marginal cost multiplied by volume of electricity demand expected to be at risk. New England and California were at maximum risk of finding between one-half and one-third of their rate base to be stranded.

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[34] Hirst E., S. Hadley, and L. Baxter, " Factors that Affect Electric Utility Stranded Commitments", Oak Ridge National Laboratory, ORNL/CON-432, July 1996.
[35] Moody's Investor Service, Moody's Special Comment, "Stranded Utility Costs: Legislation Jolts the ABS Market", February 28, 1997.
[36] DRI/McGraw Hill, World Energy Service-US Outlook; Fall/Winter 1996.

FERC[37] has provided some options suggested by utilities, regulatory agencies and others, which could be adopted by utilities to reduce or “mitigate” stranded costs. Mitigation strategies as they are referred to, cannot really do away with stranded costs, they merely shift them on different participants in the marketplace. The universe of candidates that will pay stranded costs in the event of a competitive market includes utility shareholders, consumers, independent power producers, and the state and/or federal government. The real question is who will pay what proportion of the costs and how will the transfer be affected.

Mitigation strategies include:

- Delay retail wheeling
- Charge exit fees to departing customers
- Reduce administrative and general costs
- Reduce non-generation costs such as customer service, operation and maintenance related to transmission and distribution
- Limit opening up of retail markets
- Reduce marketing costs associated with departing customers
- Renegotiate power contracts at lower costs
- Impose charges for ancillary services
- Accelerate depreciation payments of generation plants
- Reduce public policy programs.

Once stranded costs have been quantified, the collection method from consumers becomes the issue. The following are some of the ways in which the costs may be collected from consumers:

- Sunk charges based on past use: This is a pure lump-sum transfer that assigns the sunk cost responsibility to customers for an immediate payment. Implementation of this kind of charge is likely to be a problem.
- Exit fees: Same as sunk charges except that the fees would only apply to those who wish to take advantage of customer choice. This method is likely to be challenged as

[37] Federal Energy Regulatory Commission, “ Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, Docket No. RM94-7-000, Washington DC, June 29, 1994.

discriminatory because past investments were made to meet the needs of *all* customers.

- Fixed access fees: This would be a fixed charge over time for continued access to the wires for electricity delivery. This method provides an economic incentive to pay for all consumers excepting those leaving the service area permanently.

- Volumetric surcharge: A charge that varies according to the level of use instead of a fixed level charge. This has the advantage of providing a continuous means of collection.

Transition to Competition: Stranded Benefits

Brockway and Sherman[38] have stated the stranded benefits issue as follows:

" …Competition in electricity sales will put pressure on utilities to cut costs. Although this should push electricity prices down overall, it may squeeze out some vital functions performed today by the electric industry. Some of the first expenditures on the chopping block may be services for the public at large, such as uniform consumer protections or investments in energy efficiency. "

Under the current regulatory structure, utilities provide certain benefits to consumers that may be difficult to price in a competitive market. Some of these benefits are economic in nature such as high wage stable jobs. In a competitive environment, the innate stability of a regulated industry would be lost. The airline industry is an example where this type of instability succeeded regulation. Other benefits include energy conservation programs and environmental programs that provide hard-to-quantify benefits.

Potential stranded benefits are the following:

- Stable employment at high wages with good benefits;

- Health and safety protections;

- Diversity in employment and subcontracting by utilities.

- Stable and reasonable residential prices in rural and urban areas;

- Universal service, including protections for vulnerable customers;

- Environmental programs;

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[38] Brockway, Nancy & Michael Sherman, "Stranded Benefits in Electric Utility Restructuring", The National Council on Competition and the Electric Industry: The Electric Industry Restructuring Series, NCSL, October 1996.

- Energy independence and sustainable sources of energy:
    a) Reliable and safe energy supply;
    b) Efficient use of electricity;
    c) A diversified mix of energy sources for power generation;
    d) Long-range planning;
    e) Use of renewable generation resources;
    f) Research, development and demonstration (RD&D) of innovative technologies;

Cost-effective electricity conservation, the development of renewable resources, programs for low-income electric customers and supportive research and development have been required of most electric utilities in a regulated environment. Without some mechanism to preserve these features of the current electric utility system, they could become casualties of the restructuring of the industry. A system benefits charge (similar to that for stranded costs) may be the best way to fund these services in the competitive future.

Electricity Prices in a Competitive Environment[39]

As mentioned earlier, under the current regulated environment, electricity prices are based on average costs of producing and delivering electricity to the consumers. Table

Table 1-3 - Average Revenue Per Kilowatt-hour by Sector, Census Division, and State, 1997[40]

Census Division	Residential	Commercial	Industrial	Other	All Sectors/State
New England	**12.06**	**10.38**	**8.02**	**14.30**	**10.46**
Connecticut	12.13	10.28	7.76	14.52	10.52
Maine	12.75	10.39	6.36	23.23	9.51
Massachusetts	11.59	10.29	8.78	14.49	10.48
New Hampshire	13.67	11.35	9.06	14.06	11.66
Rhode Island	12.12	10.40	8.52	12.35	10.70
Vermont	11.45	10.33	7.44	9.56	9.89
Middle Atlantic	**11.97**	**10.57**	**6.03**	**9.73**	**9.78**
New Jersey	12.08	10.35	8.11	18.35	10.54
New York	14.12	12.13	5.20	9.17	11.13

[39] Based on report by Energy Information Administration, Office of Integrated Analysis and Forecasting, US Department of Energy, “Electricity Prices in a Competitive Environment: Marginal Cost Pricing of Generation Services and Financial Status of Electric Utilities: A Preliminary Analysis Through 2015”, August 1997.

[40] US Department of Energy, Energy Information Administration, Form EIA-861, “Annual Utility Report”. Data is presented in tabular fom in publication “Electric Sales and Revenue 1997”.

Pennsylvania	9.90	8.41	5.89	11.71	7.99
East North Central	**8.55**	**7.33**	**4.41**	**6.93**	**6.46**
Illinois	10.43	7.93	5.29	6.84	7.71
Indiana	6.94	6.04	3.91	9.44	5.29
Michigan	8.57	7.84	4.97	10.88	7.04
Ohio	8.63	7.67	4.16	6.12	6.25
Wisconsin	6.88	5.60	3.72	6.77	5.22
West North Central	**7.26**	**6.17**	**4.25**	**6.12**	**5.89**
Iowa	8.21	6.61	3.95	6.09	5.97
Kansas	7.71	6.47	4.51	5.97	6.31
Minnesota	7.23	6.23	4.33	7.12	5.61
Missouri	7.09	6.00	4.46	6.77	6.09
Nebraska	6.38	5.46	3.61	6.19	5.30
North Dakota	6.27	6.15	4.38	4.27	5.65
South Dakota	7.08	6.63	4.42	4.72	6.22
South Atlantic	**7.90**	**6.60**	**4.25**	**6.24**	**6.51**
Delaware	9.22	7.19	4.82	12.45	7.00
District of Columbia	7.87	7.43	4.42	6.54	7.39
Florida	8.08	6.62	5.04	6.80	7.19
Georgia	7.74	7.11	4.13	9.05	6.37
Maryland	8.33	6.86	4.21	8.80	6.98
North Carolina	8.03	6.43	4.71	6.78	6.48
South Carolina	7.51	6.33	3.71	6.04	5.50
Virginia	7.75	5.97	4.00	5.14	6.14
West Virginia	6.26	5.54	3.71	8.71	5.02
East South Central	**6.27**	**6.03**	**3.47**	**6.00**	**5.05**
Alabama	6.74	6.34	3.71	6.47	5.33
Kentucky	5.58	5.29	2.80	4.64	4.03
Mississippi	7.02	6.69	4.12	8.61	5.91
Tennessee	6.03	5.91	3.81	7.88	5.31
West South Central	**7.62**	**6.67**	**4.13**	**6.24**	**6.06**
Arkansas	7.80	6.78	4.45	6.61	6.15
Louisiana	7.39	6.99	4.39	6.48	5.99
Oklahoma	6.63	5.73	3.63	4.76	5.42
Texas	7.82	6.74	4.05	6.45	6.17
Mountain	**7.52**	**6.43**	**4.05**	**5.38**	**5.93**
Arizona	8.82	7.83	5.05	4.84	7.38
Colorado	7.42	5.77	4.28	8.00	5.95
Idaho	5.15	4.17	2.60	4.68	3.87
Montana	6.40	5.80	3.66	6.68	5.20
Nevada	6.77	6.31	4.48	3.83	5.60
New Mexico	8.92	7.92	4.42	6.17	6.80
Utah	6.89	5.72	3.49	4.34	5.17
Wyoming	6.22	5.27	3.46	5.84	4.33
Pacific	**8.96**	**8.45**	**5.16**	**6.53**	**7.56**
California	11.50	9.98	6.95	7.50	9.54
Oregon	5.56	4.97	3.23	6.44	4.61
Washington	4.95	4.79	2.59	4.06	4.04
Pacific Noncontiguous	**13.48**	**11.61**	**9.86**	**14.37**	**11.66**
Alaska	11.44	9.51	7.48	14.75	10.07
Hawaii	14.80	13.26	10.32	13.20	12.49
U.S. Average	**8.43**	**7.59**	**4.53**	**6.91**	**6.85**

1-3 shows average prices across the nation. The cost includes a regulated rate of return on investments on plant and equipment[41]. In a competitive environment, marginal cost pricing will prevail. The price will be equal to the operating cost of the most expensive generator supplying power. If the demand approaches capacity the price will rise above operating costs to encourage some consumers to reduce usage and thus allow the market to clear. If such adjustments become necessary on a frequent basis there would an incentive for more investment in generating capacity.

Electricity prices are theoretically expected to be lower under competition since marginal costs are lower than average costs. In most parts of the country low-cost new generating technologies and low fossil fuel prices has made power from new plants cheaper than power from older existing plants. However, prices can also be higher under competition if operating and capital costs of existing plants are low and the marginal cost of electricity is higher than its average cost. California has shown mixed results so far. The limited participation in competitive markets by the majority of consumers has translated to zero net savings for them.

A competitive pricing environment implies the following changes:

- Prices will be volatile and will vary by time-of-day and across seasons. Initially this may confuse consumers but eventually it will offer them a chance to save money by rescheduling usage.

- Different levels of electricity service based on level of reliability and price may be offered to the consumers.

- Investment in new generating capacity will depend on the level of electricity prices and the profitability of the utilities and not necessarily on the needs of the consumers as is the case under regulation.

- Competitive pricing will put considerable pressure on suppliers to reduce the cost of producing electricity.

The price of electricity under a competitive regime will differ on a regional basis because of differences in marginal cost. The US Department of Energy's Energy Information Administration (EIA) unit has attempted to forecast the regional electricity prices under a set of assumptions. These assumptions include the following:

1. Competition will be implemented in 1998[42]

[41] Generation accounts for majority (50-60%) of all costs.
[42] The longer the regulated prices persist, the smaller will be the level of stranded costs. However, the longer the regulated prices persist, the greater the proportion of the stranded costs will be paid by the consumers as opposed to the utility shareholders.

2. No stranded cost recovery is built in to the price projections – recovery is assumed to occur through either a connection or exit fee

3. Retail competition will be implemented

4. Transmission and distribution functions will still be subject to regulation

5. Ancillary services required to support transmission and provide reliable service will be open to competition

6. Incentives for maintenance of a reserve capacity are assumed to exist

7. 50% of non-fuel operation and maintenance costs are assumed to be variable while the rest is fixed

8. The cost of capital is assumed to be the same under competition as under regulation.

EIA's National Energy Modeling System[43] for price forecasting goes through the following algorithm:

1. Start with base levels of demand and calculate the marginal operating cost for each time period;

2. Increase prices to a market clearing level in periods where the demand approaches capacity;

3. Add in the average cost of transmission and distribution costs;

4. Adjust demand in each time period to reflect price elasticity[44] of the change in price from regulated to competitive levels;

5. Iterate through the above steps until change in demand falls below a convergence criteria of 1%.

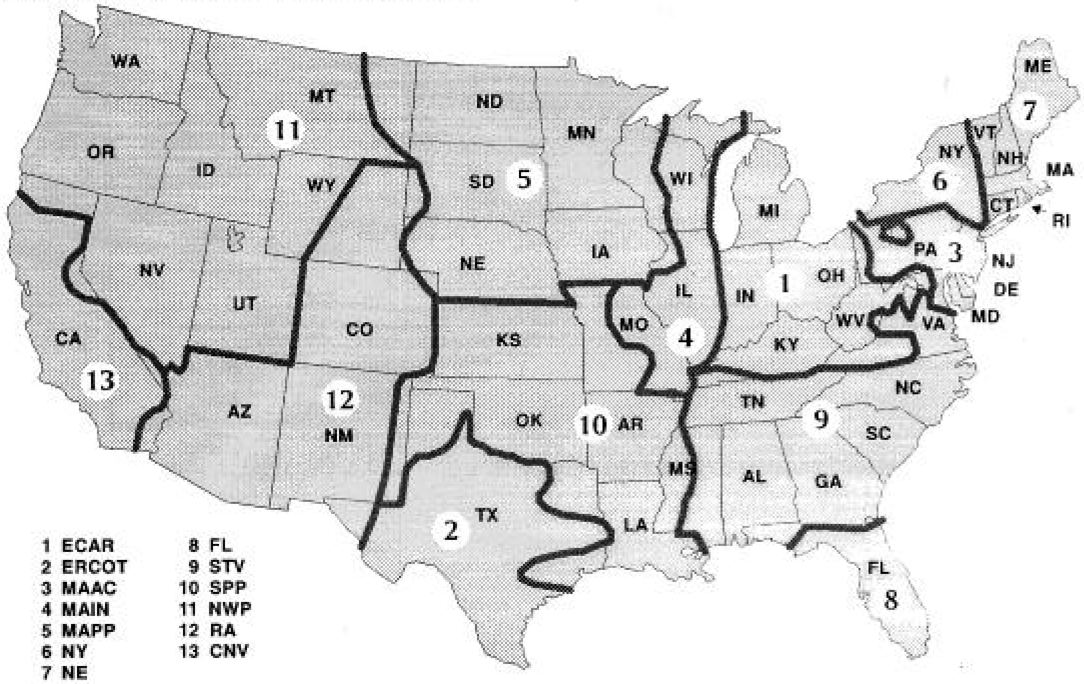
[43] EIA's VALCAP model is also used in the iterative process.
[44] A base level price elasticity of –0.15 is assumed.

Table 1-4 - Regulated and Competitive Prices for Electricity by Region and Projected Reductions in Average Revenues, 1998, 2000, & 2012 (prices in Cents/kwh)

	Projected Electricity Prices						**Percentage Reduction in Average Revenues**		
	1998		2005		2012				
Region	Reg.	Comp.	Reg.	Comp.	Reg.	Comp.	1998	2005	2012
1	6.20	5.43	5.92	5.24	5.41	5.28	14	13	2
2	6.32	5.26	5.95	5.30	5.61	5.10	20	12	10
3	8.25	7.39	7.92	7.04	7.55	8.97	12	13	8
4	6.85	5.97	6.69	5.89	6.02	5.65	15	14	7
5	5.67	5.62	5.29	5.77	5.22	5.61	1	-8	-7
6	10.38	8.85	9.59	8.88	9.19	8.84	17	8	4
7	8.37	7.92	7.90	7.79	7.60	7.77	6	1	-2
8	***7.85***	***6.94***	***7.43***	***6.73***	***7.19***	***6.59***	***13***	***10***	***9***
9	6.25	5.72	5.82	5.56	5.56	5.50	9	5	1
10	6.31	5.67	5.98	5.47	5.84	5.19	11	9	13
11	4.52	6.15	4.88	6.02	4.65	6.11	-27	-19	-24
12	7.43	6.99	7.17	6.00	6.65	5.75	6	20	16
13	9.94	7.98	9.18	8.03	9.09	8.23	25	14	10
National Average	**6.90**	**6.30**	**6.60**	**6.10**	**6.30**	**6.00**	**10**	**8**	**5**

Source: Energy Information Administration, Office of Integrated Analysis & Forecasting
Figure ES-1 shows the competitive regional markets analyzed by EIA
.

Figure ES1. Electricity Market Module Regions



Notes: ECAR = East Central Area Reliability Coordination Agreement Region; ERCOT = Electric Reliability Council of Texas; MAAC = Mid-Atlantic Area Council; MAIN = Mid-America Interconnected Network; MAPP = Mid-Continent Area Power Pool; NY = New York Power Pool; NE = New England Power Pool; FL = Florida subregion of the Southeastern Electric Reliability Council; STV = Southeastern Electric Reliability Council excluding Florida; SPP = Southwest Power Pool; NWP = Northwest Pool subregion of the Western Systems Coordinating Council; RA = Rocky Mountain and Arizona-New Mexico Power Areas; CNV = California-Southern Nevada Power Area.

Source: Energy Information Administration, Office of Integrated Analysis and Forecasting.

Table 1-4 shows the price effects on a regional basis. The geography of each region is indicated in the previous figure. While some regions will see substantial reductions in price, some regions will see price increases. The price changes assume no stranded cost recovery through prices. In reality, short run prices will largely be determined by how much regulatory and legislative relief utilities get for stranded costs. Stranded costs are estimated to range between $72 billion and $169 billion in (1995 dollars) if there are no reductions in costs as a result of competitive pressures. Average annual competitive prices are expected to be lower if customers respond to time-of-use pricing by decreasing peak period consumption, which will reduce marginal cost.[45]

Eleven of the 13 regions show price decreases in a competitive regime compared regulation. On a national basis, an 8% percent reduction is expected in 2005 and 5% in 2012. The results of this analysis suggest that prices will drop in majority of the states including Florida. The average per killowatt-hour price of electricity in Florida can drop anywhere from a high of 13% (no recovery of stranded costs) to a low of 0% (full recovery of stranded costs) by the year 2012.

[45] This will happen because the most expensive generation plant will be used less often.

Current Status of Restructuring Activities in Other States[46]

Restructuring activities are at different stages in states across the country[47]. The desire for a competitive market structure is a direct function of the prevailing price of electricity. The table and map in the following pages show electricity prices and status of restructuring activities in all states. Its not surprising that the states most advanced in restructuring are New Hampshire and California since both of them currently pay far higher than average prices for electricity. Some low-cost electricity states (Oklahoma, Montana, and Nevada) passed restructuring legislation, possibly with a view to earning out-of-state sales or enhancing their competitiveness vis-à-vis other states. In all, 17 states have taken final action to mandate competition through either enacted laws or regulatory commission order according to the Edison Electric Institute[48].

A Florida Public Service Commission report[49] indicated that large electric customers were usually instrumental in initiating any move towards a competitive market structure in states. Commercial and industrial customers are the primary catalysts for change. Proposals for competitive market structures display some or all of the following features according to the above report:

1. Retail wheeling with a phase-in plan over a 2-5 year window. 4 states including California have opted to provide retail access without any phase-in period.

2. The distribution function will remain with a regulated entity.

3. Transmission services will remain under Federal jurisdiction (FERC). The portion of transmission services dedicated to retail customers may remain under state jurisdiction.

4. The generation function will be competitive with customers being able to choose from alternative providers.

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[46] The most current report on state restructuring activity is available at the following EIA web page: http://www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html. The summary map is reproduced on the next page.

[47] England and Wales provide the most dramatic example of electricity restructuring in the world. Before 1990, the generation (70 generating plants and transmission of electricity was controlled by a single electricity board. There were 12 distribution companies. As a result of restructuring, the distribution companies were sold to the private sector. Two generating companies and one transmission company was formed. The transmission company was made responsible for running the daily pool and setting prices on a marginal cost basis.

[48] Edison Electric Institute, "Retail Wheeling and Restructuring Report", Volume 5, Number 2, September 1998.

[49] Florida Public Service Commission, "States' Electric Restructuring Activities: An Initial Progress Report", October 1997.

5. An Independent System Operator (ISO) will be responsible for delivering power to transmission and distribution companies.

6. Some states are exploring the possibility of setting up a power exchange where all the transaction prices will be determined.

7. Almost all states pursuing restructuring are requiring the unbundling of the components of electric services and separate pricing of each component.

8. Transmission charges are likely to be determined by FERC.

9. A stranded cost recovery charge of some kind is common to all proposals. Mitigation of such costs by the utilities is required. The stranded cost charge is to be determined on the basis of an administrative value of stranded costs and would be unbypassable for exiting customers. Some states have opted to re-estimate stranded costs periodically and revise the charge[50].

10. Many states are exploring the option of packaging the stranded assets of utilities as a bond issue where the principal and interest is paid using the stranded cost charge on customers. The advantage of this option is that it uses lower cost debt to refinance the stranded assets and hence allows a larger reduction in prices.

11. Billing and metering services are expected to be performed by the regulated distribution company in most states. The distribution company is also the default provider of electric service.

12. Performance based regulation based on some price indicator is being considered by some states for setting rates for distribution services.

13. The ISO is expected to deal with operational reliability concerns while planning reliability has not been adequately addressed in most states.

14. Stranded benefits concerns have been addressed mostly through an unbypassable charge.

15. So far, four states have made any attempt to study the tax impact of restructuring.

16. Reciprocal access provisions authorize utilities to open their service area to competition only if they get similar access from competing utilities. Michigan has imposed inter-state reciprocal requirements and six others have imposed intra-state reciprocal requirements.

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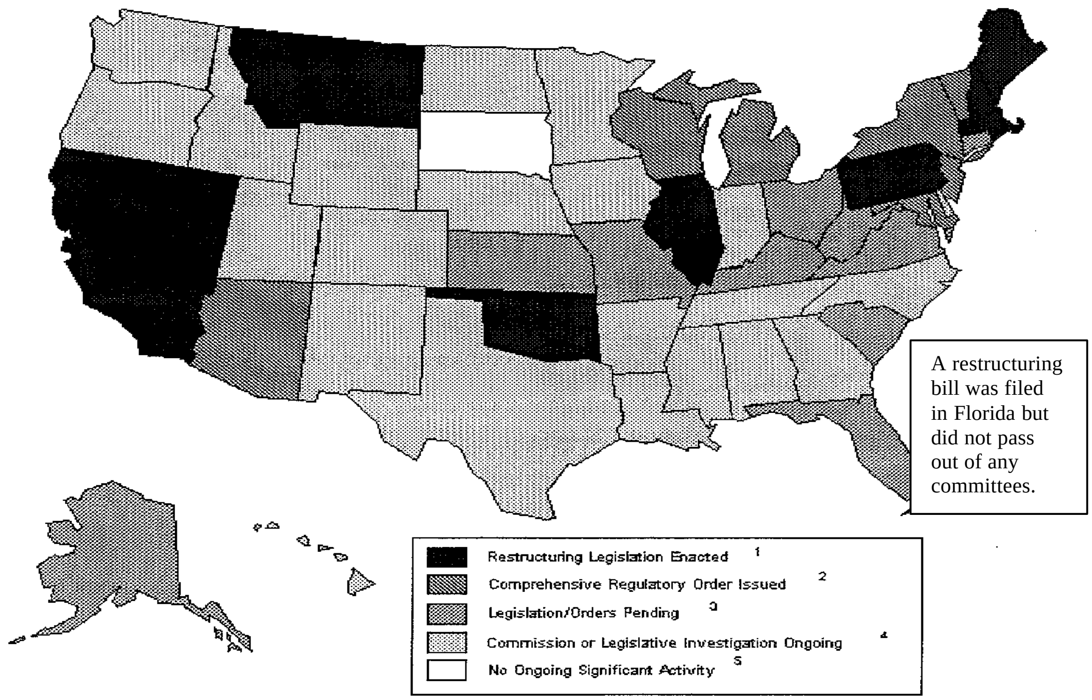
[50] New Hampshire has stated that utilities will not be allowed to recover all of their costs because less than full recovery is fair and efficient while full recovery would be anticompetitive. This stand has led to a number restructuring related lawsuits.

Status of State Electric Utility Deregulation Activity as of April 1, 1998



[1]California, Illinois, Maine, Massachusetts, Montana, Nevada, New Hampshire, Oklahoma, Pennsylvania, and Rhode Island.
[2]Arizona, Maryland, Michigan, New Jersey, New York, Vermont, and Wisconsin.
[3]Alaska, Connecticut, Florida, Kansas, Kentucky, Missouri, Ohio, South Carolina, Virginia, and West Virginia.
[4]Alabama, Arkansas, Colorado, District of Columbia, Delaware, Georgia, Hawaii, Idaho, Indiana, Iowa, Louisiana, Minnesota, Mississippi, Nebraska, New Mexico, North Carolina, North Dakota, Oregon, Tennessee, Texas, Utah, Washington, and Wyoming.
[5]South Dakota.

Source: Energy Information Administration.

In June 1995, the New Hampshire legislature enacted House Bill 168, which directed the state PSC to establish a pilot program, providing approximately 17,000 customers the opportunity to buy electricity from a competitive marketplace. Thirty-one different electricity suppliers marketed power to the consumers. Companies tried to find a niche by marketing themselves as a specific type of provider. For example, some companies tried market themselves as “green” or environmentally friendly companies. The difficulty faced by the companies was that electricity is a completely homogenous product and as Brown[51] has pointed out, it is difficult to associate a brand name with electrons.

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[51] Brown, M., “Standing the Electric Industry on its Head”, State Legislatures, National Council of State Legislatures, March 1997.

Consumers were definitely interested in getting cheaper electricity[52] but became wary and confused in an unfamiliar marketplace. Also, consumers were disillusioned when they ended up paying considerably more than the advertised price because of a stranded cost charge added to the cost of electricity.

Deregulation of electricity in California has evoked a similarly tepid response from the consumers. In the early days of the new competitive regime, only 25,000 of California's 9.9 million electricity consumer units have chosen to switch companies[53]. The savings are meager for the average consumer with a bill in the $50-75 range. After the four-year transition period is over, the savings are expected to become more substantial. In the absence of the stranded costs charge, consumers in California are expected to see a 10-30% drop in prices. The drop will be highest for the largest industrial consumers and lowest for residential and small commercial accounts.

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[52] New Hampshire has one the highest electricity prices in the country.

[53] Reported in New York Times, "California's Effort to Promote Plan For Electricity Is Off to a Slow Start", February 26, 1998.

Chapter

2

Potential Tax Implications of a Competitive Electric Industry in Florida

The impact of electric utility competition on tax revenues depends on the following:

- The timing of and degree to which competition is allowed to occur;
- The level of stranded costs and the method of recovery of such costs,
- Consumer response to the change in prices.

The first two factors will be policy decisions while the market will determine the third one. In order to obtain tax revenue impacts of restructuring, assumptions regarding the three factors are necessary. Currently, there is no legislative initiative to allow retail electricity competition in Florida. A five-year transition period will likely be necessary if any restructuring legislation is enacted.

Competition in Florida is likely to be different from that in other states because of its geographical location. The competition for customers will be mainly between in-state power producers. Out-of-state producers are unlikely to be a major factor given the relative paucity of borders with other states and limited interstate transmission capacity. Florida consumers do not face extraordinarily high electricity prices unlike the Northeast and the West. Prices in Florida are about the same as the national average, although somewhat higher than the average for the Southeast as a whole. Large industrial customers are the ones most likely to be interested in retail competition since they have the most to gain from lower prices.

As discussed earlier, there is a wide range of estimates of stranded costs. The most frequently cited study conducted by Moody's Investors Service in 1995 showed stranded costs for 114 of America's investor-owned utilities at $135 billion. The Energy Information Administration’s (EIA) model calculates stranded costs for each year for each region as the sum of fixed costs, variable costs, depreciation, and return to investors, less marginal costs of generation and maintaining reserve capacity. The following simplifying assumptions were also made:

- Net regional stranded costs are considered; that is, losses experienced by some companies are assumed to be partially offset by gains of other companies.

- Stranded cost recovery is assumed not to affect demand.[54]

- Tax revenue reductions are not counted as stranded costs.

Price elasticity of demand for electricity is different across categories of consumers. Industrial consumers are likely to have the highest elasticity and residential consumers are likely to be the least elastic. Given that commercial and residential consumers account for about 80% of consumption of electricity, the Energy Information Administration (EIA) model moderate elasticity assumption of –0.15[55] is adequate. Ideally, different elasticities for different classes of consumers should be modeled.

Taxes Impacted by Restructuring of Utilities

Gross Receipts Taxes[56]

Most states, including Florida, impose some form of gross receipts tax on utility revenues. Currently, this tax applies only to sales to customers within the taxing state. A Deloitte and Touche[57] (1996) report points out that as the industry changes and interstate commerce increases, the treatment of interstate sales will increase in importance. In Florida, a tax of 2.5% is imposed on the gross receipts of electric, gas, telecommunication services, and cogenerated electrical power transmission. Municipal corporations are also subject to the tax. Electric utilities purchasing service for resale receive credit for tax paid by the supplier. Also, revenues from the sale of natural gas to a utility for the purpose of electricity generation are exempt from the tax.

A 1963 constitutional amendment earmarked gross receipts tax collections for funding of capital outlay needs of the universities and junior colleges.[58] A second amendment in 1974 expanded the use of the funds to public schools and authorized the issue of general obligation bonds instead of revenue bonds. A 1992 amendment removed the July 1, 2025 ending date of the bonding program and set a maturity limit of 30 years on the bonds.

Sales Taxes[59]

A 6% sales tax is imposed on retail sales and rental of most tangible personal property items in Florida. A 7% sales tax is imposed on telecommunication and electric services to nonresidential establishments. The 1996 Legislature adopted a five-year phased in sales tax exemption for sales of electricity used in manufacturing establishments. Fuels

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[54] Consumers are not expected to reduce their demand for electricity in response to any charge for stranded costs they may see on their bills.
[55] This implies that a 1.00% reduction in price will lead to 0.15% increase in demand for electricity.
[56] Chapter 203, Florida Statutes; Constitution Article XII Section 9(a)
[57] Deloitte & Touche LLP, Federal, State and Local Tax Implications of Electric Utility Industry Restructuring: An Analysis for the National Council on Competition and the Electric Industry, October 1996.
[58] Additional information is available from "1998 Florida Tax Handbook", Florida Legislature.
[59] Chapter 212, Florida Statutes

purchased for the purpose of electricity generation, transmission of electricity, and residential electricity use are exempt from sales tax. One-half percent of the 6% sales tax is distributed to local governments. To a lesser extent, the ad valorem (property)[60] and corporate income [61] tax bases are also expected to be affected by electricity restructuring.

Gross Receipts Tax Revenue and PECO Program Impact

The following assumptions will be used for illustrative purposes to estimate gross receipts tax revenue impacts:

1. Competition will be introduced in FY 2001-02[62].

2. Retail competition will occur.

3. Stranded cost recovery will last 10 years. The rate of recovery is assumed to be higher in the beginning with 15% being recovered in each of the first three years, 10% in each of the next 3 years, and 5% in each of the remaining years.

4. Price reductions prior to any stranded cost recovery are assumed to range between 6.5% and 10.5% based on the results of the EIA[63] model run under competition.

The tax impacts as well as the impacts on PECO are shown in the table in the following page. The high stranded cost scenario assumes $5.8 billion in stranded costs will be recovered, while the moderate case assumes that $1.8 billion will be recovered. The case where there is no recovery of stranded costs is also provided for comparison purposes. Recovery is implicitly assumed to occur via a unit charge added on to the price paid for electricity by the consumers. No charge is assumed for stranded benefits. Demand for electricity is assumed to be price inelastic.

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[60] The ad valorem tax is an annual tax levied by local governments on the value of real and tangible personal property on January 1 of each year. The taxing authority of counties, municipalities, and school districts are limited to 10 mills each. The taxable value of real and tangible personal property is the just, or market, value of the property adjusted for any exclusions, differentials, or exemptions allowed by the constitution or the statutes11. Utilities pay a significant amount of property taxes on their generating plants and any reduction in value of such plants would lead to lower property tax collections for the local jurisdictions where such plants are located. The provisions pertaining to this tax can be found in chapters 192-197, 200, Florida Statutes and Constitution Article VII, Section 9.

[61] "C" corporations in Florida are required to pay a corporate income tax (Chapter 220, Florida Statutes) of 5.5% on the basis of income earned in Florida. Florida piggybacks the federal income tax code to determine taxable income. Multi-state corporations' taxable income is determined according to an apportionment formula, which is based 25% on property, 25% on payroll, and 50% on sales. Interstate transmission of electricity could raise questions as to how the apportionment formula will be applied for utility companies.

[62] According to a Florida Public Service Commission fiscal impact analysis (dated March 20, 1998) of Senate Bill 1888 (filed during the 1998 regular session of the Florida legislature), a five-year transition period will be necessary before competition can be instituted in Florida.

[63] An EIA study estimated price reductions in this range for the Florida region.

Table 2.1 shows that the largest tax revenue losses occur when there is no stranded cost recovery and price falls by 10.5%. The impacts range from an average annual revenue gain of $9.8 million to a loss of $42.4 million between FY 2001-02 and FY 2009-10. The exclusion of any stranded cost charges reduces revenue the most and hence the tax revenues. The price reduction decreases revenues and inelasticity of demand for electricity implies that there will be no compensating effect on revenues due to increased demand for electricity. Price reductions of 6.5% and 8.5% accompanied by high stranded cost recovery produces large positive revenue effects in the first six years. These gains turn negative in the last three years because of the assumed frontend loaded nature of distribution of stranded costs over time. The rationale behind this type of distribution is a likely desire to recover the bulk of the transition costs quickly so as to let consumers see a larger impact on prices in a shorter period of time.

Table 2.1 – Estimated Effect of Electric Industry Deregulation on Gross Receipts Taxes

($millions)

Electric Share of 11/98 REC Gross Receipts revenue forecast		**FY 00-01**	**FY 01-02**	**FY 02-03**	**FY 03-04**	**FY 04-05**	**FY 05-06**	**FY 06-07**	**FY 07-08**	**FY 08-09**	**FY 09-10**
		330.6	341.5	352.0	363.3	374.2	385.8	397.0	408.9	421.2	433.8
SCENARIO		CHANGE FROM BASELINE									
Price Change	Stranded Costs										
-6.5%	*None*	0.0	-25.4	-27.8	-28.9	-29.9	-31.0	-32.0	-33.0	-34.1	-35.3
	Moderate	0.0	-18.7	-20.4	-20.8	-24.1	-24.6	-25.1	-29.3	-30.0	-30.8
	High	0.0	-1.8	-2.0	-.08	-9.5	-8.8	-7.8	-19.8	-19.7	-19.6
-8.5%	*None*	0.0	-32.5	-35.1	-36.5	-37.8	-39.2	-40.4	-41.7	-43.1	-44.6
	Moderate	0.0	-25.7	-27.7	-28.4	-31.9	-32.8	-33.5	-38.0	-39.0	-40.1
	High	0.0	-8.9	-9.3	-8.4	-17.4	-16.9	-16.2	-28.5	-28.7	-28.9
-10.5%	*None*	0.0	-39.6	-42.4	-44.0	-45.6	-47.3	-48.9	-50.4	-52.1	-53.9
	Moderate	0.0	-32.8	-35.0	-36.0	-39.8	-41.0	-41.9	-46.6	-48.0	-49.4
	High	0.0	-15.9	-16.6	-15.9	-25.2	-25.1	-24.6	-37.2	-37.7	-38.1

Source: Office of Economic and Demographic Research, Florida Legislature

The most likely scenario appears to be the 8.5% reduction in prices accompanied by moderate stranded cost recovery of $1.8 billion. The reductions in gross receipts revenues range from $25.7 million to $40.1 million. The average per year reduction in revenues over the ten years is $29.7 million.

The impact of the projected revenue changes is translated to impacts on the PECO program in table 2.2. The money available for debt service is 90% of average annual collections over 24 months prior to the sale of bonds. The lagged nature of this requirement implies that a decrease in gross receipts tax revenues in any year will affect moneys available for debt servicing only in the following year. The 10-year average annual impacts on bonding capacity vary from -$31 million to -$83 million. Under the most likely scenario, the average per year reduction in PECO bonding capacity is -$61.8 million.

Table 2.2 – Estimated Effect of Electric Industry Deregulation on PECO Program

($ millions)

Baseline Forecast (2/98 REC)	**FY 00-01**	**FY 01-02**	**FY 02-03**	**FY 03-04**	**FY 04-05**	**FY 05-06**	**FY 06-07**	**FY 07-08**	**FY 08-09**	**FY 09-10**
	462.4	504.5	514.0	540.0	554.1	579.4	599.6	621.7	643.3	707.3

SCENARIO		CHANGE FROM BASELINE									
Price Change	Stranded Costs										
-6.5%	*None*	0.0	-62.8	-191.2	-158.8	-30.3	-21.5	-19.9	-19.5	-19.1	-20.2
	Moderate	0.0	-45.4	-141.0	-116.4	-25.5	-30.9	-25.3	-20.5	-37.3	-32.8
	High	0.0	-2.0	-15.6	-10.7	-13.4	-54.5	-38.8	-23.1	-82.6	-64.4
-8.5%	*None*	0.0	-80.8	-242.6	-199.4	-37.1	-27.0	-25.1	-24.6	-24.2	-26.5
	Moderate	0.0	-63.5	-192.4	-157.0	-32.1	-36.5	-30.6	-25.7	-42.3	-38.2
	High	0.0	-20.1	-67.1	-51.2	-20.0	-60.1	-44.1	-28.2	-87.6	-69.7
-10.5%	*None*	0.0	-99.0	-294.1	-239.8	-43.7	-32.7	-30.4	-29.7	-29.2	-30.9
	Moderate	0.0	-81.5	-243.9	-197.5	-38.9	-42.1	-35.8	-30.8	-47.4	-43.3
	High	0.0	-38.1	-118.5	-91.7	-26.7	-65.7	-49.2	-33.5	-92.7	-74.9

Source: Office of Economic and Demographic Research, Florida Legislature

Sales Tax Revenue Impact

The sales tax revenue impact is summarized in the table 2.3.

Table 2.3 – Estimated Effect of Electric Industry Deregulation on Sales Taxes
($ millions)

Baseline Sales Tax Collections from Electricity (2/98 REC)	**FY 00-01**	**FY 01-02**	**FY 02-03**	**FY 03-04**	**FY 04-05**	**FY 05-06**	**FY 06-07**	**FY 07-08**	**FY 08-09**	**FY 09-10**
	273.7	283.2	293.9	305.1	315.3	327.3	336.6	347.8	359.4	371.4

SCENARIO		CHANGE FROM BASELINE									
Price Change	Stranded Costs										
-6.5%	*None*	0.0	-20.1	-22.0	-22.9	-23.7	-24.6	-25.3	-26.1	-27.0	-28.0
	Moderate	0.0	-14.8	-16.2	-16.5	-19.1	-19.5	-19.9	-23.2	-23.8	-24.4
	High	0.0	-1.4	-1.6	-0.6	-7.5	-6.9	-6.1	-15.7	-15.6	-15.5
-8.5%	*None*	0.0	-25.7	-27.8	-28.9	-29.9	-31.0	-32.0	-33.0	-34.1	-35.3
	Moderate	0.0	-20.4	-22.0	-22.5	-25.3	-26.0	-26.5	-30.1	-30.9	-31.7
	High	0.0	-7.0	-7.4	-6.6	-13.7	-13.4	-12.8	-22.6	-22.7	-22.9
-10.5%	*None*	0.0	-31.4	-33.6	-34.8	-36.1	-37.5	-38.7	-39.9	-41.3	-42.7
	Moderate	0.0	-26.0	-27.8	-28.5	-31.5	-32.4	-33.2	-36.9	-38.0	-39.1
	High	0.0	-12.6	-13.2	-12.6	-20.0	-19.8	-19.5	-29.5	-29.9	-30.2

Source: Office of Economic and Demographic Research, Florida Legislature

The average annual change in sales tax revenue range from $3.8 million to -$16.0 million. These impacts were calculated on the basis that only consumption of electricity by commercial establishments would be subject to sales tax over the time period of the impact. Under current law, residential and industrial establishments would not be assessed sales tax on consumption of electricity. EIA data indicated that commercial establishments account for approximately one-third of the electricity sales revenues and this was assumed to hold over the time horizon in question[64].

Tax Policy Issues

Nexus

A major tax policy issue for most states contemplating deregulation of the electric utilities is the determination of nexus for out-of-state providers. Nexus is the required minimum connection a corporation must have within a state for it to be taxed in that state. The interpretation of nexus cannot violate the Interstate Commerce Clause, which prohibits any restriction on interstate commerce. Nexus concerns for electric utilities are likely to arise due to retail wheeling. Determination of nexus will be difficult and will

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[64]**Corporate Income Tax Revenue Impact**: EIA's financial analysis of utilities nationwide suggests an average reduction in total federal corporate income tax of about 2.3% on a yearly basis. Applying the same percentage to state corporate income taxes implies an average annual loss of revenues of about $40 million without accounting for any stranded cost recovery built into electricity prices. The amount of the loss will be much less if stranded cost recovery is allowed. The $40 million loss can thus be thought of as the worst case scenario or upper bound of the amount of the loss. Apportionment factors will not play a role in the amount CIT revenue lost since Florida utilities primarily operate in Florida. Such factors will become important if out-of-state utilities begin significant operations in Florida.

The investor owned utilities in Florida paid approximately $94 million (about 7.0% of the total) in state corporate income taxes (CIT) in 1996. This figure was derived by the aggregation of the data provided by the utility companies on FERC Form No. 1. The implied CIT payments by utilities in FY 2001-02 total approximately $110 million. Thus, under the worst case scenario, 36.4% ($40 million as a percentage of $110 million) of the CIT revenues from electric utilities are potentially at risk in a deregulated market environment.

Ad Valorem Tax Revenue Impact: The Florida investor owned utilities jointly paid $233 million in property taxes in 1996 according to FERC form 1 data. The value of property owned by restructured utilities will be affected by the following:

1. Change in property values resulting from sales of utility assets,

2. Different approaches to valuing utility and non-utility property, and

3. Closure of a power plant that is unable to compete.

The level of stranded costs may be the single largest determinant of what impact restructuring would have on property tax revenues. Estimation of the impact is difficult without a detailed assessment of which utility owned assets would lose value and to what degree. Counties with no significant utility property will not be affected at all. Counties, which have significant amounts of utility property on their tax rolls, may be the hardest hit unless the value of utility owned property turns out to have a high resale value. A more detailed discussion of property tax impacts can be found in National Council of State Legislatures, Electric Utility Tax Series, "Property Taxes in the Changing Electric Utility", 1997.

require considerable amount of information. A Price Waterhouse[65] study has suggested that the following information would be helpful for the purpose of nexus determination:

- Point of origination of electricity "shipments", especially with respect to "spot market" transactions;
- Whether sales are shipped "just in time", and are therefore constantly in the stream of foreign and interstate commerce;
- Destination of an electricity sale;
- Title transfer point;
- Which party procured the delivery;
- The location of all owned and leased real and tangible personal property (e.g. transmission assets);
- The location of employment of all personnel;
- A record of personnel performing activities within a state; and,
- Service fees earned within a state.

An electric utility will likely create nexus within a state if it has employees and/or owns or leases real property in the state. Other activities such as purchasing transmission service and having title to electricity being transmitted through a state are less definitive for the purpose of nexus creation. These activities may contribute to the creation of nexus but likely will not be sufficient by themselves.

Nexus is not likely to be a major issue right away for Florida since the majority of competition is expected to occur between in-state companies given the geography of Florida. However, if there is significant consolidation activity in a deregulated environment, nexus will become a significant issue in the future.

In the current environment, regulated utility companies collect gross receipts taxes. If unregulated independent power producers are allowed to sell electricity directly to consumers, tax laws will have to be rewritten to ensure that the entity that ultimately delivers power to the consumers collects gross receipts tax[66]. The tax should be assessed on the user of electricity in Florida; not the producers of electricity who may be located anywhere in the nation. Out-of-state electricity companies would not possess any competitive advantage over Florida based power producers. This method of collection

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[65] Price Waterhouse, World Energy Group, "Multistate Taxation and the Electric Industry: The Approach of Deregulation", 1996.
[66] This type of tax has been suggested in California and has been dubbed the "wires" tax.

will ensure that gross receipts tax base does not shrink and market distortions are not created whereby some consumers pay the tax and others do not.

One Possible Solution: Apply the Gross Receipts Tax Only to the Retail Distribution Process

To the extent that the state lacks taxable nexus for power produced elsewhere a portion of the current gross receipts tax will evaporate. One solution to the nexus problem is limit the gross receipts tax base to the gross receipts attributable to distribution to retail customers. The state will always have taxable nexus over the retail distribution of electricity because the physical capital needed to distribute electricity, as well as the customers, are located in the state. Because a narrower tax base--gross receipts from just distribution rather than from production, transmission and distribution--would result in much lower receipts if the existing 2.5% tax rate remained unchanged, a rate increase would be needed to neutralize the fiscal impact. Customers, however, would see no change in their tax bills because the higher rate would be applied to a smaller tax base.

In order to implement this tax changes, electric utilities would be required to unbundle the cost of providing electricity into the three principal components: production, transmission and distribution. This process could either be accomplished through an allocation formula established by law or regulation, or through the cost accounting mechanisms already used by utilities for managerial purposes.

In addition to solving the nexus problem, application of the tax solely to the retail distribution mechanism could also be used to neutralize the revenue losses anticipated through competition, without damaging the competitive position of Florida power generators. Essentially, the tax rate would be set to provide the current amount of revenue. The gross receipts of power generators would be exempt from taxation, except to the extent that it was distributed to Floridians through the in-state distribution system. Thus, if a Florida power generator firm sold power to a Georgia firm, the gross receipts of that transaction, which are currently taxed, would no longer be subject to the Florida gross receipts tax. This change would slightly improve the competitive position of Florida power generators with respect to out-of-state firms.

Another Solution: Convert the Gross Receipts Tax to a Unit-Based Tax[67].

Under current law, the tax base is the gross receipts of electric utilities. An alternative, but related, base would be the number of kilowatt hours of electricity consumed. The state would have taxable nexus over the consumption of electricity within the state and

[67] A theoretical overview is provided in Chapter 23 of Musgrave, Richard A. and P. B. Musgrave, "Public Finance in Theory and Practice", 5th edition, McGraw-Hill, 1989. The tax incidence of both types of taxes are the same in a competitive environment.

the tax receipts would be immune to the reductions in the in the price of electricity that are expected to accompany deregulation. The source would grow at a reasonably predictable rate with the growth in population and commerce in the state. Power generated in Florida, but not consumed here, would not be subject to the tax, thereby slightly improving the competitive position of Florida's power generators. The tax rate could be set at a level that would neutralize the fiscal consequences of elimination of the present tax.

The principal disadvantage of this approach is that it would probably require a constitutional amendment to use the tax to support bonds issued subject to Article XII, section 9(a)(2), the constitutional authorization for the PECO bond program. It is reasonably clear, although not absolutely beyond dispute, that a gross receipts tax be provided as the security for the bonds. There would be nothing wrong, in a financial sense, with supporting future bond issues with a unit-based electricity tax, however, the issue would probably have to be approved by the voters.

Appendix

A

Appendix A: Price Theory Related to Utility Regulation

Perfect Competition

The theoretical model of perfect competition[68] is based on the following assumptions:

1. Large number of sellers and buyers
2. Product homogeneity
3. Free entry and exit of firms
4. Profit maximization
5. No government intervention
6. Perfect mobility of factors of production
7. Information is freely available and is costless

Assumptions 1 & 2 imply that a perfectly competitive firm is a price taker with no individual influence on prices. Price is equal to the marginal revenue for each firm. Assuming U-shaped marginal and average cost curves,[69] such a firm will be in short run equilibrium when[70]:

(1) Marginal cost = Marginal revenue, and

(2) The slope of the marginal cost curve is greater than that of the marginal revenue curve, which is zero in the case of perfect competition.

[68] These simplifying assumptions are made for theoretical modelling purposes. A real world competitive market may or may not satisfy these restrictions.

[69] The U-shapes follow from the law of diminishing marginal returns of variable factors of production.

[70] These equilibrium conditions can be easily derived as the first order and second order conditions of maximization of a profit function.

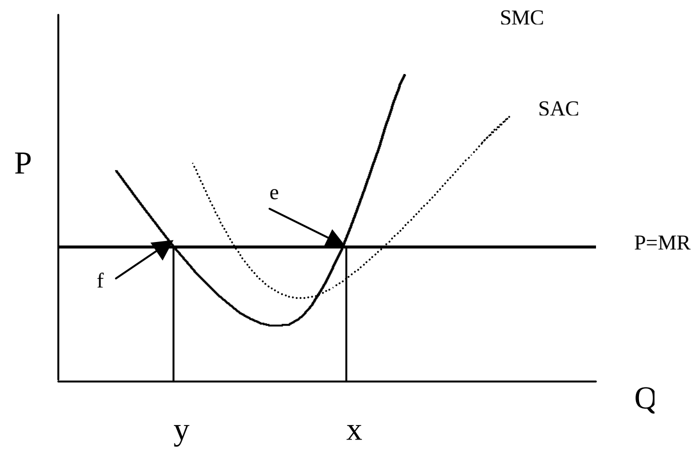


Figure A-1

The firm is in equilibrium at the point of intersection of marginal cost curve (SMC) and the marginal revenue (MR) curve (point e in figure A-1) which implies that the equilibrium level of output is x. The point ‘f’ in the figure satisfies the first condition but not the second (slope of SMC > 0). At f, the firm does not maximize profits – it earns more profits as it moves from f to e and continues to price at P = MR.

A perfectly competitive firm can be in equilibrium and make either losses or excess profits in the short run since the firm is a price taker. At the equilibrium point, losses will be minimized or profits will be maximized. In the long run, firms will not remain in the industry if they experience losses. If excess profits are to be had, new firms will enter the market until the excess profits are dissipated.

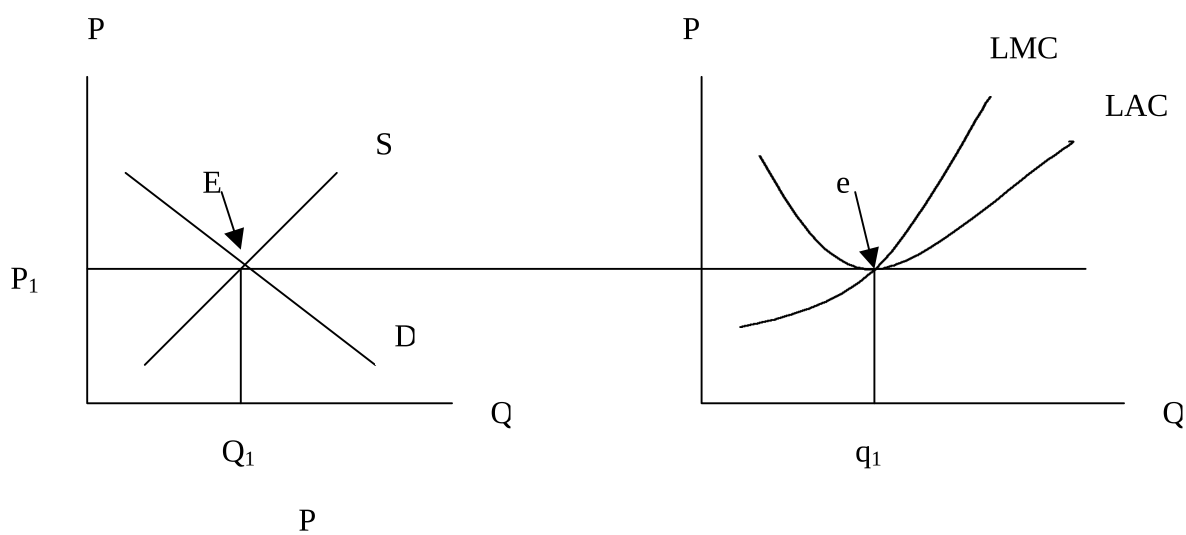


Figure A-2

The long run market demand and supply curves are shown on the left in figure A-2 while the long run cost curves for an individual firm are shown on the right. The industry equilibrium is at point E and the corresponding long run equilibrium for an individual firm is at e. The equilibrium price is at the minimum point of the long run average cost curve (LAC) which is also the point at which average costs equal marginal costs for the firm. The firm does not make any excess profits at the point of equilibrium because excess profits are driven down by the entry of new firms which shifts the industry supply curve and reduces the industry equilibrium price. The firm produces quantity q_1 of the total industry production Q_1 at equilibrium.

Monopoly

A monopoly market is one where a single firm produces all of the output. The short run equilibrium condition (first-order condition for profit maximization) is the same as in the case of perfect competition - marginal revenue is equal to marginal cost. The difference is that marginal revenue is no longer equal to price. The price charges by a monopolist is a markup over marginal cost where the markup is a function of the price elasticity of demand. Figure A-3 shows the equilibrium graphically.

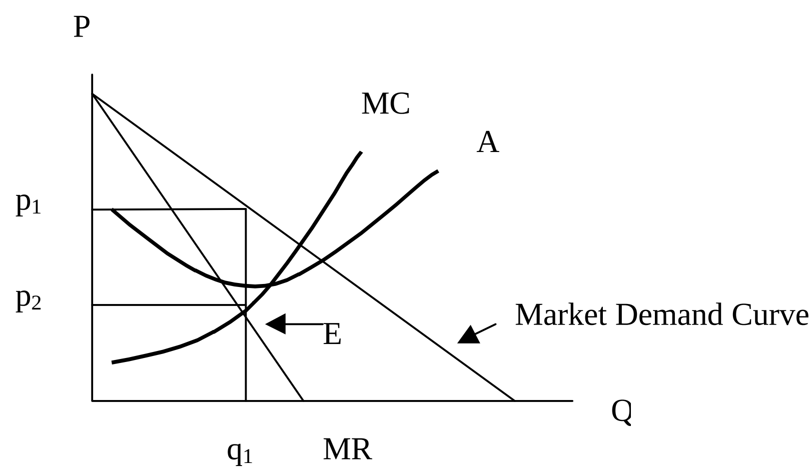


Figure A-3

E is the point at which marginal revenue (MR) is equal to marginal cost (MC). The monopolist will produce q_1 at price p_1. p_2 would be the price if the monopolist had chosen to price at marginal cost but a rational monopolist would never do so since price would lie below average cost implying a loss on each sale.

In the long run, the equilibrium condition does not change for the monopolist since there is no entry by definition. However, in the long run substitute products may be sold by other firms and affect the monopolist's optimal price and output. A situation of monopolistic competition would prevail where the demand curve facing the monopolist shifts downward and equilibrium occurs where the demand curve is tangent to the average cost curve. Monopolistic competition represents an intermediate case between perfect competition and monopoly.

Regulated Natural Monopoly – Electric Utility

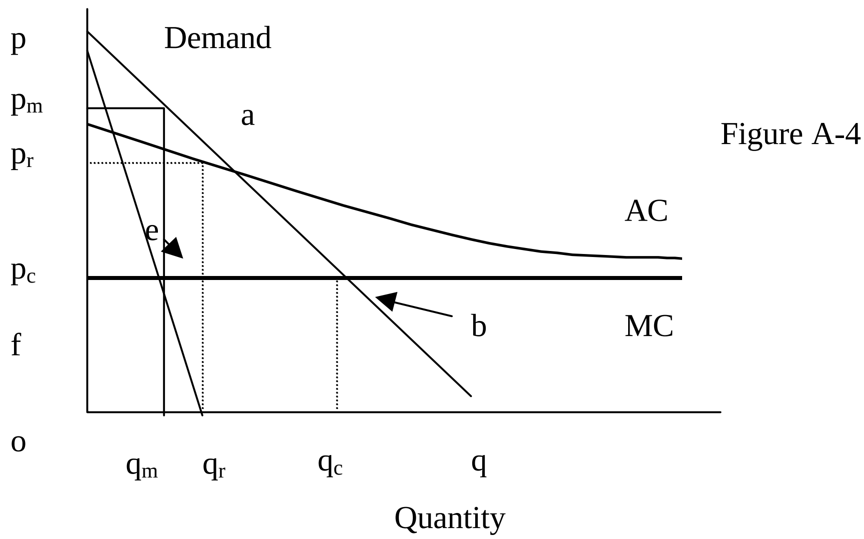


Figure A-4 shows pricing for a regulated natural monopolist (electric utility). The need for regulation arises because technological considerations in the industry require the construction of very large-scale facilities so that it would be impractical for more than one firm to operate profitably in the same area. Over the relevant range of output, average costs are declining and the cost of adding an additional customer (MC) is less than the average cost. The regulator requires the monopolist to produces q_r at price p_r rather than q_m at p_m. At price p_r, the monopolist can recover full costs (including fixed costs). Another way of looking at it is that the average cost curve is the monopolist's supply curve. Under competition the firm would charge price p_c and produce q_c.

The consumer surplus[71] under monopoly is the area given by pap$_m$. The consumer surplus under competition is pbp$_m$. The area p$_c$abp$_m$ is the net improvement in consumer surplus. The revenue loss with lower prices but higher quantity under competition is the area represented by (p$_c$aep$_m$ – edb). The net loss in revenues is the amount of the stranded costs and will be a net transfer of wealth to consumers if no recovery is pursued.

[71] The consumers' surplus is measured as the difference between the amount of money consumers actually pay to buy a certain quantity of a good and the amount they would be willing to pay for this quantity rather than do without it.

Contestable Markets

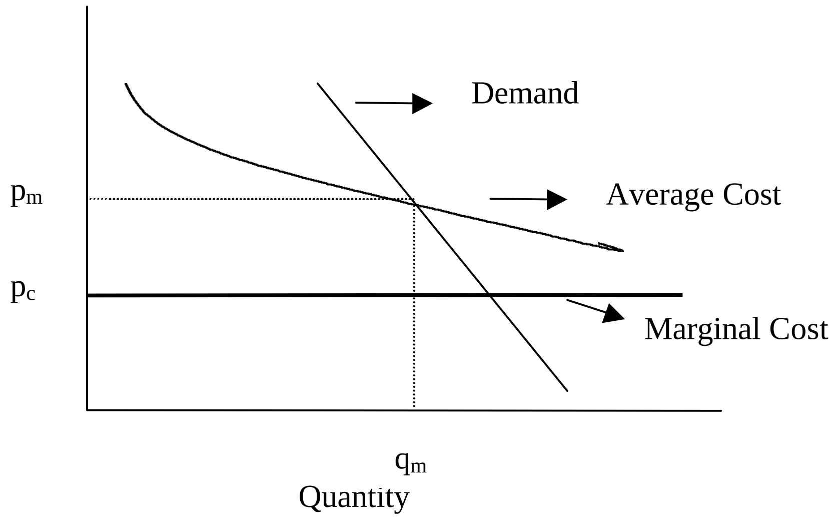


Figure A-5

Baumol, Panzar, and Willig[72] put forward the theory of contestable markets where they showed that an industry subject to increasing returns can be made to come close to marginal cost pricing through the threat of entry by other firms. In figure B-5, a single firm is a sustainable industry configuration. A sustainable industry configuration is described as one where no entrant can make a profit at the price (p^m) charged by the incumbent firm. A contestable market is one in which any equilibrium industry configuration must be sustainable. In figure A-5, p^m is the sustainable price because entrants would incur losses at any price below it. At prices above p^m, entrants could undercut the incumbent and still make positive profits.

The argument in favor of regulating industries with significant increasing returns to scales (such as the electricity industry) was that competition is not possible in such an industry. The theory of contestable markets suggests that potential competition can be effective in disciplining the pricing behavior of such firms without regulation. The average cost pricing behavior is a second-best solution compared to marginal cost pricing. However, it is the lowest pricing option available to the incumbent that allows the firm to make non-negative profits.

[72] Baumol, W., J.Panzar, and R.Willig, "Contestable Markets and the Theory of the Industry Structure, Harcourt Brace Jovanovish, New York, 1982.

Appendix
B

Appendix B: Selected Florida Electric Utility Industry Statistics[73]

[73] All of the figures and tables in this section have been directly excerpted from Florida Public Service Commission (FPSC), Division of Research and Regulation Review, "Statistics of the Florida Electric Utility Industry, 1996", August 1997. Updated versions of these tables and figures may be available from the FPSC.

FIGURE 1
FLORIDA SOURCES OF ELECTRICITY
BY TYPE OF OWNERSHIP

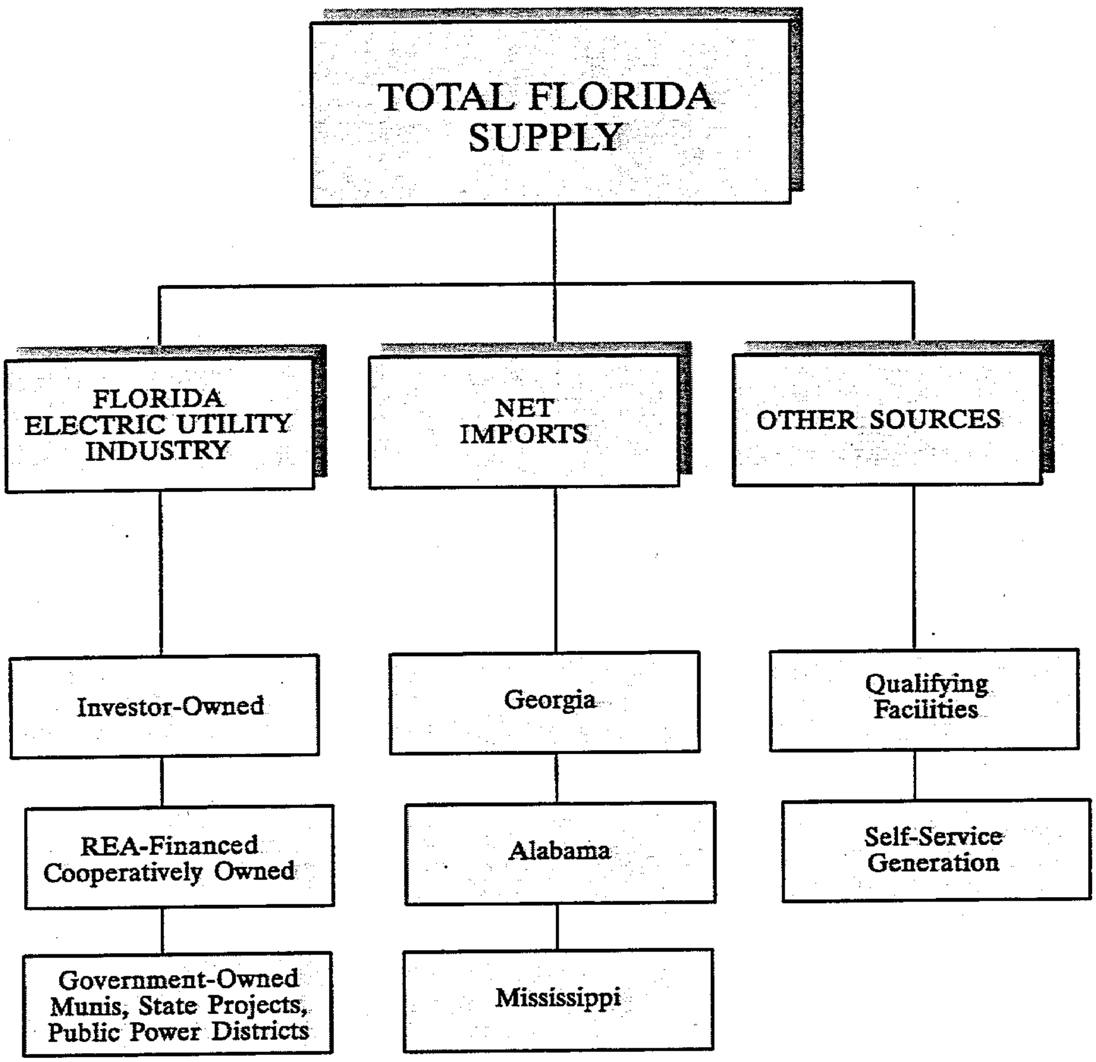


FIGURE 2
PRIVATELY OWNED UTILITIES

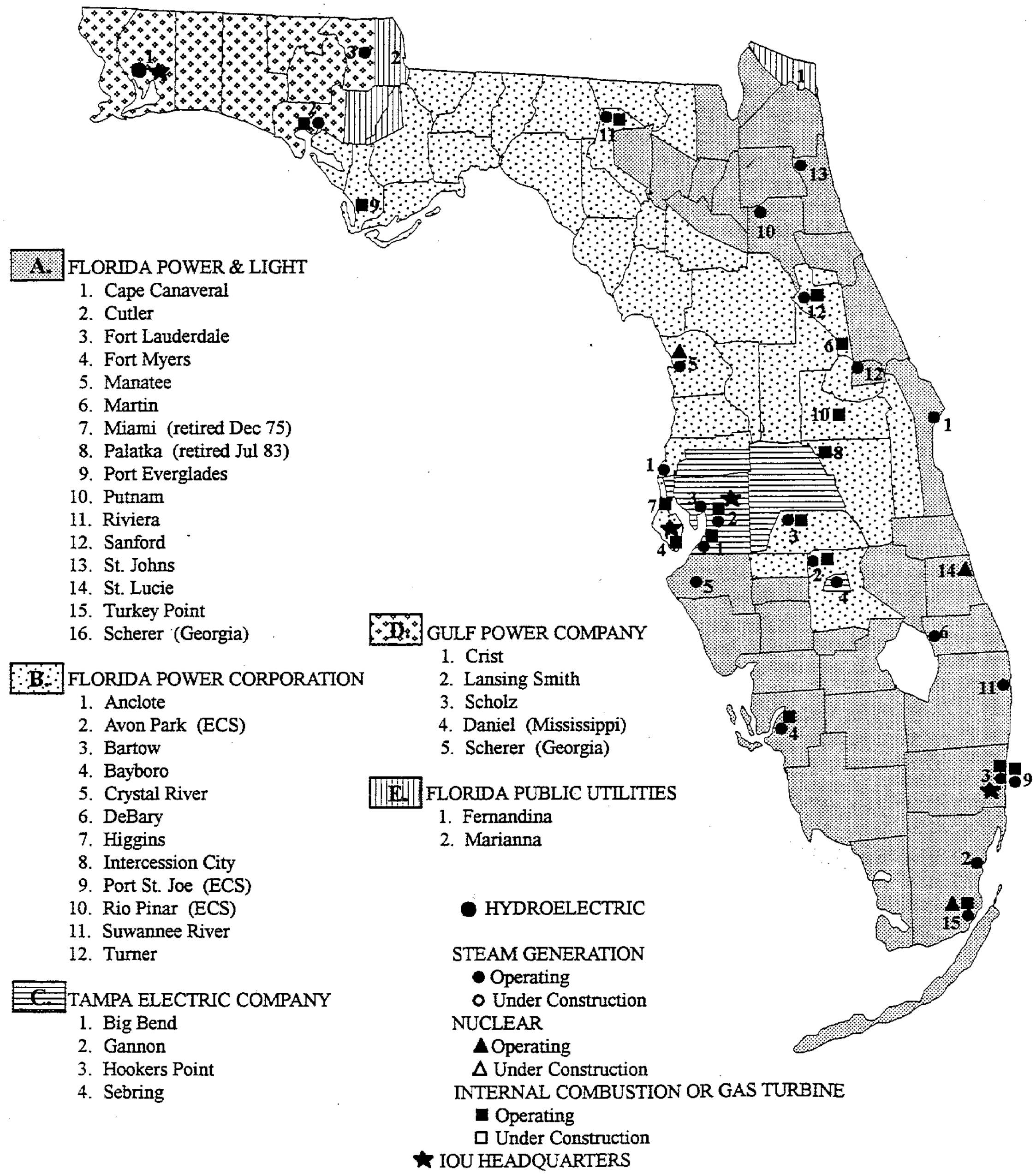
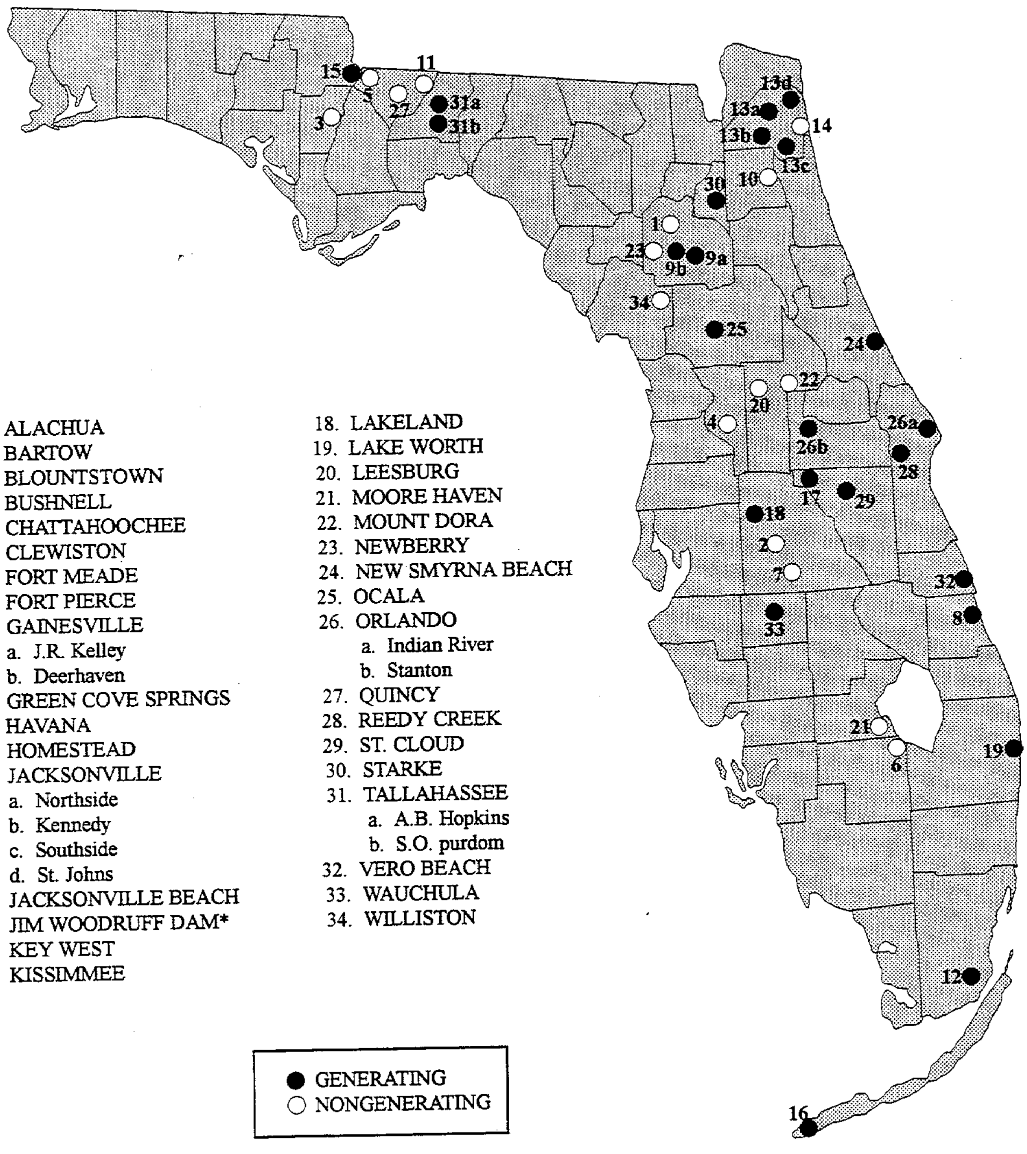


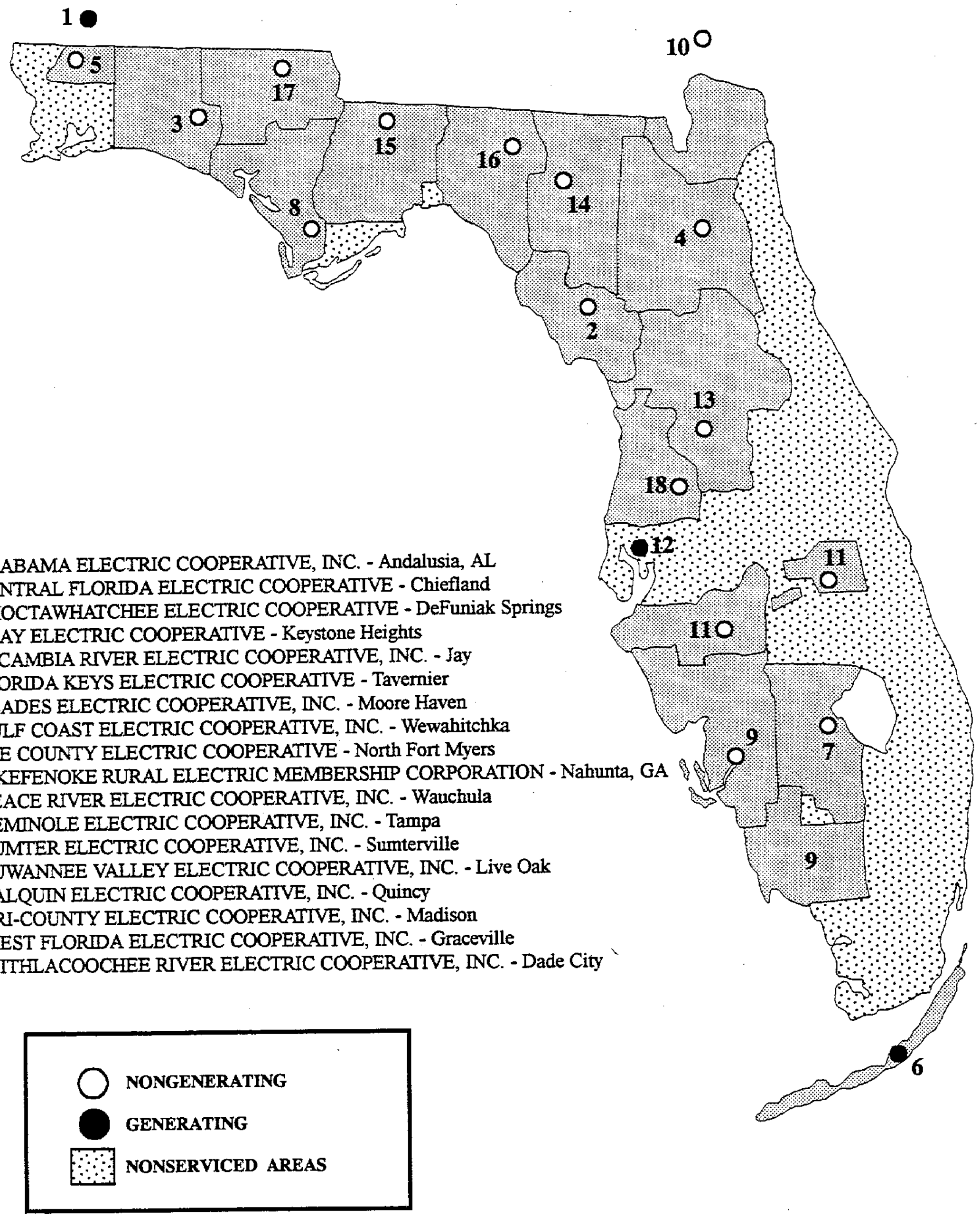
FIGURE 3
PUBLICLY OWNED UTILITIES



1. ALACHUA
2. BARTOW
3. BLOUNTSTOWN
4. BUSHNELL
5. CHATTAHOOCHEE
6. CLEWISTON
7. FORT MEADE
8. FORT PIERCE
9. GAINESVILLE
   a. J.R. Kelley
   b. Deerhaven
10. GREEN COVE SPRINGS
11. HAVANA
12. HOMESTEAD
13. JACKSONVILLE
   a. Northside
   b. Kennedy
   c. Southside
   d. St. Johns
14. JACKSONVILLE BEACH
15. JIM WOODRUFF DAM*
16. KEY WEST
17. KISSIMMEE
18. LAKELAND
19. LAKE WORTH
20. LEESBURG
21. MOORE HAVEN
22. MOUNT DORA
23. NEWBERRY
24. NEW SMYRNA BEACH
25. OCALA
26. ORLANDO
   a. Indian River
   b. Stanton
27. QUINCY
28. REEDY CREEK
29. ST. CLOUD
30. STARKE
31. TALLAHASSEE
   a. A.B. Hopkins
   b. S.O. purdom
32. VERO BEACH
33. WAUCHULA
34. WILLISTON

*Southeastern Power Administration

FIGURE 4
RURAL ELECTRIC COOPERATIVES



1. ALABAMA ELECTRIC COOPERATIVE, INC. - Andalusia, AL
2. CENTRAL FLORIDA ELECTRIC COOPERATIVE - Chiefland
3. CHOCTAWHATCHEE ELECTRIC COOPERATIVE - DeFuniak Springs
4. CLAY ELECTRIC COOPERATIVE - Keystone Heights
5. ESCAMBIA RIVER ELECTRIC COOPERATIVE, INC. - Jay
6. FLORIDA KEYS ELECTRIC COOPERATIVE - Tavernier
7. GLADES ELECTRIC COOPERATIVE, INC. - Moore Haven
8. GULF COAST ELECTRIC COOPERATIVE, INC. - Wewahitchka
9. LEE COUNTY ELECTRIC COOPERATIVE - North Fort Myers
10. OKEFENOKE RURAL ELECTRIC MEMBERSHIP CORPORATION - Nahunta, GA
11. PEACE RIVER ELECTRIC COOPERATIVE, INC. - Wauchula
12. SEMINOLE ELECTRIC COOPERATIVE, INC. - Tampa
13. SUMTER ELECTRIC COOPERATIVE, INC. - Sumterville
14. SUWANNEE VALLEY ELECTRIC COOPERATIVE, INC. - Live Oak
15. TALQUIN ELECTRIC COOPERATIVE, INC. - Quincy
16. TRI-COUNTY ELECTRIC COOPERATIVE, INC. - Madison
17. WEST FLORIDA ELECTRIC COOPERATIVE, INC. - Graceville
18. WITHLACOOCHEE RIVER ELECTRIC COOPERATIVE, INC. - Dade City

TABLE 1
SUMMARY STATISTICS
FLORIDA ELECTRIC UTILITY INDUSTRY
1992-1996

	1992	PERCENT CHANGE 1992-1993	1993	PERCENT CHANGE 1993-1994	1994	PERCENT CHANGE 1994-1995	1995	PERCENT CHANGE 1995-1996	1996
I. CAPACITY AND CAPABILITY (MEGAWATTS)									
A. Nameplate Capacity by Prime Mover									
Conventional Steam	26,784	2.0	27,316	(0.2)	27,263	(0.6)	27,107	(4.3)	25,950
Internal Combustion and Gas Turbine	5,217	13.6	5,925	5.2	6,234	0.4	6,261	1.3	6,343
Combined Cycle	842	(22.6)	652	121.2	1,442	0.0	1,442	171.2	3,910
Hydroelectric	21	0.0	21	0.0	21	0.0	20	5.0	21
Steam - Nuclear	4,124	0.0	4,124	0.0	4,124	0.0	4,124	(0.3)	4,110
Total Nameplate Capacity	36,988	2.8	38,039	2.7	39,084	(0.3)	38,954	3.5	40,334
II. NET GENERATION (GIGAWATT-HOURS)									
Total Net Generation	140,060	6.7	149,388	2.3	152,779	4.2	159,156	(0.8)	157,946
A. By Prime Mover									
Conventional Steam	110,126	8.3	119,286	(3.4)	115,196	2.0	117,474	(2.3)	114,725
Internal Combustion and Gas Turbine	1,070	111.9	2,267	276.6	8,537	21.2	10,348	47.5	15,268
Combined Cycle	2,361	(100.0)	0	0.0	0	0.0	0	0.0	0
Hydroelectric	247	(8.9)	225	31.1	295	(15.3)	250	(6.0)	235
Steam - Nuclear	26,256	5.2	27,610	4.1	28,750	8.1	31,084	(10.8)	27,718
B. By Fuel Type (Gigawatt-Hours)									
Natural Gas	17,744	1.8	18,064	13.0	20,420	64.0	33,483	(8.9)	30,496
Coal	58,836	3.7	61,000	2.5	62,511	5.1	65,714	6.5	70,008
Residual	28,588	18.9	33,985	(2.1)	33,286	(32.3)	22,521	0.1	22,537
Distillate	10,145	7.3	10,885	(5.7)	10,267	(5.9)	9,665	8.9	10,523
Hydroelectric	54	(6.4)	51	56.9	80	(41.3)	47	4.3	49
Nuclear	24,693	2.9	25,403	3.2	26,216	5.8	27,726	(12.2)	24,333
C. By Type of Ownership									
Investor-Owned	104,776	7.1	112,251	4.4	117,134	3.7	121,496	(1.0)	120,267
Municipal and Cooperatives	35,284	5.3	37,137	(4.0)	35,645	5.7	37,660	0.1	37,679
III. SALES TO ULTIMATE CONSUMERS (GIGAWATT-HOURS)									
A. Residential	73,292	4.8	76,844	4.6	80,405	6.4	85,536	3.2	88,240
B. Commercial	45,879	5.9	48,598	6.0	51,519	(0.1)	51,446	4.3	53,667
C. Industrial	24,960	(11.8)	22,022	0.2	22,057	13.2	24,973	(1.1)	24,701
D. Other	5,107	(6.9)	4,755	44.5	5,589	(4.2)	5,356	2.7	5,498
Total	149,238	2.0	152,219	5.7	159,570	4.9	167,311	2.9	172,106

TABLE 1 (continued)
SUMMARY STATISTICS
FLORIDA ELECTRIC UTILITY INDUSTRY
1992-1996

	1992	PERCENT CHANGE 1992-1993	1993	PERCENT CHANGE 1993-1994	1994	PERCENT CHANGE 1994-1995	1995	PERCENT CHANGE 1995-1996	1996
IV. FLORIDA POPULATION (THOUSANDS)	13,196	1.7	13,424	1.4	13,609	2.0	13,879	1.9	14,149
V. PER CAPITA CONSUMPTION (KILOWATT-HOURS)**									
A. Total Sales per Capita	11,309	0.3	11,339	4.2	11,725	2.8	12,055	0.9	12,164
B. Residential Sales per Capita	5,554	3.1	5,724	3.2	5,908	4.3	6,163	1.2	6,236
VI. PER CAPITA NET GENERATION (KILOWATT-HOURS)***	10,614	4.8	11,128	0.9	11;226	2.1	11,467	(2.7)	11,163
VII. AVERAGE ANNUAL RESIDENTIAL CONSUMPTION PER CUSTOMER (KILOWATT-HOURS)	12,080	2.6	12,391	2.6	12,712	4.1	13,237	1.1	13,389
VIII. NUMBER OF CUSTOMERS BY CLASS OF SERVICE									
A. Residential	6,067,181	2.2	6,201,730	2.0	6,325,299	2.2	6,461,631	2.0	6,590,402
B. Commercial	718,540	2.6	737,432	2.3	754,551	2.1	770,598	3.5	797,218
C. Industrial	36,148	(4.9)	34,362	2.1	35,084	7.1	37,586	40.2	52,706
D. Other	89,307	4.7	93,472	5.3	98,439	(8.8)	89,769	3.1	92,519
Total	6,911,176	2.3	7,066,996	2.1	7,213,373	2.0	7,359,584	2.4	7,532,845
IX. CUSTOMER REVENUES BY CLASS OF SERVICE (THOUSANDS OF DOLLARS)									
A. Residential	5,681,719	8.1	6,140,038	1.8	6,252,005	6.1	6,635,847	6.3	7,056,633
B. Commercial	2,940,669	6.2	3,123,365	4.3	3,259,074	1.4	3,303,139	8.1	3,570,759
C. Industrial	1,338,816	1.7	1,361,449	(9.9)	1,226,500	10.3	1,352,628	0.8	1,363,019
D. Other	336,772	4.0	350,405	2.5	359,252	35.0	484,992	(22.4)	376,590
Total	10,297,976	7.8	10,975,257	1.1	11,096,831	6.1	11,776,606	5.0	12,367,001
X. CUSTOMER REVENUES AS A PERCENTAGE OF TOTAL BY CLASS OF SERVICE									
A. Residential	55.2	1.3	55.9	0.7	56.3	0.0	56.3	1.4	57.1
B. Commercial	28.6	(0.3)	28.5	3.2	29.4	(4.8)	28.0	3.2	28.9
C. Industrial	13.0	(4.6)	12.4	(10.5)	11.1	3.6	11.5	(4.3)	11.0
D. Other	3.3	(3.0)	3.2	0.0	3.2	28.1	4.1	(26.8)	3.0

**Computed (Total Sales/Population)
***Computed (Net Generation/Population)

SOURCES: EIA-826, 759
FPSC Form RRR 1, 2, 4
A-Schedules 1996
1996 FLORIDA STATISTICAL ABSTRACT,
University of Florida, College of Business Administration,
Bureau of Economic and Business Research

TABLE 25
CONSUMPTION AND PERCENTAGE CHANGE BY CLASS OF SERVICE
(GIGAWATT-HOURS)
1986-1996

YEAR		RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITIES*	TOTAL
1986	Consumption	57,480	36,223	18,982	3,628	116,313
	Percent Change	6.1	10.4	(8.0)	0.7	4.6
1987	Consumption	60,505	38,637	19,726	3,741	122,609
	Percent Change	5.3	6.7	3.9	3.1	5.4
1988	Consumption	64,037	43,401	18,789	4,078	130,306
	Percent Change	5.8	12.3	(4.7)	9.0	6.3
1989	Consumption	68,203	45,730	19,908	4,417	138,258
	Percent Change	6.5	5.4	6.0	8.3	6.1
1990	Consumption	71,035	45,770	22,110	4,389	143,304
	Percent Change	4.2	0.1	11.1	(0.6)	3.6
1991	Consumption	72,694	46,810	21,672	4,929	146,105
	Percent Change	2.3	2.3	(2.0)	12.3	2.0
1992	Consumption	73,293	45,879	24,960	5,107	149,238
	Percent Change	0.8	(2.0)	15.2	3.6	2.1
1993	Consumption	76,843	48,598	22,022	4,755	152,219
	Percent Change	4.8	5.9	(11.8)	(6.9)	2.0
1994	Consumption	80,405	51,519	22,057	5,589	159,570
	Percent Change	4.6	6.0	0.2	17.5	4.8
1995	Consumption	85,536	51,446	24,973	5,356	167,311
	Percent Change	6.4	(0.1)	13.2	(4.2)	4.9
1996	Consumption	88,240	53,667	24,701	5,498	172,106
	Percent Change	3.2	4.3	(1.1)	2.7	2.9

*Includes Street and Highway Lighting and Interdepartmental

SOURCES: 1986-1996 FPSC Form RRR 1,4
A-Schedules 1996
EIA-826

TABLE 26
CUSTOMER REVENUES AS A PERCENTAGE OF TOTAL BY CLASS OF SERVICE
FLORIDA ELECTRIC UTILITY INDUSTRY
1981-1996

YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITIES*
1981	52.2	30.0	14.9	3.1
1982	52.1	31.9	12.5	3.5
1983	54.4	26.3	15.8	3.5
1984	52.6	28.6	14.9	3.9
1985	53.8	28.5	14.6	3.1
1986	54.6	29.4	12.9	3.0
1987	55.3	28.8	11.5	4.5
1988	53.8	31.3	10.9	3.0
1989	54.2	30.9	11.3	3.7
1990	54.8	31.0	11.2	3.0
1991	54.9	30.8	11.0	3.3
1992	55.2	28.6	13.0	3.3
1993	55.9	28.5	12.4	3.2
1994	56.3	29.4	11.1	3.2
1995	56.3	28.0	11.5	4.1
1996	57.1	28.9	11.0	3.0

*Other includes Street and Highway Lighting and Interdepartmental

SOURCES: 1981-1982 Edison Electric Institute
1983-1996 FPSC Form RRR 1
EIA-826

TABLE 27
CUSTOMER REVENUES BY CLASS OF SERVICE
FLORIDA ELECTRIC UTILITY INDUSTRY
(THOUSANDS OF DOLLARS)
1982-1996

YEAR	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER PUBLIC AUTHORITIES*	TOTAL
1982	3,264,575	2,001,620	786,052	218,355	6,270,602
1983	3,700,646	1,792,492	1,075,406	236,966	6,805,510
1984	4,425,073	2,403,672	1,252,063	330,446	8,411,254
1985	4,564,286	2,420,440	1,242,824	260,288	8,487,838
1986	4,589,747	2,474,514	1,088,988	256,063	8,409,312
1987	4,786,969	2,491,091	992,612	386,754	8,657,426
1988	4,993,880	2,910,309	997,402	277,514	9,179,105
1989	5,279,887	3,009,559	1,097,216	362,259	9,748,921
1990	5,520,066	3,121,059	1,128,528	303,506	10,073,159
1991	5,736,646	3,220,832	1,146,858	342,605	10,446,941
1992	5,681,719	2,940,669	1,338,816	336,772	10,297,976
1993	6,140,038	3,123,365	1,361,449	350,405	10,975,257
1994	6,252,005	3,259,074	1,226,500	359,252	11,096,831
1995	6,635,847	3,303,139	1,352,628	484,992	11,776,606
1996	7,056,633	3,570,759	1,363,019	376,590	12,367,001

*Other includes Street and Highway Lighting and Interdepartmental

SOURCES: 1982 Edison Electric Institute
1983-1996 FPSC Form RRR 1
EIA-826

TABLE 32
SALE FOR RESALE ACTIVITY BY SELECTED FLORIDA UTILITIES, 1996
(MEGAWATT-HOURS)

UTILITY	RESALE TOTAL SALES (MWH)	TOTAL SALES TO ULTIMATE CUSTOMERS (MWH)	UTILITY TOTAL SALES (MWH)	AVERAGE RESALES PER MONTH (MWH/MONTH)	RESALES AS PERCENTAGE OF TOTAL (%)
Florida Power & Light	3,464,143	77,333,396	80,797,539	288,679	4.29
Florida Power Corporation	2,707,733	30,784,800	33,492,533	225,644	8.08
Florida Public Utilities	0	627,730	627,730	0	0.00
Gulf Power Company	2,243,744	8,794,459	11,038,203	186,979	20.33
Tampa Electric Company	3,241,386	14,928,925	18,170,311	270,116	17.84
Gainesville	104,728	1,479,358	1,584,086	8,727	6.61
Homestead	2,046	268,244	270,290	171	0.76
Jacksonville	0	10,116,732	10,116,732	0	0.00
Kissimmee	0	898,564	898,564	0	0.00
Lakeland	24,462	2,318,852	2,343,314	2,039	1.04
Lake Worth	0	353,715	353,715	0	0.00
Orlando	2,557,852	4,037,466	6,595,318	213,154	38.78
St. Cloud	111	270,223	270,334	9	0.04
Vero Beach	0	568,651	568,651	0	0.00
Chattahoochee	0	49,560	49,560	0	0.00
Green Cove Springs	2,702	109,354	112,056	225	2.41
Leesburg	0	395,709	395,709	0	0.00
Talquin Electric Cooperative	15,235	738,239	753,475	1,270	2.02
Alabama Electric Cooperative*	6,303,616	0	6,303,616	525,301	100.00
Seminole Electric Cooperative**	10,131,640	0	10,131,640	844,303	100.00

NR = Not reported

*Alabama Electric Cooperative does all of its Florida business on a resale basis.
** Seminole Electric Cooperative generates only for resale.

SOURCES: FERC Form 1
1996 FPSC Form RRR 1

TABLE 35
PRICE OF RESIDENTIAL ELECTRIC CUSTOMER SERVICE (DOLLARS)*
AS OF DECEMBER 31, 1996

INVESTOR-OWNED UTILITIES	MINIMUM BILL OR CUSTOMER CHARGE	100 KWH	250 KWH	500 KWH	750 KWH	1000 KWH	1500 KWH
Florida Power & Light	$5.65	$12.64	$23.12	$40.59	$58.05	$78.02	$117.96
Florida Power Corporation	$8.85	$16.10	$26.97	$45.08	$63.20	$81.31	$117.54
Tampa Electric Company	$8.50	$15.49	$25.97	$43.44	$60.90	$78.37	$113.31
Gulf Power Company	$8.07	$14.27	$23.56	$39.05	$54.53	$70.02	$101.00
Florida Public Utilities Company							
Marianna Division	$8.30	$14.48	$23.76	$39.22	$54.67	$70.13	$101.05
Fernandina Beach Division	$7.00	$13.28	$22.68	$38.41	$54.12	$69.82	$101.23

*Excluding local taxes; October 1996-March 1997 fuel costs are included.

**Summer/winter rates in effect - winter rates are shown.

TABLE 35 (continued)
PRICE OF RESIDENTIAL ELECTRIC CUSTOMER SERVICE (DOLLARS)*
AS OF DECEMBER 31, 1996

MUNICIPAL UTILITIES	MINIMUM BILL OR CUSTOMER CHARGE	100 KWH	250 KWH	500 KWH	750 KWH	1000 KWH	1500 KWH
Alachua	$8.00	$16.38	$28.95	$49.90	$70.85	$91.80	$133.70
Bartow	$5.50	$12.84	$23.85	$42.20	$60.55	$78.90	$115.60
Blountstown	$3.50	$10.08	$19.94	$36.39	$52.83	$69.27	$102.16
Bushnell	$6.75	$14.32	$25.68	$44.60	$63.53	$82.45	$120.30
Chattahoochee	$4.50	$12.19	$23.72	$42.94	$62.15	$81.37	$119.81
Clewiston	$6.50	$12.45	$21.38	$41.25	$58.63	$76.00	$110.75
Fort Meade	$12.96	$20.54	$31.92	$50.88	$69.84	$88.80	$126.72
Fort Pierce	$5.35	$13.81	$26.49	$47.63	$68.76	$89.90	$132.18
Gainesville	$4.90	$11.82	$22.20	$39.50	$56.80	$75.15	$111.85
Green Cove Springs	$6.00	$13.41	$24.54	$43.07	$61.61	$80.15	$117.22
Havana	$6.00	$15.04	$28.60	$51.19	$73.79	$96.38	$141.57
Homestead	$5.50	$13.79	$26.21	$46.93	$67.64	$88.35	$129.78
Jacksonville	$5.50	$11.77	$21.16	$36.83	$52.49	$68.15	$99.48
Jacksonville Beach	$4.50	$12.38	$24.19	$43.88	$63.57	$83.26	$122.64
Key West	$4.76	$13.19	$25.84	$46.91	$67.99	$89.06	$131.21
Kissimmee	$4.00	$11.58	$22.94	$41.89	$60.83	$79.77	$117.66
Lakeland	$3.94	$10.86	$21.23	$38.52	$55.81	$73.10	$107.68
Lake Worth	$2.78	$11.18	$23.77	$44.77	$65.76	$86.75	$128.74
Leesburg	$5.00	$12.20	$22.99	$40.98	$58.96	$76.95	$112.93
Moore Haven	$8.50	$16.83	$29.33	$50.15	$70.98	$91.80	$133.45
Mount Dora	$4.94	$12.98	$25.04	$45.14	$65.24	$85.34	$125.54
Newberry	$7.50	$15.16	$26.66	$45.81	$64.97	$84.12	$122.43
New Smyrna Beach	$5.65	$12.93	$23.85	$42.06	$60.26	$78.46	$114.87
Ocala	$7.00	$14.04	$24.61	$42.22	$59.83	$77.44	$112.66
Orlando	$6.00	$13.15	$23.87	$41.74	$59.60	$77.47	$113.21
Quincy	$2.40	$10.61	$22.92	$43.43	$63.95	$84.46	$125.49
Reedy Creek	$2.85	$9.70	$19.98	$37.11	$54.23	$71.36	$105.62
St. Cloud	$5.93	$14.18	$26.55	$47.18	$67.80	$88.42	$129.67
Starke	$6.45	$14.31	$26.10	$45.75	$65.40	$85.05	$135.35
Tallahassee	$4.94	$13.37	$26.02	$47.09	$68.17	$89.24	$131.39
Vero Beach	$7.00	$14.96	$26.90	$46.79	$66.69	$86.58	$126.37
Wauchula	$8.62	$15.99	$27.05	$45.48	$63.90	$82.33	$119.19
Williston	$6.00	$14.43	$27.09	$48.17	$69.26	$90.34	$132.51

TABLE 35 (continued)
PRICE OF RESIDENTIAL ELECTRIC CUSTOMER SERVICE (DOLLARS)*
AS OF DECEMBER 31, 1996

COOPERATIVE UTILITIES	MINIMUM BILL OR CUSTOMER CHARGE	100 KWH	250 KWH	500 KWH	750 KWH	1000 KWH	1500 KWH
Central Florida	$8.50	$15.15	$28.88	$41.75	$58.38	$75.00	$108.25
Choctawhatchee	$12.32	$18.56	$28.34	$43.52	$59.12	$74.72	$105.91
Clay	$9.00	$15.68	$28.88	$42.40	$59.10	$75.80	$115.45
Escambia River	$7.00	$14.08	$24.20	$42.40	$60.10	$77.80	$113.20
Florida Keys	$7.00	$14.19	$11.45	$42.93	$60.90	$78.86	$114.79
Glades	$10.50	$18.30	$32.00	$49.50	$69.00	$88.50	$127.50
Gulf Coast	$10.00	$16.50	$27.25	$42.50	$58.75	$75.00	$107.50
Lee County	$5.00	$12.56	$26.15	$42.80	$61.70	$80.60	$118.40
Okefenokee	$10.00	$17.10	$28.75	$45.50	$63.25	$81.00	$116.50
Peace River	$10.50	$18.65	$33.63	$51.25	$71.63	$92.00	$132.75
Sumter	$8.25	$16.07	$29.25	$47.35	$66.90	$86.45	$125.55
Suwannee Valley	$8.73	$15.83	$31.48	$44.23	$61.98	$79.73	$115.23
Talquin	$8.00	$15.30	$27.75	$44.50	$62.75	$81.00	$117.50
Tri-County	$10.00	$18.20	$31.50	$50.99	$71.49	$91.98	$132.97
West Florida	$8.00	$14.92	$28.63	$42.61	$59.92	$77.22	$111.83
Withlacoochee River	$9.75	$16.77	$28.33	$44.87	$62.42	$79.98	$115.10

*Excluding local taxes/December 1996 fuel costs are included.

SOURCE: Comparative Cost Statistics, Regulated Electric Utilities, Division of Electric and Gas, FPSC, 1996.

TABLE 36
PRICE OF COMMERCIAL AND INDUSTRIAL CUSTOMER SERVICE (DOLLARS)*
AS OF DECEMBER 31, 1996

INVESTOR-OWNED UTILITIES	75 KW 15,000 KWH	150 KW 45,000 KWH	500 KW 150,000 KWH	1,000 KW 400,000 KWH	2,000 KW 800,000 KWH
Florida Power & Light	$1,086.00	$3,141.00	$10,213.00	$24,365.00	$48,794.00
Florida Power Corporation	$988.00	$2,655.00	$8,822.00	$22,240.00	$44,468.00
Tampa Electric Company	$1,173.00	$2,891.00	$9,538.00	$23,069.00	$45,883.00
Gulf Power Company**	$970.00	$2,487.00	$9,099.00	$21,029.00	$41,831.00
Florida Public Utilities Company					
Marianna Division	$900.00	$2,431.00	$8,001.00	$20,464.00	$40,884.00
Fernandina Beach Division	$939.00	$2,608.00	$8,606.00	$22,296.00	$44,554.00

*Excluding local taxes; October 1996-March 1997 fuel costs are included.
**Summer/winter rates in effect - winter rates are shown.

SOURCE: Comparative Cost Statistics, Regulated Electric Utilities, Division of Electric and Gas, FPSC, 1996.

TABLE 36 (continued)
PRICE OF COMMERCIAL AND INDUSTRIAL CUSTOMER SERVICE (DOLLARS)*
AS OF DECEMBER 31, 1996

MUNICIPAL UTILITIES	75 KW 15,000 KWH	150 KW 45,000 KWH	500 KW** 150,000 KWH	1,000 KW** 400,000 KWH	2,000 KW 800,000 KWH
Alachua	$1,393.00	$3,687.00	$12,238.00	$30,613.00	$61,203.00
Bartow	$1,452.00	$3,748.00	$12,451.00	$30,639.00	$61,259.00
Blountstown	$1,125.00	$3,361.00	$11,187.00	$29,819.00	$59,631.00
Bushnell	$1,409.00	$3,676.00	$12,206.00	$30,249.00	$60,477.00
Chattahoochee	$1,274.00	$3,893.00	$12,976.00	$32,928.00	$65,856.00
Clewiston	$1,273.00	$3,487.00	$11,510.00	$29,435.00	$58,835.00
Fort Meade	$1,251.00	$3,822.00	$12,531.00	$30,126.00	$60,162.00
Fort Pierce	$1,372.00	$3,595.00	$11,902.00	$29,679.00	$59,323.00
Gainesville	$1,160.00	$3,100.00	$10,296.00	$22,501.00	$44,941.00
Green Cove Springs	$1,347.00	$3,467.00	$11,497.00	$24,083.00	$33,041.00
Havana	$1,362.00	$4,073.00	$13,563.00	$36,158.00	$72,310.00
Homestead	$1,456.00	$3,969.00	$13,313.00	$33,475.00	$66,985.00
Jacksonville	$1,016.00	$2,551.00	$8,385.00	$20,450.00	$40,700.00
Jacksonville Beach	$1,670.00	$4,340.00	$14,430.00	$35,620.00	$71,224.00
Key West	$1,687.00	$4,535.00	$15,105.00	$37,975.00	$75,945.00
Kissimmee	$1,312.00	$3,222.00	$11,110.00	$25,590.00	$51,138.00
Lakeland	$1,070.00	$2,813.00	$10,406.00	$24,706.00	$49,036.00
Lake Worth	$1,568.00	$4,177.00	$13,895.00	$34,798.00	$69,584.00
Leesburg	$1,347.00	$3,406.00	$11,315.00	$27,477.00	$54,937.00
Moore Haven	$1,628.00	$4,221.00	$14,000.00	$34,600.00	$69,170.00
Mount Dora	$1,128.00	$2,983.00	$9,910.00	$24,755.00	$49,495.00
Newberry	$1,466.00	$3,617.00	$12,023.00	$28,703.00	$57,391.00
New Smyrna Beach	$1,320.00	$3,458.00	$11,449.00	$28,542.00	$57,050.00
Ocala	$1,102.00	$2,818.00	$9,346.00	$22,903.00	$45,785.00
Orlando	$1,122.00	$2,811.00	$9,337.00	$22,539.00	$45,063.00
Quincy	$1,140.00	$3,022.00	$9,931.00	$25,148.00	$49,188.00
Reedy Creek	$1,092.00	$2,937.00	$9,755.00	$24,615.00	$49,215.00
St. Cloud	$1,416.00	$3,875.00	$12,859.00	$31,025.00	$65,597.00
Starke	$1,518.00	$4,536.00	$15,099.00	$40,249.00	$80,489.00
Tallahassee	$1,308.00	$3,301.00	$10,865.00	$26,490.00	$52,940.00
Vero Beach	$1,278.00	$3,484.00	$11,511.00	$29,381.00	$58,693.00
Wauchula	$1,147.00	$3,716.00	$12,237.00	$30,679.00	$61,293.00
Williston	$1,419.00	$3,848.00	$12,575.00	$31,450.00	$64,793.00

*Excluding local taxes/December 1996 fuel costs are included.

**For consistency of comparison, the rates for 501 KW and 1,001 KW, respectively, were used for all utilities.

TABLE 36 (continued)
PRICE OF COMMERCIAL AND INDUSTRIAL CUSTOMER SERVICE (DOLLARS)*
AS OF DECEMBER 31, 1996

COOPERATIVE UTILITIES	75 KW 15,000 KWH	150 KW 45,000 KWH	500 KW** 150,000 KWH	1,000 KW** 400,000 KWH	2,000 KW 800,000 KWH
Central Florida	$1,213.00	$2,990.00	$9,850.00	$23,350.00	$46,650.00
Choctawhatchee	$1,046.00	$2,742.00	$9,454.00	$21,210.00	$41,920.00
Clay	$1,181.00	$3,151.00	$10,375.00	$26,325.00	$47,170.00
Escambia River	$1,233.00	$3,205.00	$10,590.00	$26,340.00	$52,640.00
Florida Keys	$1,159.00	$3,374.00	$11,368.00	$29,486.00	$59,024.00
Glades	$1,511.00	$4,193.00	$13,375.00	$32,375.00	$64,575.00
Gulf Coast	$995.00	$2,260.00	$8,837.00	$22,212.00	$44,412.00
Lee County	$1,134.00	$2,997.00	$10,530.00	$25,455.00	$50,895.00
Okefenokee	$1,203.00	$2,935.00	$9,550.00	$23,200.00	$46,300.00
Peace River	$1,153.00	$2,915.00	$9,600.00	$23,550.00	$47,050.00
Sumter	$1,313.00	$3,344.00	$11,030.00	$26,330.00	$52,610.00
Suwanee Valley	$1,328.00	$3,440.00	$11,371.00	$28,201.00	$56,361.00
Talquin	$1,111.00	$2,968.00	$1,080.00	$22,280.00	$44,260.00
Tri-County	$1,360.00	$3,324.00	$10,874.00	$26,292.00	$52,484.00
West Florida	$1,024.00	$2,521.00	$8,285.00	$20,010.00	$39,970.00
Withlacoochee River	$1,140.00	$2,909.00	$9,639.00	$23,609.00	$47,193.00

*Excluding local taxes/December 1996 fuel costs are included.

**For consistency of comparison, the rates for 501 KW and 1,001 KW, respectively, were used for all utilities.

Appendix
C

Appendix C: Glossary of Key Electricity Terms[74]

Access: The ability to use transmission/distribution facilities that are owned or controlled by a third party, usually a monopolistic investor-owned utility.

Access charges: Fees charged by the owner of a transmission/distribution network to independent producers that want to gain access to the grid.

Ancillary services: Services provided by a utility in conjunction with transmission service that ensures generation services are delivered in a safe and effective manner.

APPA: The American Public Power Association, a national association representing municipally owned and other publicly owned electric utilities.

Avoided cost: Costs that an electric utility avoids by purchasing power from an independent producer rather than building a new generation facility itself. Under PUHCA and subsequent statutes and regulations, federal officials required monopolistic utilities to purchase power from qualifying independent generators for no more than the avoided cost it would cost them.

Baseload capacity: The minimum amount of electric generating capacity required for the steady, around-the-clock provision of power.

Bilateral contracts: Detailed contracts between producers and buyers of electric power to deliver a given amount of electricity at a given time according to pre-established specifications.

Bundling: The combination of generation, transmission, and distribution services into a packaged whole that is sold at a single rate to customers. (Also see "Unbundling.")

[74] This glossary is from Thierer, Adam D., “Energizing America: A Blueprint For Deregulating The Electricity Market”, The Heritage Foundation, Backgrounder No. 1100, January 23, 1997. A more complete glossary can be found on the Electric Industry Restructuring OnLine, Public OnLine Group, web page at http://ee.notes.org/glossary.htm.

Cogeneration: The simultaneous production of electricity and thermal energy. Cogenerators are considered qualifying facilities under the PURPA and thereby are able to sell their power at avoided cost to investor-owned utilities.

Co-op: Industry jargon for a cooperative electric utility. A co-op is a common form of business organization owned and operated by a group of individuals, businesses, and organizations in similar occupations. Co-ops are located primarily in rural areas and are exempt from federal, state, and local taxes. Most co-ops received their initial funding from the Rural Electrification Administration.

Demand side management (DSM): Entails efforts of utilities to encourage conservation of electricity usage, including demand and consumption patterns. Many of these demand/load management measures have been required, or strongly encouraged, by regulators.

Disco: Industry jargon for distribution facilities or companies engaged primarily in the provision of distribution service.

Distribution facilities: Equipment used to deliver electric power at lower voltages from the transmission system to the final user. Although considered a distinct segment of the market, distribution facilities generally can be grouped with transmission facilities because these assets perform a similar function that is wholly distinct from generating facilities.

Divestiture: The process of requiring monopolistic utilities to spin off one segment of their business; this is done to ensure that uncompetitive advantages created by former government actions are removed so that competition can develop. Divestiture, or vertical disaggregation, serves as a viable alternative to open access to de-monopolize the industry.

EEI: The Edison Electric Institute, a national association representing the majority of America's investor-owned utilities. EEI members produce almost 80 percent of all the electricity produced annually.

ELCON: Acronym for the Electricity Consumers Resource Council, the national trade association that represents America's largest industrial and commercial electricity customers. ELCON's members consume roughly 5 percent of all electricity consumed in the United States.

Energy brokers: Companies that act as middlemen in an electronic marketplace in which electric power is priced, purchased, and traded. Energy brokerage works like other commodities that are traded in major markets, such as commodity futures markets.

EPAct: The Energy Power Act of 1992 allowed the FERC to introduce greater elements of competition in electric generation by ordering monopolistic utilities to provide access for a new category of power producers known as exempt wholesale generators, or "EWGs," to any other generation company along the transmission grid. These are exclusively wholesale transactions, however; retail contracts and transactions between independent producers and EWGs are not authorized under the EPAct.

EWGs: Exempt Wholesale Generators were created under the Energy Power Act of 1992 and are exempt from the PUHCA. They sell power exclusively to other power producers in the wholesale market and, therefore, still are not allowed to sell the power they produce directly to electricity customers.

FERC: The Federal Energy Regulatory Commission replaced the Federal Power Commission as the agency responsible for regulating the price, terms, and conditions of transactions in the U.S. wholesale electricity market, and any other electricity issues that are interstate in nature. Intrastate electricity issues and retail electric transactions are regulated primarily by state public utility commissions (PUCs).

FERC orders No. 888 and No. 889: FERC regulations issued in 1996 that implemented the wholesale access and competition required under the Energy Policy Act of 1992. The orders required the unbundling of service components by monopolistic utilities, established a computer-based information sharing system known as OASIS to allow electricity marketers and brokers to conduct transactions more efficiently, and required further actions to identify potentially stranded costs that could arise due to these requirements.

FPA: The Federal Power Act of 1935, which created the FERC's predecessor, the Federal Power Commission, and granted it the power to regulate the interstate electricity transactions that could not be controlled by any single state PUC. The Federal Power Act was passed in conjunction with the PUHCA.

Genco: Industry jargon for generation facilities, or companies that are primarily involved in the generation of electric power.

Generation facilities: The equipment and assets used to convert various forms of energy input into electrical power. Generating facilities are wholly distinct from transmission and distribution facilities and are considered highly competitive in their own right.

Grid: Industry jargon referring to the interconnected power lines that constitute the transmission/distribution networks of the United States.

IPP: An independent power producer; a generating company that produces electric power but does not operate as an integrated utility because it has no transmission or distribution facilities. IPPs proliferated rapidly after the passage of the PURPA because the statute required monopolistic utilities to purchase IPP-producer power. IPPs are also commonly referred to as non-utility generators (NUGs).

IOU: Investor-owned utilities are shareholder-owned, publicly traded corporations that are taxed like other private businesses but regulated strictly by both state and federal officials. IOUs were granted regional monopolies via express government actions that simultaneously protected their service territory from competition while guaranteeing their profits and ensuring them against any market or financial risk. IOUs are collectively represented by the Edison Electric Institute.

kWh: Acronym for kilowatt hour, the most common unit of measure within the electric industry. Consumers are charged in cents per kilowatt hour.

Load: The aggregate amount of power demanded by electricity consumers at any given time and then placed on the grid by generating companies to fulfill that demand.

Muni: Industry jargon for a municipally owned electric utility. Municipalities are electric utilities owned and operated by a municipal government to serve citizens within their geographic boundaries. They typically consist of a generating plant or plants and a short-haul distribution system.

NARUC: The National Association of Regulatory Utility Commissioners represents the collective interests of state and local regulators across America.

Open access: A deregulatory model that requires monopolistic utilities to allow rivals access to the transmission and distribution facilities they possess on non-discriminatory terms at cost-based rates. Many legislators and regulators view open access as the preferred method of de-monopolizing the industry and ensuring greater competition in the electric market.

Power pools/PoolCo: Centralized, independent organizations that would be responsible for purchasing all wholesale electric power in a given service region and then reselling power to final customers. Power pools would act as a short-term spot market where buyers and sellers could conduct electricity transactions. Many regulators argue PoolCo solutions represent the optimal method of coordinating operations and improving system reliability in the future. PoolCo critics argue the system would interfere with many existing and future contractual obligations and require too much on-going, centralized regulatory oversight.

Power marketer: Any middleman firm that buys and resells power but does not own its own generating or transmission facilities. Power marketers must file with the FERC to conduct business because they resell power across state boundaries.

PMAs: Five Power Marketing Administrations are operated by the Department of Energy. PMAs sell electricity at the wholesale level that is generated by approximately 130 power plants (mostly dams) built and maintained by the Army Corps of Engineers and the Bureau of Reclamation. The five PMAs are Alaska, Bonneville, Southeastern, Southwestern, and Western Area. The Alaska PMA is scheduled to be privatized first.

PUHCA: The Public Utility Holding Company Act of 1935 federalized the regulation of multi-state utility holding companies after they grew beyond the reach of state regulators. The PUHCA requires holding companies that own or control more than 10 percent of another utility to register with the Securities and Exchange Commission (SEC) and provide the agency with detailed records of their financial transactions and holdings. The law restricts merger and acquisition activity, curtails investment in non-utility industries, prohibits intercompany loans, and regulates other financial transactions strictly (such as the issuance of new securities). The statute also constrains and even narrows the powers of these holding companies, allowing them to control utilities essentially only within a given state, which maximizes state control -- a primary objective of the act. Finally, the law created a regulatory distinction between "registered" holding companies and "exempt" holding companies. To qualify for an exemption from PUHCA, a holding company must be primarily intrastate in geographic scope and limited in business operations to the provision of a basic utility service. Not surprisingly, this has generally discouraged firms from expanding operations; only 14 "registered" holding companies currently exist in the United States. Over 150 "exempt" holding companies exist that exclusively serve customers within their own states.

PURPA: The Public Utility Regulatory Policies Act of 1978 was passed in the 1970s during the energy crisis to encourage the use of alternative energies and conservation techniques. It designated certain small IPPs as qualifying facilities (QFs) under the law. As a QF, alternative energy producers earned exemptions from existing laws and were able to sell electricity wholesale to utilities. This had the beneficial, albeit unintended, effect of proving competition was feasible within the industry because independent generation proliferated over time.

PUC: The Public Utilities Commission regulates intrastate electricity transactions and retail electric service. Although the various PUCs work independently of the FERC, they still must abide by FERC guidelines as established by various federal statutes. They are also commonly known as Public Service Commissions or PSCs.

QF: Industry jargon for a "qualifying facility" under the PURPA. If an independent power producer is granted QF status from the FERC, it is then allowed to sell its power to IOUs at avoided cost and is exempted from most federal regulations that evolved from the PUHCA. Qualifying facilities generally produce electricity via cogeneration or renewable energy sources, such as solar, wind, or hydro-power.

REA/RUS: The Rural Electrification Administration (now called the Rural Utilities Service or RUS) was created in 1936 to electrify underdeveloped rural areas by providing subsidized loans and grants to rural electric cooperatives.

Regulatory compact: Theory advocated by most regulators and electric utility companies that argues that in exchange for the construction and operation of a monopolistic, regional electrical system, utilities would have their profitability and overall financial viability guaranteed. The theory will be referred to often in the upcoming deregulatory debates; utilities will argue that because they have been guaranteed traditionally a fair return on any investment they made, assets or facilities that become uneconomic or "stranded" due to the rise of competition should be compensated for by competitors or captive ratepayers.

Retail wheeling: Non-utility generating companies that do not own transmission facilities sell the electricity they produce directly to residential, industrial, and commercial consumers. Currently wholesale wheeling is mandated under federal law.

Stranded benefits: Benefits many regulators and environmental groups argue will be lost with the move to competition in electricity: namely, mandated environmental conservation programs or those on the overall network integrity and reliability. Proponents of competition argue such benefits would be augmented in new ways if competition were allowed.

Stranded costs: Assets owned by utilities that supposedly would become uneconomical in a competitive marketplace: for example, non-depreciated generating facilities or pre-established long-term contractual obligations.

Transco: Industry jargon for transmission facilities, or a company engaged almost exclusively in the provision of transmission service.

Transmission facilities: Equipment used to deliver electric power at higher voltages in bulk quantity, from generating facilities to local distribution facilities, for final retail use. Industry officials often include distribution facilities with transmission facilities, however, when discussing transmission services relative to generation services.

Unbundling: The separation of the various components of electricity production, shipment, and service in order to introduce greater elements of competition to these segments of the industry. "Functional unbundling" would require monopolistic utilities to provide access to their transmission and distribution network in exchange for an access fee. "Structural unbundling" would require complete vertical disaggregation such that monopolistic utilities would be required to divest either their generation assets or their transmission/distribution assets.

Wheeling: The transmission of electric power by a utility that does not own or directly use the power it is transmitting.

Appendix
D

Appendix D: Example Restructuring Workplan of Wisconsin PSC

A Process and Policy Proposal for Electric
Utility Restructuring in Wisconsin[75]

(August 13, 1997 DRAFT)

Background

At its July 3, 1997, open meeting, the Public Service Commission of Wisconsin (Commission) reviewed its 32-Step Workplan on Electric Utility Restructuring (Workplan). The Commission set forth certain policy directions and modifications to the Workplan. Upon considering earlier solicited comments from parties on the Workplan, the Commission decided any modified workplan should consolidate steps, defer other steps to a later point in time, and use work groups as a means to help work through many of the issues. It was also decided that Chairman Parrino would continue working on additional modifications to the Workplan, send the modified Workplan to members of the Advisory Committee for comments, and bring a proposed final version of it to the full Commission as soon as possible.

During the week of July 28, 1997, Chairman Parrino met separately with representatives of four stakeholder groups to discuss restructuring issues. The following proposed Workplan incorporates various ideas from those discussions as well as comments subsequently submitted to the Commission by participants after the meetings. Before adoption of any final workplan, each Commissioner will consider and review all filed comments as well.

Given developments this summer, it is of primary importance that electric industry restructuring be subordinate to and compatible with assuring a reliable electric supply in Wisconsin. The state's transmission system must be adequate and sufficiently open to satisfy both reliability needs and an increased reliance on competition in wholesale or retail markets. In addition, adequate new generation facilities or contracts for new supply must be developed in a timely manner despite market uncertainty in the industry. As a result, the Commission intends to focus its early restructuring efforts on developing an

[75] Additional documents are available from the Wisconsin PSC website at: http://badger.state.wi.us/agencies/psc/cases/restruct/energy/ind-elec.htm

electric power industry infrastructure that results in both an adequate and open transmission system and enough electric power generation to be sure that near- and long-term needs of the state are met. The Commission has expressed its preference to use competitive forces wherever feasible in obtaining that objective.

To develop the infrastructure necessary to maintain both a reliable and competitive electric supply, the Commission has indicated it would begin preparing proposed legislation, to be submitted in the fall of 1997, which would do the following:

•Allow merchant plants to be built in the state.

•Implement Commission decisions in the Public Benefits Board docket.

•Assure the Commission has the necessary authority to establish a statewide Independent Transmission System Operator.

These initial actions are intended to lay the groundwork for subsequent restructuring efforts and constitute the first step in the revised plan discussed below.

The Revised 7-Step Workplan

The Workplan has been revised. The new 7-Step Workplan outlined below contains several process and timing changes to reflect what has been learned since the original Workplan was developed and to integrate current concerns with respect to electric reliability issues. However, the general intent of the Commission's restructuring activities remains the same: the goal of electric industry restructuring is still to implement competition whenever and wherever it is in the public interest. The 7-Step Workplan in no way slows down the implementation of increased competition. The plan below maintains the Commission's policy of performing such implementation in a deliberative fashion. It is the Commission's stated interest that the restructuring of the state's electric industry must benefit all parties. Furthermore, it is the legislature's prerogative to make many of the ultimate policy decisions.

As part of the 7-Step Workplan, work groups comprised of diverse stakeholders will be used more extensively. These work groups will examine issues in a deliberate, coordinated manner. At the outset of each task, members of the particular work group will decide whether attempting to reach consensus, or at least a narrowing of differences, is possible or whether each work group should split into subgroups and submit their respective reports and work products to the Commission for its deliberation and decision. In such a situation, the Commission reserves the right to hold a hearing or have a comment process before arriving at any regulatory decision. It is expected that each work group will be of limited size. Where organizations have the same interest, the Commission prefers the use of one individual to represent that interest. Commission staff may participate in the work groups as well. Each work group will be given a strict timeline and a specific set of questions to address in its deliberations. Each work group will be expected to address only its relevant issues and not revisit prior Commission decisions or actions.

While a substantial part of the work in restructuring the state's electric industry will prove to be technical in nature, much of the work is policy-oriented as well. Consequently, the governor and legislature will continue to be informed and involved. The Commission understands that the end product for most of these restructuring issues is a recommendation to the Legislature.

The following material describes the proposed strategy for pursuing electric industry restructuring issues. The emphasis is on short-term structural changes and consolidation of issues. This recognizes the need to immediately address certain key areas while being flexible for the long-term. The time frames shown are estimates and, as experience has shown thus far, are subject to change depending on progress. Providing specific timelines and specific objectives for each step should help meet the timelines below.

Step 1: Submit Proposed Statutory Changes to the Legislature

(Fall 1997)

The Commission would prepare proposed legislation that would: a) allow construction of merchant plants in Wisconsin, possibly including a renewable resource component; b) reflect Commission decisions on the Public Benefits Board docket; and c) establish the necessary authority for the Commission to establish a statewide Independent Transmission System Operator (ISO).

Allowing merchant power plants serves several objectives. First, it provides a needed jump start to wholesale market competition. Second, it helps address concerns with respect to reliability should an incumbent utility not want to construct new facilities. The third feature is that allowing merchant power plants can act as a check on incumbent utilities whose market share may confer an ability to affect price in a given market.

The purpose of an ISO is to enhance the reliability and efficient operation of the transmission system. Establishing ISO authority would give the Commission the needed tools to ensure that open and fair access will be available to the transmission grid in Wisconsin should the preferred approach of establishing a regional ISO fail. For both effective wholesale and retail competition, it is a prerequisite that all providers, whether they be current utilities or new independent power producers (IPP), have access to the electricity delivery system on essentially a common carrier basis.

With respect to public benefits, government action is required to provide a needed catalyst or safety net as competition develops. This ensures that appropriate social objectives which fulfill a legitimate public policy purpose are not eliminated by a competitive marketplace which only considers private interests.

Step 2: Develop an Open, Efficient Transmission System

(August 1997 through April 1998)

Ideally, a regional ISO would be developed that results in an open and reliable system and is able to facilitate effective wholesale and retail competition. While efforts to form a regional ISO continue, success is not certain. To help create momentum for expanded ISO development and to achieve system operating benefits, a statewide ISO should be developed. As part of this step:

•Efforts to form a regional ISO would continue.

•A Regional Interface Study, recently approved by the Commission, would be conducted between August 1997 and early 1998, concurrent with Advance Plan 8. The work group conducting the study would consist of representatives from the region and would evaluate the regional transmission system in order to determine what would need to be done to improve system reliability and enhance wholesale and retail competition.

•Efforts to form a statewide ISO would begin with a technical conference in September 1997. A work group would then meet through the remainder of the year with the goal of forming a statewide ISO. The Commission's guidelines for an effective ISO from its September 30, 1996, order would serve as a basis for ISO development. Hearings on the matter would be held in late February 1998 followed by Commission decision. The extent of the Commission's authority to establish a statewide ISO would be determined in the prior step.

Step 3: Development of an Efficient, Effective Competitive Electric Generation Sector

(August 1997 through September 1998)

The Commission intends to create an electric industry structure that results in construction of power plants on a timely basis to ensure a reliable supply of electricity and to promote competition. A key underpinning will be that all existing and new suppliers have access to the market on an equal basis; this is the impetus for the formation of an appropriate ISO in Step 2.

As part of Step 3 it is important that market barriers be removed in a fashion that achieves first, a reliable supply of electricity; second, increased wholesale competition; and third, a workable structure for effective retail competition. In accomplishing each of these ends, market power issues must be resolved and coordination and reliability of the system must be accomplished.

•As a first initiative, the Commission would prepare proposed legislation that would allow the construction of merchant power plants in Wisconsin. This would signal the Commission's desire to increase the number of parties willing and able to build power plants. Merchant power plants would help address issues surrounding incumbent utilities having too much market share as well.

•The Commission recognizes that removing the legal barriers to constructing merchant plants alone will not guarantee that new generation facilities will be constructed when needed. Those constructing merchant plants must have reasonable expectations that markets will be available for selling electricity. A work group would be formed to analyze ways to make merchant plants feasible in the State. For instance, there may be ways an IPP could sell electricity to isolated commercial or industrial facilities as well as on the open wholesale market.

•In order to foster a truly competitive market and ensure reliability needs, the Commission also recognizes that current regulatory processes with respect to the Advance Plan, the Certificate of Public Convenience and Necessity, and environmental siting will require further review and streamlining. Some of this will undoubtedly occur as part of the recommendations seeking legal approval for merchant power plants. However, that activity alone will not address all relevant aspects. Therefore, the Commission may on its own initiative move forward on various streamlining components or convene an appropriate work group.

•The work group would also analyze what measures would need to be taken to deregulate existing generation facilities in such a way that current native load customers would not be hurt. This would include the structural changes necessary to: a) maintain reliability; b) increase wholesale competition; and c) accommodate effective retail competition, if existing generation was deregulated. Specific consideration would be given to market power concerns such as incumbent utilities having too large a market share given the relevant market size, necessary coordination of the generation system, and estimates of stranded costs or benefits. Structural reforms to be covered will run the gamut from divestiture options, the use of performance-based ratemaking, to the tieing by contract of existing power plants to current customers for a certain time period. The work group would also specify the statutory changes required under any recommendation. It is anticipated that the work group would begin meeting following a technical conference in October 1997. Public comments, meetings, or technical hearings on the issues could be held in summer 1998 followed by Commission decision. Work group activity will be influenced by the outcome on proposed legislation for merchant power plants.

Step 4: Functional Segmentation and Transfer Pricing

(April 1998 through December 1998)

Consistent with the efforts of the transmission and generation work groups to identify and separate specific aspects of electric utility operations, there would be a need to clearly delineate the costs and activities of each business unit. This process would consider the necessary structural changes resulting from increased wholesale competition and effective retail competition. Separating activities into distinct business units is intended to prevent the subsidization of unregulated units by the regulated parts of utility business. Of particular importance is the need to determine how best to separate the distribution and energy services functions, and the transition process for doing so, that would be necessary under retail competition. A second part of this step would be to develop transfer prices to create a transparent pricing structure to prevent favored treatment between affiliates, and as a proxy for market prices. A work group would be formed to address these issues and make recommendations to the Commission. The need for comments or hearings would be determined by the Commission at an appropriate time. One of the end products of this step would be customer bills which clearly show the costs of the disaggregated functions.

Step 5: Alternatives for the Development of Renewable Resources

(May 1998 through December 1998)

[This step may be addressed in some form in the Fall 1997 legislative package.]

In its decisions in docket 05-BE-103, the Commission decided that a docket should be opened that studies ways to encourage the development of renewable resources in a competitive market. The work group assigned to this issue will consider mechanisms, such as tax incentives, renewable portfolio standards, set asides, and green pricing, to accomplish this objective. The need for comments, public hearings, and legislation would be assessed.

Step 6: Review and Modify Current Institutional Standards

(September 1998 through April 1999)

This step will involve examining current institutional standards in two separate areas: service quality and affiliated interests. Separate work groups will be used for each issue area. The focus of the respective analyses is to identify and address those new standards which need to be in place for a well-functioning competitive electricity market at both wholesale and retail levels. Any proposed changes in current institutional standards must be consistent with the public interest. A hearing or comment process will be used for each of the issue areas. There has been work already performed with respect to affiliated interests and service quality. The Revised Workplan has delayed further processing of these issues in favor of devoting resources to reliability and structural issues. Information that has been gathered thus far will be used when the dockets dealing with these two areas are resumed.

Step 7: Retail Competition Analysis and Implementation

(May 1999 through February 2000)

This step would be pursued if the Commission determines that an appropriate utility structure is in place to allow retail competition as a viable alternative. Before full scale implementation or trial of retail competition the Commission will review respective work groups' reports and recommendation with respect to:

•What happens to the obligation to serve? Who will be the provider of last resort? How should public policy safeguards such as the winter moratorium be maintained?

•Does cost effective metering and communication technology necessary for retail competition exist which is beneficial to all customer classes?

•Would an adequate energy services sector including such entities as customer aggregators or alternatives develop or evolve?

•How much information must be available to customers so they can benefit from the restructured industry?

•How could the implementation of retail competition best be accomplished?

Comment periods and hearings would likely be part of this step. As part of the Commission's evaluation in this step of whether adoption of retail competition would be in the best interests of Wisconsin, the Commission will use the principles of restructuring as set forth in the February 8, 1995, notice on the subject. Should the Commission decide to recommend to the Legislature that retail competition be adopted, an implementation plan would be prepared. Substantial public involvement would be expected as a part of this process.