

# **Deregulation Demystified: An Examination of Issues Associated with the Restructuring of the U.S. Electric Generation Industry**

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## **ABSTRACT**

A majority of the electric utilities across the United States are currently in a state of transition from a highly regulated, profit guaranteed environment to a highly competitive, profit motivated environment. Efforts underway at the Federal and State Governmental levels to 'deregulate' (or more appropriately 'restructure') the economic base of the electric generation utilities are designed ostensibly to provide the electric power consumer with better service at a better price. While there is arguably some merit to this proposition, there are also many potential pitfalls in the way of 'consumer choice' that cut across economic, management, and cultural boundaries. A brief review of past governmental efforts to restructure other large industries reveals a checkered history of successes as well as abject failures. This paper discusses a few of the more common legal, social, economic and technological issues surrounding deregulation of the electric generation utilities and asks if government regulators and utility managers are up to the challenge. At stake is nothing less than the reliability and safety of a large segment of this nations' source of power.

(Key Words: Deregulation, Electricity, Electrical Industry, Energy Policy, Environmental Law)

## **INTRODUCTION**

Twenty years ago customers of a variety of large utilities were limited to a single state and/or federally regulated provider. Their telephone service, cable service, electrical service, natural gas provider, and even their choice of airlines were all restricted to whatever utility the government 'contracted' to act as the regional supplier. Today, all the major utilities except energy have been 'deregulated' or in legal parlance 'restructured'.

The federal and state governments began the task of deregulating the energy industry in 1992. Electrical generation was the first, and so far only energy industry to be affected. The stated goal of deregulation is to promote fair competition among the various electricity providers and bolster free market economies - the end result being lower power cost for the customer.

The problems surrounding the deregulation of the electric generation industry are enormous and have spanned the varied arenas of business, law, finance, justice, and technology. For almost ten years deregulation efforts have depleted government and electrical industry resources alike, has taken substantially longer to implement than anyone had ever anticipated, and has not yet resulted in any substantial customer savings.

What are the major problems surrounding the deregulation efforts and can the problems be resolved efficiently, economically, and fairly? Should deregulation efforts proceed or should they be scrapped? Can we turn back, or is it too late? How much will deregulation save or cost the consumer? Will the consumer really save money on their electric utility bills and if so when, or will they become mired in a web of incomprehensible 'utility bill speak'? The answers to these questions will determine the fate of not only the restructuring efforts, but to a large degree the fates of the electric industry, the nation's energy reserve policy, and perhaps even the safety of the nation itself.

## **BRIEF HISTORY OF ELECTRIC UTILITY REGULATION**

In the early days of commercial residential electric power, the multitude of privately owned electric generation and distribution companies competed with each other for customers. Competition was often, quite literally door-to-door and soon the space above city streets was turned into a jungle of dangerous and unsightly power wires while rural areas generally remained without electric power for many years to come.

Finally in the 1920s the chaos of wholesale competition melted into the stew of consolidation as large electric power holding companies began gobbling up smaller companies in record numbers. By 1932, seventy-three percent of the nation's investor owned electricity was controlled by only eight companies. Each holding company typically controlled a web of local subsidiaries. These subsidiaries were not confined to the bounds of just one state, but would more often encompass several states. During the early days of electric power, state governments were generally unprepared to deal with the complexities of interstate power and financing, and there was no federal legislation pertaining to electric power generation, transmission, or distribution. This dearth of government influence led to the holding companies being essentially unregulated. Some of the more unscrupulous companies initiated the practice of overcharging subsidiaries for equipment and services knowing that the subsidiaries had to pass their expenses on to their customers. The practice became so wide spread that in 1935 Congress passed the Federal Power Act (FPA) and the Public Utility Holding Company Act (PUHCA) to stem the tide of abuses. New Deal legislation created the structured market for electric utilities that we know today where nearly 75 percent of the electric power in the United States is supplied by publicly owned companies. Part of Roosevelt's New Deal legislation established a "Regulatory Compact". The compact represented a contract between the state governments, in the form of Public Utility Commissions (PUCs), and the federal government. In some cases, local governments and public utility companies were also included. For their part of the contract, the utilities were obligated to provide service to all persons within a predetermined territory, establishing a monopoly in which the utility was allowed to earn a modest profit. Profits were set by state regulators and reflected the various costs related to plant construction and wire installation (i.e. general capital costs). Their monopoly status also obligated the utilities to provide service to rural customers, regardless of transmission and distribution costs.

During the Depression, Congress authorized ambitious federal initiatives to build the large utilities necessary to provide electricity to the entire nation. Part of these initiatives involved the building of massive hydroelectric projects through the creation of the Tennessee Valley Authority (TVA) and the Bonneville Power Administration (BPA). The creation of the TVA and BPA however skewed the regulatory mechanism that had been in place by creating a non-

uniform, multi-tiered energy market. For example, even though the TVA provides energy to over eight million people in seven states, it is a wholly owned and financed corporation of the United States with its own authority and regulatory schedules. It is governed solely by its own three-person governing board without any input from state regulators, whereas public owned and operated utilities are regulated by state commissions (PUCs) and the Federal Energy Regulatory Commission (FERC).

Today, in addition to the TVA and BPA, there are literally hundreds of Municipal Utility Districts (MUDs), Public Utility Districts (PUDs), and Rural Electric Cooperatives (COOPs). Most of these entities receive most of their financing through low-interest federal loans or by issuing tax-exempt bonds. These entities do not pay federal or state income taxes on their revenues. In addition, there are currently over one hundred federally owned plants that generate, transmit, or sell electrical energy in 34 states through five federally operated Power Marketing Administrations (PMA's). Some of these facilities involved are nuclear power plants that double as breeder reactors in support of the military weapons complex. These federally owned and operated plants and PMA's have several advantages over their public owned and operated utility counterparts. The primary advantage is that the PMA's have their own set of rules and regulations that are separate and apart from the rules and regulations (which also include fine levying) endured by public plants. Another major advantage enjoyed by the PMA's is that they have access to low-cost federal loans that they can take up to fifty years to repay. Furthermore, the vast variety of government sponsored Municipal Utility Districts, Public Utility Districts, and Rural Electric Cooperatives get most of their financing through low-interest federal loans, or by issuing tax-exempt bonds. They are also exempt from paying federal or state income taxes on their revenues.

Conversely, privately owned utilities are financed by the contributions of their shareholders as well as by funds borrowed from private financial institutions on the open market and at competitive rates. Currently there are approximately 265 publicly owned utilities in the United States. They reside and operate in every state except Nebraska and are regulated by state public utility commissions in state-assigned franchise areas. The regulatory compact between the utility and the state (and federal) government obligates the utility to respond to public priorities that would not otherwise be considered the responsibility of a privately owned business or corporation. For example, public priorities have been translated into federal, state and local regulations requiring utilities to invest in alternative fuels, to build and decommission nuclear power plants and to buy power from independent producers (via the Public Utility Regulatory Policies Act), often at above-market 'avoided-costs' rates. Public priorities have also required utilities to provide assistance to low income households for power purchases and to promote a variety of worthwhile environmental, social and even educational programs. In the process, investor owned utilities have become important de facto social service agencies in many communities.

Large utilities also had another significant obligation under government mandated regulations. They were required to construct, run, and maintain base and peak loading generation plants to assure a constant supply of electricity. A base loading plant is a generation facility that is always tied to the regional grid. It is part of the grid's baseline electric supply. Baseline plants are normally large (i.e. greater than 800 MWE) and can not be easily maneuvered on or off-line. Conversely, peak loading plants are smaller, usually natural gas or coal fueled facilities, and are merged to the grid only during times when the

grid demands additional electric resources. Peak loading plants may run for only a few hours per day, but usually incur high maintenance costs.

## **DEREGULATION OF THE ELECTRICAL GENERATION INDUSTRY**

Amidst the furor to lower utility bills to the consumer and reduce government subsidies to large corporations, the federal government strove to create an atmosphere of free market competition among the nations largest public utilities. The airline and telecommunications industries were the first affected by deregulation efforts. In 1992 Congress enacted the Energy Policy Act, which virtually assured wholesale competition among the electric generation utilities and altered the marketplace in ways designed to favor competition. Since then, over 40 states have embraced the deregulation philosophy and are now working on legislation in an effort to create fair competition among their state's electric generation utilities. Eventually all 50 states are expected to follow suit in an effort to allow both industrial and residential consumers the right to select the electric generation company of their choice. Presumably most consumers will select the lowest cost provider available, adding to the competitive atmosphere.

Generation was the first area of the energy industry to begin deregulation. Deregulation of the natural gas industry is expected to follow close behind as many states have already begun to investigate the required legislative processes. The electric transmission and distribution industries have not yet been targeted for deregulation efforts and probably never will. The reason is simple, no one wants to return to the time when every electric supplier provided separate lines. Besides, it simplifies the question of who installs new lines as they become necessary.

So what is driving the current efforts to change the rules and structure of the electric utility industry? The answer can be found in history. For many years, legal, economic and technological changes have merged to bring deregulation to center stage. Technological advances in turbine efficiency have made it easier to produce more electricity from smaller generators. This has in turn led to more 'independent' power producers to enter the generation field and demand access to customers already 'assigned' to regionally contracted utilities. Consumers too have demanded access to the smaller generators, seeking savings in their utility bills. Throughout the country, large local and regional differences in the price of electricity have prompted calls for price regulation and retail consumer choice. Many large industrial customers have also pressed hard for lower electric bills in order to increase profits. Many of the smaller, non-utility generating plants are in fact, large industrial sites that generate electricity primarily for their own use. Since current technology does not allow the storage of electricity, most small generators are anxious to sell the excess power to the regional grid in order to recover a portion of their operating costs.

In response to these small generators, and as a means to solve the perceived energy crisis of the early to mid-1970's, Congress enacted the Public Utility Regulatory Policies Act (PURPA) in 1978. PURPA's main objectives are aimed at the conservation of energy in the generation of electric power and to encourage the generation of alternate sources of power. PURPA required utilities to buy all the electricity that certain qualifying small, non-utility generators wished to sell. The utility in return would recoup the cost of purchased electricity under the regulatory compact via the state's Public Utility Commission's (PUC) authorized

utility rates. In general, to qualify as a PURPA generating facility, the electricity must be generated from commercial or industrial produced steam or from the burning of certain renewable or waste fuels. In this way PURPA is being used to support renewable energies primarily through utility dollars. PURPA however, is now being broadly attacked in the federal court system by the larger utilities as being detrimental to fair competition and deregulation efforts.

## DISCUSSION

What then are the advantages and disadvantages of deregulating the electrical generation industry? The most obvious and notable advantage of deregulation is the oft-stated goal of reducing the electric consumer's utility bill by allowing them to choose which utility will supply their electrical needs. This is designed to encourage competition among the utilities and may even serve to conserve energy and foster the development of new technologies and sources of cleaner energies. Another 'advantage', heralded by free enterprise proponents, feared by environmentalist detractors, and probably misunderstood by both, is the elimination or, at least significant reduction of the rules and regulations imposed on the utility generators. Proponents believe that deregulation is the natural course of action to take in a free democratic society. Fair competition, they feel, is the best and only way to set the price of electricity that would be the most economical and beneficial to all concerned. On the other hand, detractors feel that eliminating or even reducing the number of government restrictions on the utilities will result in increased land, water and air pollution, increased risks to public health and safety, and unfair profit taking. For example, Margaret Kriz in the *Federal Beat* (1) argues that deregulation may result in more pollution because 'states that once controlled the regional utilities will have little authority over the environmental practices of the national companies that will generate electricity for a national market. Most states will look to the Federal Government to establish air pollution standards and environmental controls that apply to all energy companies.' Kriz also argues that deregulation will be harmful to the development and further implementation of renewable energy. As proof she quotes Senator Frank Murkowski, chairman of the Senate Energy and Natural Resources Committee as stating that his proposed legislation:

*"certainly won't require electric companies to buy power from solar or wind sources. We have to be sensitive to environmental concerns, but we also have to recognize what's sensible and what's not sensible."*

The senator's reference to not requiring the electric utilities to buy solar or wind power is a reference to PURPA, which required utilities to buy high cost electricity from non-utility generation facilities.

Taking a separate route, in a 1996 issue of the Clean Power Journal, John White (2) attacks deregulation from the viewpoint of unfair competition and unwarranted stranded cost recovery by nuclear power plants in the state of California. He states that:

*"the stated goal of deregulation - the creation of a genuine free market for energy - is being subverted, because California's nuclear reactors will continue to enjoy subsidies, while renewable plants' energy payments hinge on the market."*

In addition, White states that these subsidies are estimated to total over 6 billion dollars and that:

*"The guaranteed recovery of future operating and capital costs will cost customers an additional half billion dollars or so annually into the next millennium. The costs to decommission the nuclear plants after they have been shut down is not known, but it will be enormous, and will also be financed by ratepayers."*

Furthermore White summarizes that:

*"Open and fair competition should translate into markets not skewed by nuclear subsidies, wherein renewables could prove their worth. Deregulation of the nation's largest electricity market must provide both reductions in rates and in air pollution. True competition may provide a way to do both."*

Such rhetoric by both authors may be viewed as not only inflammatory, but also extremely misleading. Kriz's arguments that deregulation will lead to increased pollution is dismissing the fact that the whole array of current pollution laws and regulations will not be at all affected by deregulation. The utilities will remain as obligated to obey the rules of the Clean Air Act, for example, as would any other company doing business in the United States.

White seems to miss the mark altogether with his arguments. The recovery of 'stranded costs' remains very much an issue. One must remember, however, that these costs were incurred by the utilities for the sake of the customers and with the blessings of the regulators. The renewable energy generators do not have stranded costs because they were never under any contractual obligations. The stranded costs are high for the utilities because nuclear plants are very large, base-loading facilities that supply energy to whole regions of the country, rather than supplying a small amount of part time energy to a small district. White seems concerned about the fairness of recovering stranded costs by the utilities, but where is the fairness in starting competition deeply in debt through no fault of their own? The non-utility generators do not want the utilities to recover stranded costs, but they do want to have the right to use the transmission wires the utilities built and paid for.

White states that the costs associated with the decommissioning of nuclear power plants is unknown, but will be expensive and will be paid for by the ratepayers. True, but redundant. All costs are ultimately paid for by the ratepayers. In this case however, the ratepayers have already paid for the costs associated with decommissioning. The fact that White has overlooked, or perhaps ignored, is that the Federal Government through the Nuclear Regulatory Commission (NRC) mandates that all nuclear generation facilities set aside the amount of money needed for decommissioning long before that time is scheduled to occur. Some of this money comes in the form of utility paid insurance plans.

Actually the term 'deregulation' itself is a misnomer. Deregulation does not mean, or even imply that the industry will be unregulated. Quite the contrary, one of the biggest problems associated with creating a fair, level playing ground for competition among the various types of generation facilities is the level and extent to which each will continue to be regulated. Many of these regulations, of course, are related to environmental and safety issues. Within the electric industry itself, deregulation is usually, more correctly, referred to as 'restructuring'.

One of the regulations that must change if there is to be truly fair competition is PURPA. PURPA was enacted by Congress in 1978 and was designed to conserve energy, encourage the use of renewable energies, and protect consumers. It has, in the opinion of many researchers, done more harm than good. PURPA formed a partnership between the FERC and the individual states that established general guidelines concerning the purchase of small generator electricity by utilities. These purchase guidelines were based on the utilities' 'stranded costs' and other key elements of individual utilities power purchase obligations.

The primary reason that PURPA has actually cost the consumer billions of dollars a year in excess electricity purchases is that the fuel prices today are substantially lower than what they were projected to be in the 1980's. Many non-utility power purchase obligations have mandated pre-determined fuel price increases based on these mistaken projections. In addition, FERC regulations allow the non-utility generators to lock-in price projections for the duration of the power purchase agreement. These agreements, or contracts, were usually written for 15 to 20 years or more. All totaled, the erroneous price projections, pre-determined price escalators based on the erroneous projections, and long-term contracts have joined together in such a way that the power the utilities must buy from the non-utility generator are substantially in excess of current market rates. This has the additional effect of giving an unfair competitive advantage to certain segments of the energy industry. Some fuel sources are more expensive than others, which means that there will be natural variations in electricity prices in different regions of the country.

Stranded costs are probably the most significant potential problem in the transition to competition among utilities. Currently utilities are allowed by law, under the direction of the state's utility commission to recover the cost of certain prudent investments made to serve its existing customers. A 'stranded cost' occurs when a customer, for any reason, leaves the utility. The utility now has equipment, purchased power, etc. that it has borrowed money for, but for which it no longer has a need or a means to pay for. The cost of the equipment now becomes 'stranded'. These investments of money may include power generation facilities, transmission lines, nuclear plant decommissioning costs, conservation measures, or a host of other Commission pre-approved expenditures. A typical stranded cost item would be a PURPA mandated expensive contract to buy power from alternative energy sources. These costs would become 'stranded' in an open market economy because it would be impossible for a utility to recover its investments when the government has compelled the utility to provide its competitors access to its transmission lines.

Recently, many have come to question the wisdom of restructuring the electric generation industry. One need only look at how past industry restructuring has fared. For example, one could ask if your phone bills are less expensive? Are they easier to read and comprehend? How about your television cable bill? Are airline tickets more affordable? Is airline travel more or less safe today than it was before the industry was restructured? These are important questions that may lead to a better effort at restructuring the electric industry.

There are many important secondary issues related to restructuring. These issues will appear in different parts of the country at different times since each state is under a different deregulation timetable.

The principle secondary issue related to restructuring, and one that most 'experts' and politicians did not foresee, is the rush by many utilities to sell off most if not all of their generation facilities. This is leaving many utilities with only still regulated, guaranteed income

producing, transmission and distribution facilities. Only a few fossil plants throughout the country have ever been sold, and a nuclear electrical generating plant has never been sold. This left the NRC, Internal Revenue Service (IRS) and the Federal Government in general in a situation it was ill equipped to handle. State Public Utility Commissions were even less able to deal with the enormous legal and financial challenges that have been, and will continue to be posed through the sales. The NRC, for example, has only recently restructured and streamlined its regulations to ease the sale of nuclear plants. The IRS has yet to determine exactly how taxes and stranded costs will be handled. Most state PUCs are generally bogged down in paperwork and may not be able to come up with definitive rulings for months or years to come. In general, restructuring of the electric utility industry has tied up the resources of governments at every level.

Not only has restructuring tied up government resources, but it also has had an even more devastating effect on the individual generating facilities and their owners. The once secure, highly sought utility stock has seen its market share sizably reduced. Shareholders have invested in utilities for decades with the expectation that the regulatory compact between the government and utility was strong and intact and the system was stable. Shareholders were virtually guaranteed at least a modest return on their investment.

A softer, but perhaps more important issue is how individual organizations that supply electricity handle the restructuring, facility sales, and competition. People within these organizations have never developed the competitive mindset that they must now somehow find in order to survive. This mindset must be developed throughout the organization from the CEO on down. The very real potential of organizational collapse is a threat not only to the company, shareholders, and employees, but to public safety as well. This new mindset must also become cultural. With the buying and selling of generation facilities, layoffs and cultural clashes with the associated demoralization will become more common. This often results in a general malaise of the employee population, early retirements, or the phenomena of 'retiring on the job'. At its worse, the demoralization could turn to mental or physical sabotage, which, were it to occur at a nuclear facility, could be devastating.

The safety issue not only surfaces from employee morale, but also has a larger more insidious potential from the financial aspect. Under the regulated system, safety was not a major issue. If the utility felt that more money was needed to provide a greater safety margin to the public, what regulating agency would deny the request? Under a deregulated system, the money to provide even the lowest level of public protection will be part of the company's 'bottom line'. The fact is that in today's market, even before deregulation has been fully implemented, capital fund projects have practically been eliminated from most of the public owned and operated generation facility budgets. Capital projects, in general, are not currently ratepayer non-reimbursable, but often involve the acquisition of new and/or improved equipment that could provide increased efficiency or safety. In addition, today's common practice of preventive maintenance is already becoming a lower priority as generating companies transition into the restructured environment. Safety may also suffer due to reduced staffing. Many utilities are themselves restructuring their organizations to prepare for the rigors of competition. Much of this organizational restructuring involves reduction of engineering staffs, the very people responsible for plant safety.

As competition progresses, money normally earmarked for public service functions will be funneled more into advertising. Today's public parks and other recreational areas may very well become 'pay-to-play' facilities, or disappear entirely. However, if the government under



deregulation continues to impose the role of social services provider on the utilities, the level playing field vital to fair competition would become a mirage and profit taking by the utilities almost impossible. This situation would become even more prominent if the regulations for public service were imposed on a state by state basis.

The same effects would be felt on the renewable energy industries. PURPA required utilities to sign long-term contracts to purchase power from non-utility alternative energy generators (usually renewables) at a rate that reflected projected future energy prices. When many of these contracts were signed, future energy prices were expected to be much higher than they are now and PURPA contracts have locked in an inflated energy price. Many of these contracts are now being successfully contested in courts all across the country leaving the future of renewables in doubt. In order to counteract this trend, many state governments are attempting to initiate regulations tied to the development and use of renewable energy sources. For example, the state of California recently enacted AB 1890 (4). This legislation was designed to initiate electric industry restructuring, but includes several caveats centered around renewable energies. Even the Federal Government, via the current Administration, has made an attempt to impose its energy initiatives through its Comprehensive Electricity Competition Plan. Sissine (3) reports that:

*"the proposal includes four provisions that could help encourage renewable energy use: (1) a renewable energy portfolio standard (RPS) that would guarantee a minimum level of generation, rising to 5.5% of total generation by 2010, (2) a public benefit fund that would provide matching funds to states for renewable energy and other purposes, (3) a net metering provision that would assure interconnection availability and allow production from very small renewable energy projects to reduce utility bills, and (4) a consumer information disclosure requirement that would show the renewable energy share of the utility fuel mix."*

The EPA has also entered the debate by issuing a position paper that contends (3):

*"A healthy renewable energy sector must be maintained in the United States to meet both our environmental and energy security needs. A market for clean power is essential for the future. EPA supports a mandate in this regard."*

The EPA continues by stating that:

*"electricity restructuring as a whole (wholesale and retail competition) will result in carbon [dioxide] and NOx emissions increases".*

Sissine adds that:

*"as a result, EPA suggests that federal electric restructuring legislation include clear federal authority to set national or regional emissions caps for power plants and to provide for emissions trading among such facilities. Such market-based cap-and-trade program(s) would resemble the acid rain provisions of the Clean Air Act."*

The basic problem is that in today's market renewable energies can not successfully compete with conventionally produced energies. Currently renewable energy generation is

estimated to be about \$.05 per kilowatt-hour. Contrast that to the average \$.015 per kilowatt-hour for nuclear generated electricity and even less for fossil fueled plants.

Even so, an account by Kari Smith (5) reporting on a series of national surveys seems to indicate a strong desire by the general public to use non-polluting renewable energy even at a substantially higher price. The author reports that polling data indicates that the American public:

1. Strongly supports environmental standards and protection
2. Favors renewably generated electricity to improve environmental quality
3. Is 'willing to pay' more to purchase clean electricity

The author concludes by stating that:

*"Electricity generated from renewable fuels provide important environmental benefits in the form of improved air quality and reduced consumption of resources. National polls, and utility green pricing surveys, show that Americans are willing to pay more to realize these public benefits. During this time of regulatory uncertainty, green pricing, if coupled with direct access customer aggregation, could complement other public policies designed to meet customer demands for clean power."*

Who can, or is willing to argue with the benefits of green energy? The problem arises when the price of electricity increases significantly and when regulators begin to tinker with free, fair and open competition. Even though the push toward clean, environmentally friendly renewable energies may be beneficial for all, when push comes to shove, the consumer has generally opted for less expensive energy without regard for how it was produced. It is interesting to note that even though the wide variety of polling data indicate a tremendous desire by the public to use renewables, and an overwhelming willingness to pay more for the opportunity to help keep our environment clean and save the Earth's resources, since this article was written almost three years ago, there has not been an overwhelming rush toward any of the available clean energy suppliers. Even among the green energies, there have been squabbles. For example, a 1996 article written for the Clean Power Journal (6) comments that one of the non-preferred sources of electric energy comes from Hydro Quebec due to its impact on the Canadian Indians.

Another issue that is sure to influence renewable energy issues is the general idea that competition leads to lower production costs. The savings obtained by the lower electric production costs would result in lower electric utility bills to the consumer. Businesses, of all sorts, will now be able to buy 'cheap' electricity and will therefore also be able to pass along any savings to their customers in a type of 'trickle down' economy. The problem, of course, is that the more electricity one buys, the more savings will be realized and the potential exists that ordinary homeowners will see no long run reduction in their utility bill. Worse yet is the very real possibility that residential electricity rates may actually increase due to the lower electrical rates granted to industrial users. One need only look at the relatively recent restructuring of the transportation and telecommunication industries to realize that savings at the lowest levels may be mostly unrealized. The point is that with utilities trying to realize the most return for every dollar invested, public service efforts by the utilities to support high price items such as low-income family subsidies and renewable energy research and development become casualties of competition without government mandates. Conversely,

government requirements to spend utility money on non-essential items interfere with fair competition and owner investment returns.

The real problem is the difficulty in creating the elusive fair playing field. How does one go about eliminating unfair competition among different types of generation facilities? Fossil plants have less generation and capital costs than nuclear powered plants. Hydroelectric plants have fewer costs than fossil plants. Then you have the costs related to closing plants and plant maintenance costs. Different plants have different regulations. More regulation results in a higher price per kilowatt/hr. Then, of course, the paramount issue of stranded cost recovery takes center court. Who pays, and what will they pay for is the key element in the entire restructuring issue.

## SUMMARY

In this paper, only a small portion of the enormously complicated issues surrounding the restructuring of the electric industry could be addressed. We have not even ventured into the questions surrounding the fact that not all utilities will be able to serve all the people that may want to buy their electricity or that not all energy sold as 'green' may not actually be produced by non-polluting, renewable energy sources. Issues pertaining to the fact that many potential residential customers may be forsaken for the big money promise of large industrial customers has also not been adequately addressed.

When it comes to the issues of renewable energies, we must determine who will pay for the extra costs to incorporate them into our energy mix. The answer of course is that ultimately we all do and we must, as a nation decide if it is worth it. Perhaps the answer lies outside the restructuring plan altogether. If the move to renewables is important enough, and it probably is, maybe a separate, nation wide, federally paid plan should be implemented much like for the space race of the 1960's.

When trying to evaluate the restructuring of the electric generation industry, perhaps the best indication is to take a close look at how previously 'deregulated' industries fared. The questions asked at the beginning of this paper remain unanswered and probably will remain so for some time to come. One thing is certain, restructuring must be completed with strong foresight and a clear understanding of cause and effect.

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**Cite As:** Lentz, S. 2000. Deregulation Demystified: An Examination of Issues Associated with the Restructuring of the U.S. Electric Generation Industry. *Greenwich Journal of Science and Technology*. 1(1):11-26.

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