A Review of the Attitudes and Expectations of Public Utility Managers with Regard To the Effects of Deregulation and Open Competition in the Electrical Power Industry

by
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FACULTY APPROVAL

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Chapter I: Background

Introduction

Public administrators in the electrical power industry are faced with dynamic and fundamental changes that will no doubt impact their working lives like nothing else they have ever encountered or are likely to encounter in their careers. All-encompassing change is on the immediate horizon and there is little time to prepare. Managers of public power systems, ranging from small town City Managers to general managers of large electric cooperatives are being faced with deregulation of the industry and the prospect of competing for customers, even on the local level. Change is already taking place at a pace which is being described as exponential, inexorable, exhilerating, and to an extent, frightening. Daily headlines in newspapers across the nation and in Texas carry the banner of deregulation, competition, price breaks, and talk of who will win and who will lose (see Table 1.1). The stakes are huge. Electrical power sales are in excess of $200 billion annually in the United States. Public and private utilities alike face, for the first time, a real risk of financial ruin. The effect of failed utilities would be felt on Wall Street and on Main Street. There is a possibility that federal efforts to support failing utilities could compare to the Savings and Loan industry bailout in terms of the dollars required. Few individuals outside the industry had any idea these events were taking place just one year ago. With more and more stories appearing in the newspapers and recent television advertisements, public awareness is increasing. No doubt in another year awareness will escalate rapidly as people become aware of just what is at stake in the discussions going on in state legislatures, public utility commissions and local meetings of city councils and utility boards.

Table 1.1 Headlines Signal Change

)MPETITION

UTILITIES GO TO WAR

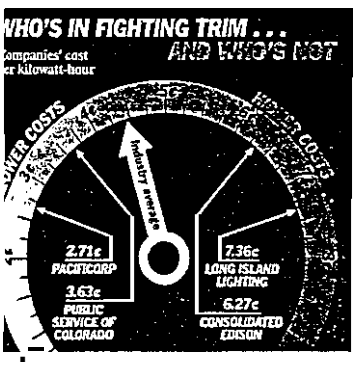
The last peaceful sanctuary of monopoly is breaking up into a ferocious field of mergers and marketing maneuvers. Now for round two. ■ *by Peter Nulty*

FOR THOSE who lead America's big power companies, decades of peaceful, regulated coexistence are nothing more than a memory. Today the ...s of aggression ring loudly across the ...4 skirmishes over territory break out al...st weekly, and utility executives boldly ...ust of their latest battle plans. At stake in ...s ever-widening conflict: the very utility ...a you par, not to mention the survival of ...ne of America's most widely owned com...panies. For a sense of how this war is shaping up, take a look at Broken Bow, Oklahoma, which lies in the foothills of the Ozarks about 125 miles north of Dallas. Nor long ago some 4,000 locals depended for employment on a Tyson chicken processor and local tourist traffic. Then, in 1993, Pan Pacific Corp. came to town scouting for a place to build a paper plant that could employ 85 people. All that the company needed to move in was something by way of an incentive.

So Broken Bow pulled a stunt that a lot of towns are chinking about these days: They got this prospective employer a break on electric...in rates. To do so, ~hdocal water utility, Broken Bow Public Works Authority, declared itself to be an electric utility. This allowed it to go shopping for cheap power in the wholesale market, where only utilities are permitted to buy and sell, and to undercut the prices charged by the established utility, Public Service of Oklahoma. PSO is now suing before the state supreme court to have the terms of the deal revealed to the public. Admits city administrator Mark Guthrie: "We go, a fight on our hands, nor that we expected Public Service to take kindly to what we were doing."

You'll find the same feisty attitude on the other side of this new industry divide, among aggressors like Richard C. Green Jr., CEO of UtiliCorp United of Kansas City, a utility that's rolling into new markets faster than a well-oiled panzer division. "Our corporate idols," Green says, "are McDonald's, Southwest Airlines, and Wal-Mart because they are fun, convenient, and low cost." In other words, he likes their snappy service and cut-throat ricing Green has even come up with the off-price power he sells, EnergyOne, flaunting it at a recent balloon race in Albuquerque (see opposite page). Okay, so "EnergyOne" doesn't have the pizzaz of "Coke" or "Big Mac," but it's still early in the day.

The fight among power titans to win over consumers will likely play out house by house. Otter Tail Power Co.—there is one, in Fergus Falls, Minnesota—could well call you at your home in Atlanta, say, offering a year's supply of free light bulbs if you disconnect from Southern Co. and buy some throat pricing. C... a brand name for...



Low-cost combatants will take territory from their foes as the market deregulates.

Bond rating fears propel utility decisions

■ Council's move to cut city budget's reliance on electricity revenue is called positive step

BY LAYLAN COPELIN
American-Statesman Staff

Every taxpayer in Austin has gotten a call from his or her banker.

The message: Get our mom-and-pop electric utility ready for Wal-Mart-style competition. Cut costs, reduce debt and squeeze profit margins, or pay millions in higher interest charges.

The bankers, in this case, are the bond rating firms of New York, and just the threat of competition coming to Austin's monopoly has them demanding action now.

The Austin City Council last week answered the call, in part, with a small increase in homeowners' tax bills and deeper-than-expected, and perhaps first-ever, cut in the utility profits that are used to subsidize more than one-fifth of city services such as police, parks and libraries.

So how did Austin do?

"I think it's a step in the right direction," said Mayor Pro Tem Gus Garcia, the director of Standard & Poor's Dallas office, of next year's budget. The savings are expected to retire utility debt or finance discounts to persuade the largest electric customers to sign long-term contracts instead of waiting for cheaper electricity in a ...

RICHARD C. GREEN JR.
CEO
UTILICORP UNITED

"Our idols are McDonald's, Southwest & lines, and Wal-Mart because they are fun, convenient, and low cost" In other words, he likes their snappy service and vicious price cutting.

...tility proposes rate cut for 6 largest customers

...lectric rate breaks

...e City of Austin is proposing rate breaks, averaging 9 percent, for ... six largest electric customers: IBM, Motorola, Advanced Micro De...ces, Texas Instruments, Applied Materials and Seton Hospital.

	Current Rate	Proposed Rate
...ergy rate	1.5 cents per kilowatt hour	1.11 cents per kwh
...mand rate*	$11.81 per thousand watts	$11.40 per thousand watts

Current annual revenue from six customers: $48 million
Annual cost of rate breaks to utility: $4.2 million

...Unlike residential customers, industrial customers are charged a demand ...e, which charges for the peak demand they put on the system, in addition ... the energy they use.

AM-S

BY LAYLAN COPELIN
American-Statesman Staff

Trying to hedge its bets against deregulation of the power industry, the Austin Electric Utility Department staff wants to cut the electric bills of its six largest customers by 9 percent.

It would cost the municipally-owned utility $4.2 million a year. In exchange, the utility would ask IBM, Motorola, Texas Instruments, Advanced Micro Devices, Applied Materials and Seton Hospital to sign long-term contracts, up to 10 years. Rates for other customers, including residential users, would not change.

It marks the city's first attempt to address the prospect of competition by cutting rates. The Legislature and Congress will consider deregulating the power industry next year, and the city's largest customers are considered likely targets of a raid by competitors.

"Our (largest) customers are pressing us pretty hard to do this," said John Moore, utility director. "And some of our neighboring utilities have already done some of these deals."

The proposal will be the focus of ...

See Electric, Back page

Electric Utility Bill Survey
May 1995 (Residential 1000 KWH)

INVESTOR-OWNED	May '95
Central Power and Light	$87.17
El Paso Electric Company	98.03
Gulf States Utilities	77.91
Houston Lighting and Power	84.50
Southwestern Electric Service Company	73.98
Southwestern Public Service	81.29
Southwestern Electric Power Company	72.14
Texas-New Mexico Power Company	85.41
TU Electric	78.73
West Texas Utilities	83.21
INVESTOR-OWNED AVERAGE	81.71

COMMUNITY-OWNED	May '95
Bluebonnet Electric Cooperative	$87.24
Bandera County Electric Cooperative	71.66
Blanco County Electric Cooperative	79.00
Guadalupe Valley Electric Cooperative	77.97
Medina Electric Cooperative	68.21
Pedernales Electric Cooperative	77.19
Tri-County Electric Cooperative	75.13
Upshur-Rural Electric Cooperative	83.49
Victoria County Electric Cooperative	77.61
Austin Electric Utility Department	77.69
City Public Service (San Antonio)	61.19
City of Fredericksburg	84.14
City of La Grange	87.30
City of San Marcos	84.75
Karnes Public Utility Board	63.91
COMMUNITY-OWNED AVERAGE	68.21
TEXAS AVERAGE	74.96

OTHER U.S. UTILITIES	May '95
Boston Edison (Boston)	100.04
Public Service Company (Denver)	72.30
Florida Power & Light (Miami)	73.62

Very big customers get very special treatment in Jacksonville and Manassas

New Age Ratemaking

FREDERICK BUCKMAN
CEO
UTILICORP

"Competition is approaching a lot faster than people expect," says Buckman,

IT'S TIME TO LOOK AT AR... WITH HIGH-PRICED ELECTRIC POWER

Table 1.1 Headlines Signal Change

TEXAS
GOVERNMENT
NEWS

OCTOBER 7
1996
VOLUME 24
NUMBER 26

update

pre-emptive strike launched by utility

The good old days of monopoly markets may be winding down for the state's electric utility companies. Come January, the legislative debate over retail competition in the state's electric utility industry promises to be a barn burner as troops of hired-gun lobbyists line up behind the state's 10 utility companies on one side and energy retailers on the other. The debate has already begun in earnest as Congress and other states consider proposals allowing energy retailers to bypass utility companies and sell power directly to consumers.

The momentum nationally appears to be moving towards deregulation. The question is no longer *whether* the electric market should be opened up to competition but *when* it will happen.

Acknowledging this mood, Entergy Corp. (an electric utility serving 300,000 customers in southwest Texas) has decided to unleash a pre-emptive strike by filing a proposal with the state Public Utility Commission (P.U.C.) outlining "a seven-year transition path" to retail competition. The company's strategy: to negotiate a seven-year surrender with the P.U.C. before ■ Legislature enacts a more immediate deregulation plan. Entergy chairman Edwin Lupberger says the plan "gives us a chance to get things in order and not go through a revolution overnight and cause a lot of chaos."

The "chaos" stems from the utilities' contention that deregulation will drastically raise electric rates for residential consumers " retail competitors come in, cherry-pick markets and steal away their bur customers — high-use, industrial consumers. Utility executives say they can't compete with the smaller retailers, because Texas "a-ties s— currently saddled with $23 billion in collective debt on their power plants. Entergy's seven-year plan is based on the time the utility says it needs to whittle down its own debt.

Thr state's other electric utilities and the retailers reacted coolly to Entergy's compromise plan. Dallas-based Texas Utilities, the state's largest utility, isn't ready to wave the white flag on retail competition, citing risks ■ small consumers. Bill Miller, head lobbyist for retailers, applauded Lupberger's acceptance of deregulation but said the 7-year plan falls short. "I think he's wrong on ■ _time — ■ he divider by two he's got it right *on* the money." ■

Freeze on residential rates proposed

New technology monitors individual appliance energy use.

A More Intelligent Meter

PUC idea would shield utilities

■ Consumers *who switch would have to* help pay old supplier's debt

BY BRUCE HIGHT
American-Statesman Staff

UTILITY STOCKS WITH LOTS OF SPARK

Company Ticker symbol	Current price	P/E ratio Yield (last 12 mos.)	Success story
CMS ENERGY CMS	$27.25	11.4 3.5%	Morgan Stanley's Kit Konolige likes this Michigan outfit's oil and gas business, which will help profits flow.
FPL GROUP FPL	$41.38	12.5 4.3%	This Florida utility does only 4% of its business with industrial customers, the ones most likely to bolt.
ILLINOVA ILN	$28.13	11.2 3.6%	An unregulated subsidiary that makes power stations is winning major international contracts for this Decatur company.
NIPSCO INDUSTRIES NI	$36.25	13.4 4.4%	Edward Tirello at NatWest likes Nipsco because low costs keep big customers happy and its 4.5% earnings growth secure.
PACIFICORP PPW	$19.11	12.7 5.7%	Jeanne Rasengren at Piper Jaffray sees a potential free-market winner in its distribution system, low costs, and trading savvy.
PUBLIC SERVICE OF COLORADO PSR	$34.13	12.4 6.0%	A growing customer base—how rare! Also, a recent merger will open the door to big savings.
SCECORP SCE	$17.25	10.3 5.9%	Innovative plans to depreciate nuclear power plants will help SCE outperform the market, says Goldman Sachs's Ernest Liu.
SOUTHERN SO	$24.00	12.1 6.0%	Liu also likes this utility, which recently expanded into England, where deregulation is further along.
UTILICORP UCU	$29.11	13.0 4.3%	Plans to make EnergyOne the first "brand name" in the history of utilities make this one a winner for Liu.
WPL HOLDINGS WPH	$30.63	12.9 4.7%	Low costs, low debt, and a competitive boss give this Wisconsin utility a lot of teeth, says Robert W. Baird & Co.'s David Parker.

Industries seek deal on rates for power

■ Electric utility wants long-term contracts in return; City Council orders hearings

Who uses the most electricity?

The Austin electric utility's largest customers

1. Motorola
2. IBM
3. Advanced Micro Devices
4. University of Texas
5. Texas I——
6. State of T——
7. City of Austin
8. Bergstrom Air Force Base
9. Applied Materials
10. Investors Life Insurance Co.
11. Seton Medical Center
12. Lockheed
13. Austin American-Statesman
14. A U Management
15. State Farm Insurance
16. Barton Creek Square
17. Transwestern Property Co.
18. Koch Refining Co.
19. St. David's Hospital
20. Trammell Crow

*State government signed a seven-year contract last year in exchange for a rate reduction.

Source: Austin Electric Utility Dept.

Table 1.1 Headlines Signal Change

Elec utility hopes rate cut will ward off the titi

Residential rates

No change is proposed for residential rates

	Winter	Summer
First 500 kilowatt hours	3.55 cents per kwh	3.55 cents per kwh
All kwh over 500 kwh	6.02 cents kW —	7.82 cents per kW

Schedule of rate hearings

- 6 p.m. Nov. 13, Austin Electric Utility Commission at the Town Lake Center, 721 Barton Springs Road
- 6 p.m. Nov. 21, Austin Electric Utility Commission at the Town Lake Center, 721 Barton Springs Road
- Dec. 4, time to be announced, Austin City Council at Council Chambers, 307 West Second Street.

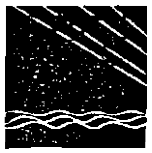
STANDARD & POOR'S

CREDITWEEK

MUNICIPAL

THE AUTHORITY ON CREDIT QUALITY — JUNE 26, 1995

BUSINESS POSITIONS IMPACT MUNICIPAL ELECTRIC RATINGS



As a result of its new business position assessments Standard & Poor's has placed 11 municipal electric utilities on CreditWatch with negative implications. The specter of increased competition in the electric utility industry makes these 11 utilities' cost and rate structures incompatible with their existing ratings. Any associated rating changes on these utilities will occur in the next several weeks *(see CreditWatch and table).*

In addition, Standard & Poor's has assigned negative outlooks to six electric systems, bringing to 13 the number of municipal utilities nor assigned negative outlooks. The sum of debt issued by utilities listed an CreditWatch or assigned negative outlooks is U 9.7 billion.

In addition, Standard & Poor's also has changed the outlook on two utilities to positive from stable, affecting $2.5 billion of rate debt.

Business position assessments were assigned to 62 utilities with $77 billion of outstanding debt. Included in the assessment process were eight generation and transmission cooperatives, 18 wholesale municipal utilities, and 36 retail municipal systems. Standard & Poor's already has assigned business position assessments to 123 investor-owned electric utilities, bringing the number of business positnon assessments assigned to 135

COMPONENTS AND SCORES

Standard & Poor's believes that the rapidity with which regulators and legislators are embracing the concept of greater customer choice dictates an intensified focus on four key factors. These factors already are incorporated in utilities' ratings but now will be more heavily weighted in determining ratings and business

Continued on page 33

Bond rating firms want utility plan

■ Poor strategy for becoming more competitive could lead to lower rating for Austin's utility revenue bands

'The more specific, the better. A plan that is ambiguous won't do any good.'

Bruce Todd, Austin mayor

In praise of utility trim

The Austin City Council deserves a pat on the back for cutting the transfer of profits from the electric utility to the city daily operating coffers.

The transfer was one-fourth of the money in the general fund last year. Originally, council members were going to hold the transfer at $60 million in the 1997 budget. which war approved this week. In the last day of budget deliberations, they decided on $57 million, a $3 million reduction.

However, their laudable decision doesn't solve the long-term financial problem facing the city: How to compensate for the potential loss of millions of dollars from the electric department that helps to pay for basic services like police, parks and street repairs.

The city also faces more than a $20 million gap between revenue and expenditures in the next five years, based on a staff financial forecast. The gap is the result of the expected reductions in the transfer. the loss of grant dollars and other revenue

A consultant recommends that the city lash the transfer by half in five years. which adds up to $6 million a year. Council members have not reached a consensus on the recommendation. That decision must be their goal in the next fiscal year.

Part of reaching consensus involves rethinking city reliance on the current mix of sales taxes, property tax— and transfers of profits from the electric and water and wastewater departments in the general fund. The taxer and transfer are the major source of city dollars.

If the Legislature deregulates the electric industry when it convenes in January, a further reduction in the transfer may be required. The utility would need the money to compete with companies that will try to lure customers with lower rates.

Electric department staff members ray the city needs to reduce its electricity costs from 6.7 cents per kilowatt hour to 5.45 cents, which is what San Antonio's city-run utility charges customers.

Without a plan. city officials easily could fall back on increasing property taxer and fees. That prospect is a bad strategy for reducing reliance an the transfer. Utility customers who live in the city would swap lower rates for higher taxes.

City staff has been preparing far the loss of the transfer, but it can go only so far without City Council consensus. The electric department has cut $7 million from its operational budget, and City Manager Jesus Garza has tried to bring down city costs through his so-called affordability strategy. Garza now requires each department to justify its expenses through regularly scheduled performance reviews. They can be money savers.

However, the city isn't going to stop growing, which creates more demand far services, and affordability can go bur so far. A strategy, Which focuses on identifying new sources of long-term revenue. is needed. Whatever the source, it shouldn't place the burden an home. owners. That payload could drive them out of the city.

The main tart for council members and staff in the new fiscal year is to agree on a reduction in the electric department transfer and lone-tern rev. enue-generating ideas that will offset the impact of a cut now.

Luckily, City Council has the flexibility to change the amount of the utility transfer during the budget year. That adjustment may be necessary if the Legislature gives the green light to deregulation.

NBU to mull (tting rate for electricity

By ABE LEVY
Staff Writer

Now that New Braunfels Utilities can purchase power at a lower price, NBU staff is recommending to its trustees that they approve a plan to decrease electric rates at their regular meeting tonight.

The proposed decrease is possible because the wholesale supplier of power to NBU, the Lower Colorado River Authority, offered NBU a list of optional lower prices in September.

NBU officials said LCRA's offer is the result of upcoming deregulation in the electric service industry and could result in up to $1.8 million in savings to the utility in 1997.

While the Texas Legislature decided to deregulate wholesale distribution of power last year, many experts believe deregulation of retail power may occur in the next few years.

NBU staff said the proposed decrease per thousand kilowatt would be $1.80 to $2 per month. The average NBU customer who uses 1,200 to 1,300 kilowatts of power would save about $2.16 per month. The proposed decrease for larger commercial and industrial customers would be proportional, NBU officials said.

"We have selected a new price that we believe will result in a lower power bill for NBU," said Jeff Thompson, assistant general manager of administration and finance for NBU. "We want to pass the savings on to our customers. (LCRA) did this on their own. They really didn't have to do this. We already have some of the lowest power rates in the region."

The proposal would amend the current electric service ordinance to allow for the new billing option.

The proposed decreases would require trustee approval tonight and then approval of three readings before City Council. If that happens, the earliest the proposed rates would take effect, is Jan. 27 for the February billing cycle.

On the NBU agenda

The New Braunfels Utilities Board of Trustees is holding its regular meeting at 7 tonight at the NBU Board Room, 201 Main Plaza. Agenda items include:

- Consideration of a resolution to amend the electric service ordinance to allow for proposed rate decreases.
- An update by Mark Zion, executive director of Texas Public Power Association, on electric utility deregulation
- An update on a request by the Edwards Aquifer Authority that NBU participate in a dry-year option program, a plan to pay farmers not to irrigate from the Edwards Aquifer as a way to maintain springflow and aquifer levels
- Consideration to accept and execute the water rights deed that would document the exchange of water rights last month between NBU and the city of New Braunfels

The last twenty years have seen deregulation and open, competitive markets come to many industries which had long been subject to direct governmental regulation as a substitute for open competition. The natural gas, trucking, airline and telecommunications industries have each succumbed to the same pressures in recent years. Though many were reluctant at first, pressure from consumers, the media, Congress and state and local regulatory bodies eventually overpowered the resistance. Deregulation brought about radical change in each case including open competition for customers (Derthick and Quirk, 1985).

Many of these industries operated under a monopolistic approach (as was the case with telecommunications). For others, direct government regulation was designed to protect consumers from price fixing or unfair trade practices. Still, one industry remained which had avoided deregulation; the multi- billion dollar electrical power industry. It has operated under a "natural monopoly" setting and has been subject to regulation for the last one hundred years. This is about to change dramatically.

As the US and the world prepare for global competition, and with the advent of high tech innovations which have made nationwide power distribution possible at virtually instantaneous speed and measurement, deregulation at the wholesale level is already at hand. (Meyer, 1996: 10). Public administrators in the industry are faced with a range of unanswered questions:

- How soon and to what extent will competition arrive at the retail level?
- What effects on local utilities and city governments will this radical change have?

There is little doubt at this point that further deregulation can and will take place in the near future. Many experts believe that competition will eventually come to the

retail level. (Greensberger, 1991: 31). This means that the potential exists in the not-to-distant future for all customers, including small electrical users, to be able to select an electrical power provider based upon cost, reliability, customer service, outage response time or even the level of environmental concern shown by the utility. (Miller, 1996: 66-68). This freedom of choice will no doubt cause the demise of many utilities creating some unique problems for the industry and our society as a whole. (Nulty, 1995: 202).

Because the industry is such a capital intensive one and each new power plant costs hundreds of millions of dollars to build, many utilities could be faced with financial ruin in a deregulated environment. (Ivins, 1996: C1). Those unfortunate enough to have built a power plant, or worse yet a nuclear power plant, in recent years based on the regulated, customer-guaranteed, assigned service territory approach will be in the greatest jeopardy. The resulting "stranded investment"[1] as it is called may require some sort of long term bailout at the state and/or national level. Some industry observers have suggested pooled integration of costs for underutilized power plants in a nationalized power grid (Ivins, 1996: C1).

.....

1. Stranded investment is a term used to describe capital improvements which have been made by a utility which could become useless or underutilitzed if a customer or group of customers no longer buys power from the utility. Up until now, the likelihood of that happening has been remote. Electric utilities typically have certified service areas and are required to provide service to all customers in that territory without regard to the economic viability of the investment in capital plant. If an existing customer is allowed to select an electric service provider other than the local provider, large, existing capital plant investments could become severely underutilized and a tremendous financial burden.

Research Purpose

Although similarities exist between the electric power industry and other formerly regulated industries, it is unclear what impact deregulation and subsequent competition will actually have on the electric power industry. The purpose of this study is to determine the attitudes and opinions of City Managers and electric utility General Managers (of Texas public power systems) as current expert/practioners. The research study will determine their expectations with regard to the impact of deregulation and open competition on; pricing of electrical services; staff levels; quality of service issues; and socially motivated programs. The study will produce a timeline as to when they believe these changes are likely to occur (see Table 7.1). In addition, city governments have shown a growing dependence on utility fund transfers to the general fund in recent years (O'Leary, 1995: 21). The study will determine the manager's attitudes with regard to the impact of competition on city government general fund payments.

Organization of Research

Chapter two contains a review of literature regarding the history of the electrical power industry, the economics of monopolistic industries, deregulation of other industries, and the possible impacts of competition on five specific aspects of the industry. These aspects are used to form the conceptual framework for the research. The chapter develops the working hypotheses for the study based upon the recurring themes in the literature.

Chapter three considers the legal setting in which electric utilities operate and the methods for which deregulation is likely to take place. Chapter four explains the

research setting for this project. The differing types of public utilities in Texas are explored and compared / contrasted with investor owned utilities. Chapter five reviews the research methodology utilized. An explanation of how the data were collected is included along with a graphical representation of the number of responses obtained by type of utility. Chapter six presents the results of the utility managers survey. The data are presented in graphical and narrative form and is tested against the working hypotheses presented in chapter two. Chapter Seven contains a discussion of the research findings and summarizes conclusions drawn from the analysis of the responses. The chapter also describes the limitations of the research.

The next chapter (chapter two) will explore the literature regarding the electric power industry, monopolies, deregulation and five areas likely to be dramatically impacted as a result of recent and impending actions in the industry.

Chapter II: Literature Review

Introduction

Deregulation and open competition have come since 1978 to the airline, trucking, natural gas, banking, and telecommunications industries. The last bastion to submit to the forces of open market competition has been the $200 billion per year electrical power industry. That is about to change. Congress, beginning with the passage of the Public Utilities Regulatory Policies Act (PURPA) in 1978 and culminating fourteen years later with the Energy Policies Act (EPA) of 1992, has essentially removed the barriers to competition and has given the states an open door to begin the process of providing true open access to electrical markets for customers at all levels of power delivery down to the single residential household. (Beck, 1996: 30).

The purpose of this chapter is to review the literature regarding the history of the electric power industry, deregulation, monopolies, and the potential results of open competition in the industry.

History of the Electrical Power Industry

The "one hundred - year war over electricity" (Rudolph and Ridley: 1986) seems to be over or at least entering a period of renewed battle over concepts which have been debated since electric power first became a salable commodity. The big questions which remain center on how and when and to what extent deregulation is to take place, what will be the consequences, who will be the winners and who will be the losers, and the environmental and social consequences. (Beck, 1996: 34).

A commonly held perception is that the impetus for deregulation of the electrical power industry came out of nowhere. Perhaps it has been influenced by the 1973 oil crisis or the Northeast blackout of 1965 or even the industry's propensity toward controversial nuclear power plants. In fact, the struggle goes back much further than that. In the late 1880s, there emerged a struggle over who would control the resource of electricity, whether or not it would be treated as a public resource (like water) or as a service, the geographic territories that went with it, and the increasingly central place it would occupy in the nation's economy. It was a bitter fight that raged through hundreds of cities and towns across America (Rudolph and Ridley, 1986: XI).

In other industrialized nations such as Great Britain, France, and Sweden, electricity would ultimately become a publicly owned resource but that was not to be the case in the United States. (Rudolph and Ridley, 1986: 259). With control of the industry in the hands of the private power companies, history was re-written to exaggerate Thomas Edison's contributions and make him the benevolent father figure of electric light for privately owned power companies. Technological advances in power transmission networks that would have reduced consumer costs went unbuilt for decades due to private power's opposition. In more recent years, nuclear power plants have been rushed into commercialization in order to assure private power companies' continued control of the electric indusby and United States dominance of the international reactor market. Regulation of the indusby was steadily undermined by a coordinated system of political influence and manipulation. (Rudolph and Ridley, 1986: 32).

When electricity first emerged from the back rooms of inventors like Charles Brush and Thomas Edison, it hit nineteenth century America with a dazzling impact. What fire must have been for early man electricity became in the eighteen hundreds as it began to light up whole cities, run trolley cars, power thousands of heavy industrial motors and spark the birth of mass communications (Rudolph, 1986: 10). Many political leaders were alarmed at the rise of the power industry's influence. Pennsylvania Governor Gifford Pinchot remarked in the early 1920s that:

> "nothing like this gigantic monopoly had ever appeared in the history of the world" in its ability to affect and control people's lives. He warned that if the industry went uncontrolled, it would be "a plague without previous example" (as quoted in Rudolph and Ridley, 1986: 11).

Decade after decade, for a full century, the guiding force of the industry was the struggle for control and the policies that shaped choices in both economics and technology. In the 1930s, the power industry tried to block the presidential nomination of Franklin D. Roosevelt because of his opposition to privately owned electrical utility overcharges while he was governor of New York (Rudolph and Ridley, 1986: 11). Many of the policies of the New Deal were aimed at breaking up the private power empires with strong regulation and support for city officials and groups of farmers who were seeking to create cooperative, non-profit electric power systems in rural areas. This was the case in the Texas hill country where Lyndon Baines Johnson was active in helping to acquire funding for the Pedernales Electric Cooperative which is now one of the largest in the country with over one hundred thousand customers (TPPA, 1996).

In the 1940s and 1950s, the private power companies pressed for the commercialization of nuclear power as their vehicle to renew the power empire. Their

drive to assure private control of atomic power in the early 1950s, played out in the atmosphere of the McCarthy era, was partly in response to a fear that the nonprofit municipal and rural cooperative power systems would gain control of and access to nuclear energy first and, in so doing, undermine their political and economic clout (Dukert, 1980).

Under the Eisenhower Administration, control over the industry was regained and by the early 1960s, the private companies began a new wave of centralization, creating new holding companies and promising an all-electric future. Their plan was to triple the nation's electric production by 1980 (Poole, 1985: 95-98). Out of this plan for an expanded wave of electrification came the overbuilding and overfinancing which present today's proponents of deregulation with one of their biggest obstacles: the potential cost implications of "stranded investment".

Since the resolution of the early conflict of control of the industry, a compact has existed between the utility, its customers and its regulators. This agreement encompassed three basic tenets: it gave the electric utility monopoly rights to serve every electric customer in a delined franchised service area; it obligated the utility to reliably serve the electric loads of these customers now and into the future; and it further established that the electric utility would charge its customers rates for each class of customer based on "equity", reflecting the full costs incurred by the utility of providing service to that particular customer class (Booth, 1994: 4).

These were the rules that established the foundation of the electric utility's purpose and how it operated. A customer had only one utility to turn to. The utility, in

turn, had some basis for predicting how its total electric customer loads would change over time because of its stable customer base, and the regulators kept a watchful eye to assure fairness. The utility was responsible for everything: not only for determining the future levels of electricity needed, but also for assembling the necessary resources to generate that power, to transmit the power to the vicinity of the various pockets of load, or customers, and finally to distribute the electricity to its individual customers. The costs for all of these services (together with a "profit," in some cases) were "bundled" together to arrive at the electric rates charged to its customers (Booth, 1994: 4). Under this arrangement, regulators have long sought to balance the interests of ratepayers and investors in an effort to promote the public interest (Manshio, 1992: 17).

Monopolistic Industry

Electric power systems have long been thought of as "natural" or "pure" monopolies. These are defined as a market in which there is only one seller of a product for which there are no good substitutes.' (Leftwich, 1980: 268). The primary arguments for providing electric power through a monopolistic system have centered around economies of scale. For two electric utility firms to coexist in the same area, there would be inefficiencies of cost caused by the duplication of capital intensive physical plant such as poles, wires and transformers.

For more discussion on monopolies and deregulation, there is a large body of literature available on this subject.

Although such direct competition is relatively rare, it does exist in the United States including a dual-certified system in Lubbock, TX. For the monopolistic economy of scale model to hold true, however, an assumption must be made that utility firms operate at maximum efficiency and incentives to operate inefficiently do not exist (Poole, 1985: 127). This "X efficiency" theory was developed only recently by Harvey Liebenstein, and was not even considered during the development of the theory of natural monopoly in the mid-1800s and early 1900s.

New technologies are contributing greatly to the movement toward competition. It is no longer perceived that in order to bring competition, one must create parallel systems of physical plant. With open access to transmission power grids brought about by the EPA in 1992, electricity produced in any part of the country can instantly be delivered to an end-use customer thousands of miles away. The local host utility serves as a delivery and billing mechanism once costs have been "unbundled". Because of this fact, it is now argued that providing electric service is no longer best suited to the pure monopoly approach. Barriers to the entry of new firms into the industry can now be categorized as "artificial". That is, the barriers are societal in nature, established and enforced by government. (Leftwich, 1980: 274).

Deregulation as a vehicle for Change

Despite the obstacles to deregulation and open competition, the incentives for and momentum behind the movement toward open access is inexorable. The literature on this subject contains recurring references to several primary forces driving the movement. The greatest emphasis comes from the strong desire of US industries to lower what they perceive to be artificially inflated power costs. Global competition continues to

be a growing factor in all markets. The mere threat of competition has caused 15% discounts to be offered to large industrial customers in the New England area where rates have been historically high. Large power customers in England, where restructuring is already a reality, have seen decreases as great as 25% (Meyer, 1996:10).

The table below lists the major types of costs which are incurred in the electric power industry and explains their function. These are costs which are presently bundled together and are transparent, for the most part, to the end user. In the deregulated marketplace, these costs will be unbundled and individually billed and accounted for.

Table 2.1 - Unbundled Cost Definitions

Generation Costs	These are the costs of producing the electrical power itself including construction of power plants and the fuels used in the process.
Transmission Costs	Energy is produced at high voltage levels. The transmission system is the superhighway of high tension lines and stations that move the power from the generating plant across long distances.
Distribution Costs	Once the power has reached a certain destination close to the end-use consumer the voltage level is reduced in a sub-station. The power lines along residential streets are part of the distribution system, as are the poles and transformers that most consumers are familiarwith.
Operations I Maintenance Costs	Ongoing costs to maintain the distribution system are incurred daily. Similarly, this type of expense would be charged for costs to restore power following an outage.
Metering Costs	Typically, a utility includes a monthly fee within the rate structure for the costs of metering which can cost from $30 for a residential meter to thousands for an industrial. These meters measure consumption and the time of the usage.
Administration and Overhead Costs	As in any business these costs are incurred for costs to operate the utility and typically generate no income on their own.

Transmission level power can be thought of as energy produced at high kilovolt amperage levels, "raw power" which is shipped over longer distances on high tension power lines. It must be lowered to distribution levels for the most part, to be consumed by homes and most commercial users. In the past, each utility's transmission facilities have basically been theirs to use and maintain exclusively although transmission networks are interconnected to provide greater reliability of service.

There is no doubt that open competition at the retail level will first be accomplished through providing open access to transmission facilities (McMullough, 1996: 2-3).

At two of National Steel's Midwestern plants, for example, the rate for interruptible electricity--low quality electricity at that--is 4.5 cents per kilowatt hour (kwh). (Hagerman, 1995: 61) Plant manager John Rateau knows where he could buy much higher quality power elsewhere on the grid at less than 3 cents/kwh. But under today's regulated system, the plants are forced to buy power from their local utilities. Although the utilities are working with the plants to lower rates, they too are hobbled by regulatory restrictions. National Steel and other industrial customers are anticipating dramatic savings once they are allowed open access to electricity. Energy costs make up 17% of National's production costs and electricity is one third of that. If the company's estimations of lowering their average cost per kwh is accurate (from 4.6 cents to 3.0 cents) the result would be a lowering of *total production costs* by about *2* %. The steel

producer trimmed its costs for natural gas by 60% following deregulation of that fuel in 1985. (Hagerman, 1995: 62).

Dow Chemical Co. foresees savings of between 20% and 40% in electrical power costs depending on the particular region of the country. Paul Cicio, Dow's manager of governmental affairs states:

"Very simply, industrial customers are paying too much for power. There are utilities out there selling power at low cost. We know where we could buy it. But we're not allowed access to it. We're prevented by law!" (as quoted by Miller, 1996: 65).

If electricity costs could in fact be lowered by a third, General Motors would save at least $1 billion per year, roughly equivalent to 25% of the company's profits in a "best ever" year (Hagerman, 1995: 59).

Throughout all industry, estimated savings could be as high as $80 to $100 billion per year. "In today's competitive marketplace, industrial consumers are absolutely demanding access to lower-price power," says Federal Energy Regulatory Commission (FERC) Chairman Elizabeth Moler. "They want to be allowed to shop. That's what our NOPR (Notice of Proposed Rulemaking) is all about. It is a transition to a competitive market." In conclusion, Moler noted that "Lots of people tried to resist natural gas deregulation, and that turned out not to be a viable strategy, and its not a viable strategy this time either" (as quoted by Miller, 1996: 66).

Another major driving force for deregulation is disparity of pricing. Retail rates vary across the country by as much as 700%, according to a 1993 survey by the National Association of Regulatory Utility Commissioners. These disparities have caused major power users to seek ways to lower their electricity costs (Hagerman, 1995: 59). As

stated previously this is a common problem for large industry with facilities located throughout the nation. Costs for electrical energy can range from 2.5 to 9.9 cents per kwh for the same company in different parts of the country. Once true open access is allowed, industrial customers, national chains (such as Wal-Mart) and even University systems (Macey, 1996: 6) will be able to shop for power as one customer on a national scale. Obviously, this will mean great savings to those customers who can accomplish this but again, regulators and local municipal leaders fear for those customers who cannot. It is possible that coalitions of residential customers will develop to market themselves on a larger, more competitive basis as well (Studness, 1994: 38).

As other industries have successfully undergone the deregulation process over the last twenty years, the public has gradually altered its perception of these industries and of deregulation in general. During the process of deregulating the telecommunications industry, there was a great deal of fear regarding the cost implications to residential customers. Independent power producers argue that this fear was not justified. (Destec supplement, 1994). In fact, while costs for residential "dial tone" service increased by 37%, costs for the long distance service, once "unbundled" dropped by about 40% over the same time period. The net impact on a typical residential customer was therefore minimal. The impact on the smallest users, however, was significant because of the price shift from long distance charges, which can be avoided, to minimum dial tone charges which cannot (TPPA seminar documents, 1995). More and more, the American public has come to view government activities in general and government regulation in particular as inefficient (Derthick and Quirk, 1985). With the electric power industry,

much as was the case with telecommunications, there was not initially a united front for reform. Things changed for both industries when technological advances challenged the efficiency (of the regulated monopoly) argument (Derthick and Quirk, 1985). Deregulation can therefore be viewed as evidence that the US political system is now more attuned to the needs of the general public (Derthick and Quirk, 1985).

New technologies which have made true open access to a nationalized power grid much more feasible than in the past. Improved Computer systems have been developed to control access to interconnected power grids. New metering technologies have been developed which allow for a reliable means of accounting for the power produced and instantaneously used by the thousands of entities which come together on the nations power grid. In addition, new technologies have also been seen in power production plants themselves such as the new combined cycle, gas-fired generating plants (de Rouffignac, 1995: 1I).

Similarities exist with regard to other deregulated industries. As it stands today, individual electric companies are beginning to look a lot like AT & T did in 1984. Later that year the federal government forced the telecommunications giant to divest itself of its monopolistic operating companies and enter a competitive long-distance marketplace. In fact, in a way, electric utilities have come to resemble "baby AT & Ts" (Greensberger, 1991: **30).**

Although AT & T lost its monopoly more quickly and completely than is likely in the electric utility industry, many similarities will no doubt exist. Parallels to the natural

gas industry deregulation can also be drawn. Deregulation of that industry is considered by many to have been the most successful (Miller, 1996: 66).

Two of the major obstacles which must be resolved before deregulation efforts can be implemented are: stranded investments and open access to transmission facilities. Unrestricted "retail wheeling", or open access by all customers to electric markets, will create both new threats and new opportunities within the electric utility industry (Morehouse, 1986: 106). Utilities will face the threat of losing large, existing customers to another utility provider, thereby reducing their total energy sales volumes. The worst case scenario is a "death spiral" where increasing attrition of loads yields ever increasing rates which ultimately could result in bankruptcy for the utility. Electric providers will also have the opportunity to attract new, desirable loads from other providers, consequently increasing energy sales volumes and enhancing their competitive position by reducing average electric rates (Booth, 1994:5).

For the last one hundred years electric power plants have been built in a monopolistic, regulated environment under the watchful eye of state utility commissions and city government. Imprudent decisions which have been made with regard to construction of unnecessary or relatively expensive power plants have placed some utilities at great financial risk. These utilities may be in danger of losing the guaranteed customer base that the projects were built for. If utilities are not allowed to raise or even maintain existing rates to cover the cost of these investments in plant, their losses could be enormous--as much as $200 billion according to industry estimates (Hagerman, 1995: 61). Some contend that these costs should not be allowed consideration in establishing

future rates and this reality has not been lost on investors and taxpayers. Standard & Poors, for example, in the fall of 1995 cited the prospect of retail competition as the major factor in its decision to downgrade credit ratings of one third of the nation's investor-owned utilities (Fox, 1995).

The New England area is far ahead of most of the country in its efforts to restructure. Some of the highest per-kwh costs in the country serve as an incentive for these efforts. The greatest uncertainty in their efforts, however, is coming from an apparent resistance to restructuring the region from Connecticut. Not coincidentally, that state is the home of Northeast Utilities, the area's largest utility with a high concentration of capital intensive nuclear power plants and thus, it has a great deal of strandable investment.

Utilities with such capital see themselves at great risk of being unable to support their bond payments after deregulation if they are forced to "eat" their stranded investment. Arthur Adelberg of Central Maine Power states "Our average cost of generation today is 6 cents per kwh...if we were to sell that 6 cent power on the open market, we'd get something like 3 cents per kwh for it. That's the amount (half or 3 cents per kwh) that's at risk of being stranded by going into a competitive market" (Meyer, 1996:11).

Presently, all costs associated with the generation, transmission, distribution, fuel, and customer costs (including billing, meter reading, etc.) are aggregated in the rates which a customer pays for monthly utility consumption. In the future, these costs will be separated (unbundled) and service could come from many different utilities. A

customer may purchase power from one utility, pay transmission fees to another and distribution and customer charges to still another. In addition, new costs may be added to the billing process to pay for stranded investment, meter reading etc. In order to accomplish the goal of providing open competition in the industry, each of these costs must he separated from one another so that individual billing for each of the services can take place. This is more difficult than it sounds in that in the old, non competitive environment, there was little incentive to accurately account for these individual increments if it was done at all (TPPA, Oct. 1995:3).

It will most likely require extensive cost of service studies and subsequent regulatory review to determine the incremental costs of providing each of these services. This is a costly and time consuming process which many smaller utilities do not have the resources for in-house. It is distinctly possible that some costs will not be recognized in this initial process. Some utilities could find themselves at risk of being unable to fully recover the basic costs of providing service to their customers especially if larger customers are allowed to leave the system without prejudice (Public Power Weekly, 1995: 4).

Customers in New Hampshire are already taking part in model program in which customers are being billed with each unbundled cost showing on the bill. So far, the savings anticipated by the customers who have signed on for the experiment have not been forthcoming. A sample bill (below) was run upon request of Public Power Weekly, which is published by the American Public Power Association in its August 26, 1996 issue. The total bill, with all unbundled fees included, is $100.12 for 883 kwh. That

amount is higher than the bundled bill would have been by at least 20% and higher than the national average by more than 50%.

Table 22 - Sample Bill for Unbundled Electric **Costs**

Retail Competition Pilot Program
Delivery Service Rates

Total Kilowatt Hours (kwh) 883

Description of Charges	Quantity	Rate	Amount
Meter Charge		9.16	9.16
Transmission Service	883 kwh	.00389	3.43
Distribution Service	883 kwh	.01900	16.78
Acquisition Premium	883 kwh	.02970	26.23
Stranded Cost	250 kwh	.02069	5.17
	550 kwh	.06252	34.39
	83 kwh	.04598	3.82
Pilot Participation Credit *	883 kwh	.01480	13.07CR
NU Wholesale Power Energy	600 kwh	.01000	6.00
	283 kwh	.02900	8.21
Total Current Charges			100.12

Most remedies currently being offered up for the problem of stranded investment, fortunately, stop well short of the $500 billion bailout of the Savings and Loan industry (Hight, 1996: D1-D4). Many solutions proffered to date propose that all consumers pay a fee, calculated as part of their monthly utility bill, to gradually recoup the losses for stranded investment if retail wheeling becomes a reality. Some utility managers see the need to tack on this type of recovery fee for approximately five years while others, less sympathetic to the utilities as a whole, favor allowing the investors in the utilities who

made what they term "imprudent" business decisions to bear the full costs of the losses (O' Brien, 1996: 8). Given the reliance on utility bonds by many insurance companies and retirement programs in their investment portfolios, this solution may be ill-advised and be much more far reaching in its implications than its advocates foresee. Many large insurance companies and retirement funds are heavily invested in AAA rated utility bonds. If utility companies cannot meet their debt obligations due to loss of once captive customers these plans and institutions will be dramatically impacted.

Problems faced by the electric power industry and its leaders are not dissimilar to those faced in Russia and other former members of the USSR. Both are struggling with a transition from a non-market to a market based economy. In the past, the "regulatory bargain" shielded public utilities and their ratepayers from the turmoil of the marketplace (Manshio, 1992:18). This shield not only kept competition out, but also created an artificial reality in the midst of the fiee enterprise system (Manshio, 1992:18). Much as Mikhail Gorbachev did, visionary leaders in the electric power industry must provide the ability to see beyond regulation to a new reality based on open competition (Manshio, 1992:18).

A decision must also be made as to who will be the "traffic cop" of the electricity superhighway once it is completely interconnected. California and Wisconsin, which are both ahead of most other states in the restructuring process, are favoring a single open network. A new entity known as an Independent System Operator would have the responsibility to provide open access for all and to formulate and assess charges on a uniform basis. The independent service company would also ensure system reliability

and open access to all at market prices while providing system wide dispatching services (Public Power Weekly, 1995: 4).

Conceptual Framework

The consensus of the literature, in general, is that costs will shift from large commercial and industrial users to homeowners and small businesses (Hagerman, 1995: 33). Residential and smaller commercial users are less likely to have access to alternative supplies of power. 'Nothing in retail wheeling will lower electric rates for (small) consumers," claims Michel Florio, a lawyer with Towards Utility Ratepayer Normalization, a consumer - advocacy group in San Francisco (Macey, 1996: 6-7).

In the telecommunications industry, which was largely deregulated in 1984, average total phone bills went up by 15.7% between 1984 and 1988, according to data collected by Dilip Kamat of McKinsey and Co. That's a little more than the rise in the consumer price index over the same period.

The average, however, masks tremendous differences in the changes of the individual components that make up the telephone bills, i.e.; the unbundled costs. Prior to deregulation, regulators subsidized local service via high rates for long-distance service. After deregulation, each service had to become self-supporting from a financial standpoint. As a result, from 1984 to 1988, long-distance prices dropped by 42.9%. Since businesses tend to use more long-distance service than residential users do, this meant that businesses reaped the greatest benefits from deregulation (Hagerman, 1995: 63). It is anticipated that this will also be the case for the electric power industry, In the regulated environment municipal utilities have had a tendency, due to the difficulty in

raising local taxes, to subsidize residential rates and other city services in general with funds generated from large commercial and industrial customer overcharges.

In recent years, the price separation trends in the telephone industry have continued at a slower pace. From 1988 to 1991, long-distance prices decreased another 5.8% while the price of local phone service increased by 4%. As a result, total phone bills increased by only 0.5%, substantially less than the 13.1% increase in the cost of living over the same period. (Hagerman, 1995:64).

Kamat found similar trends in the natural gas industry. Between 1981 and 1991, the delivered price of gas for industrial users dropped by 1.5%. During the same period, however, the delivered price of gas for residential customers increased by 3.1%. This is due to the fact that while the well-head price fell for all users, transmission and distribution costs fell for large commercial and industrial users but rose slightly for residential users (Hagerman, 1995: 64).

One alternative viewpoint was found in reviewing the literature. Charles M. Studness, Ph.D., an economist from Columbia University and a specialist in financial research on electric utilities, offered a very different view in the November 1, 1994 issue of Public Utilities Fortnightly. Dr. Studness argues that:

"the financial burden that traditional ratemaking has imposed on residential customers is the failure of regulation to create skong incentives for utilities to be as efficient as possible. The epidemic of utility cost reduction programs fostered by the threat of competition testifies to this failure. Moreover, the absence of strong incentives to be efficient makes the pursuit of efficiency a matter of management discretion" (Studness, 1994: 37).

He references the vast price disparity in rates per-kwh charged by neighboring utilities as proof of this. He compared ten pairs of metropolitan areas whose residential

rates in one city is 55% to **95%** above that in the other even though the cities are only **50** to **250** miles apart. For example, Pittsburgh PA and Uniontown PA are geographically separated by only **50** miles. The residential rate differential of the two cities, however, is **90%** with one paying **12.4** cents per kwh and the other paying **6.5** cents per kwh. He mentions that there is no inherent reason that residential customers cannot benefit from competition as much as large customers. He believes the threat of competition in areas such as Pittsburgh would force the utility there to cut its rates to avoid losing customers, including residential customers. He estimates that such competition could cut rates by as much as **30** to **40** percent (Studness, 1994:40).

Studness suggests that in an openly competitive environment, residential customers would presumably be as free as large customers to seek discounts, assuming no discriminatory rules privilege large customers. Although individual residential customers will have little or no market power, talented entrepreneurs could put together programs to sell power to groups. By aggregating residential customers, such power marketers could buy in greater quantities than large industrial customers, thus obtaining comparable discounts.

He states flatly that those who contend that residential customers would be adversely impacted by competition have a hidden agenda, most significantly conservationists who fear that competition will both terminate "their cherished demand side management programs" and reduce electric rates. Rate reductions are unwelcome since they would increase the demand for energy as a whole (Studness, **1994: 41).**

The overall move toward downsizing in the industry is already underway at many utilities nationwide and is almost unprecedented in the industry's history. Even during the Great Depression, electric utilities were able to avoid the massive layoffs experienced by other industries, partly because of growth in kilowatt hour sales (Morehouse, 1986: 75).

Commonwealth Edison, the big Chicago electric company, hopes to reduce its workforce by as many as 3,000 positions between 1996 and 1998-- a 10 to 16% reduction of the company's 1995 labor force. Duke Power Company in Charlotte is in the process of shedding nearly 1,000 jobs--5% of its workforce, during 1996 (Dworin, 1995: B1). Other power companies across the nation are doing the same while the federal government is cutting the size of its hydroelectric power activities. Last fall, the Western Area Power Administration, the federal power agency that generates and distributes power in a 15 state area in the West, announced plans to cut nearly 500 federal and contractor jobs (Dworin, 1995: B1). Review of the literature did not reveal statistics for small, municipal utilities but personal experience indicates that it is of concern at that level as well.

One of the major concerns regarding restructuring is that service reliability will deteriorate. Once costs are separated, it is possible that sources of the greatest income (i.e.: large commercial and industrial customers) will receive preferential treatment. In addition, it may become unclear at first where responsibility lies for restoration of service following a power outage. The separation of responsibilities from a single provider to many begs the question: whose customer are they?

It may turn out to be the case, however, that many industrial customers are at least equally concerned with reliability of service as they are with price as noted by Edison Electric Institute's David Owens (Greensberger, 1991: 30-31). The same large industrial customers also rely on the high quality of power (as it is delivered today) in their manufacturing process. The availability of low-cost, low-grade power may not have the enticements that most experts believe (O'Brien, 1996:102).

Much of the literature reviewed states that in other recently deregulated industries, new customer service programs and technological advancements quickly followed in the competitive environment (Greensberger, 1991: 30). It is generally anticipated that this will be the case for the electric power industry as well. Much as was the case with the telecommunications industry, electrical power appears to be poised at a technological crossroads. Smart systems which monitor and control power consumption in the home and electric metering systems which monitor time-of-day use for all customers may become prevalent. Other systems utilizing remote prepayment of electricity are already being marketed (TPPA. seminar: 1994).

It is clear that impending deregulation / competition will have an impact on various aspects of the industry. The managers surveyed will have formed preliminary opinions with regard to these areas and therefore working hypotheses have been formed. The preliminary working hypotheses are divided into five conceptual categories as follows:

Pricing, Staffing, Quality of Service Issues, Socially Motivated Programs and Effect on General Fund Transfers.

- **Pricing -** The review of the literature regarding the effects of deregulation in other industries shows that substantial pricing adjustments resulted almost immediately. Literature available on the subject of emerging deregulation in the electrical power industry describes concern for what could be radical pricing changes unless some form of regulation or control is exerted in the process. Some industry experts have begun to refer to the process as "re-regulation" as opposed to purely a deregulation. Pricing, in particular for large industrial customers, has become the major driving force for change in the industry. The literature points out the similarities between the electric power industry and other deregulated industries and thus expectations regarding eventual pricing impacts on all types of customers are developing. This research will determine what expectations electric industry managers of public power systems in Texas will have regarding pricing. The overall pricing expectation which can be drawn from the literature review is that prices for electricity will eventually be higher for residential and small commercial customers but lower for large commercial and industrial customers. This is of great concern to consumer advocate groups, the utilities serving their local customers, (many of which are "owned" by those citizens) and finally, to regulatory bodies such as the Public Utility Commission of Texas. Sufficient parallels exist between the electrical power industry and the telecommunications industry in particular which indicate that competition will benefit the largest customers first and foremost. Advocates of competition and industry action groups argue that American industry must receive "proper" pricing in order to compete with like industries globally. In other countries, such as New Zealand and

the United Kingdom, deregulation has already taken place and American industries find themselves at a competitive disadvantage. Following costs for labor, costs for energy used in various industry processes is often the next largest cost component.

The literature suggests that the following hypotheses can be drawn with regard to the expectations of managers of public utility systems in Texas regarding future pricing outcomes following deregulation of the industry:

WORKING HYPOTHESES #1: Managers will have opinions about the effect of deregulation / competition on future pricing outcomes.

WH 1a. Managers will believe that the aggregated costs of unbundled electric services will bring about an overall increase in the price of electricity for residential and small commercial customers.

WH 1b. Managers will believe that the aggregated costs of unbundled electric services will bring about an overall decrease in the price of electricity for large commercial and industrial customers.

WH 1c. Managers will believe that these price differentials will be more dramatic in the longer term (ten years from now) than in the short term (five years from now).

- Staffing levels - This category was chosen because of the downsizing which is still going on in the telecommunications industry as a direct result of deregulation. The subject was not often specifically discussed in the literature, but was referred to indirectly. The general expectation which can be drawn from the literature review is that personnel employed in all aspects of the industry are likely to face workforce reductions. This is of great concern to the managers and employees of public utilities. Most likely, the subject is referred to only in generalities because no-one is at all certain what the actual impact of deregulation on staff levels will be. Enough dissimilarities exist between the industries (electric and telecommunications) to cause this to be so. Also, much of the literature focuses on only the positive outcomes

expected fkom competition for customers.. It is hoped that through this survey research, the managers will give responses which will form an industry consensus based upon their expert / practitioner opinions.

The literature suggests that the following hypotheses can be drawn with regard to the expectations of managers of public utility systems in Texas regarding staff levels following deregulation of the industry:

WORKING HYPOTHESES #2: Managers will have opinions about the effect of deregulation / competition on **future staffing** levels in various functions of the utility.

WH 2a. Managers will believe that staff reductions will take place in both administrative/ support personnel and in distribution and operations personnel.

WH 2b. Managers will believe that staff reductions will occur for generation and transmission personnel to a lesser degree than for support and distribution and operations personnel.

WH 2c. Managers will believe that staff reductions will be greater in the longer term (ten years fkom now) than in the short term (five years fkom now).

- **Quality of** Service - The literature review points out that certain aspects of service provided by utilities may be detrimentally impacted by deregulation and competition. Service reliability, outage response time, and the availability of new or enhanced customer programs are quality of service aspects included in this category. There is speculation in the literature and in the industry in general that these aspects of service which are now virtually the same for every customer, may be subject to individual selection and thus, individually priced. The requirement for reliable power both fkom an outage and power quality standpoint varies greatly fkom industry to industry. Once again the question often raised in the literature is : Whose customer are they? If you purchase power fkom a supplier other than your local carrier, what

responsibility will they have to you to restore power following an outage as opposed to a customer still receiving power from the local provider?

The literature suggests that the following hypotheses can be drawn about the expectations of managers of public utility systems in Texas with regard to quality of service issues following deregulation of the industry:

WORKING HYPOTHESES #3: Managers will have opinions about the effect of deregulation / competition on quality of service issues including reliability of electrical service, outage response time, availability of new or enhanced technologies, and development of new or enhanced customer programs.

WH 3a. Managers will believe that service reliability will be enhanced for both residential and commercial customers, but more so for commercial.

WH 3b. Managers will believe that outage response time will be enhanced (quickened) for both residential and commercial customers, but more so for commercial.

WH 3c. Managers will believe that the availability of new or enhanced technologies will be accelerated by deregulation / competition.

WH 3d. Managers will believe that the availability of new or improved customer programs will be accelerated by deregulation / competition. Customer programs for this research are defined as any program which is, in general terms, aimed at increasing overall customer satisfaction and / or loyalty.

- Socially Motivated Programs - Many socially motivated programs are at present mandated upon municipally owned systems, subject to direct influence of federal, state, and local government. Following deregulation, these programs could be adversely effected, again, unless re-regulation mandates otherwise. Examples of these programs are: discounted rates for governmental entities, non-profit / charitable agencies and churches; availability of a "lifeline rate" for low income customers; and the requirement that all customers be served regardless of financial cost recovery considerations. Privately owned entities are not equally bound by these requirements, and if this were to continue to be the case a level playing field will not exist when

open competition arrives. This is of major concern to the public power organizations which are readying themselves for competition in all aspects over which they presently have control. This is not one of those at the present. Electrical power has grown in usage and reliability to where it is now considered a necessity of life, no longer as a discretionary item. This fact will make the deregulation process in general more complicated than it was for the other industries mentioned in this study.

The literature suggests that the following hypotheses can be drawn about the expectations of managers of public utility systems in Texas with regard to programs which are motivated by social concerns following deregulation of the industry:

WORKING HYPOTHESES #4: Managers will have opinions about the effect of deregulation / competition on socially motivated programs such as the local requirement to serve rule, life-line rates to indigent ratepayers, discounted rates for church, charity, or non-profit entities and environmental programs.

WH 4a. Managers will "agree" that deregulation / competition will bring about a reduction in or elimination of the local requirement to serve rule.

WH 4b. Managers will "agree" that deregulation / competition will bring about a reduction in or elimination of lifeline rates.

WH 4c. Managers will "agree" that deregulation / competition will bring about a reduction in or elimination of restrictions to cut-off provisions based upon weather or hardship.

WH 4d Managers will "agree" that deregulation / competition will bring about a reduction in the availability or existence of discounted rates for churches, charitable organizations or other non-profit entities.

WH 4e Managers will "agree" that deregulation / competition will bring about a reduction in environmentally motivated programs such as those which control emissions at power plants minimizing one of the causes of acid rain.

- **Utility** Fund Transfers - Many city governments have come to rely heavily on cash transfers or franchise fees paid by the electric utility to the host city general operating fund to balance budget shortfalls. This dependence has grown for most local

governments over the last fifteen years. Federal funding and assistance began to dry up during the Reagan administration and ad-valorum property taxes have also been steadily trending downward during that time (Rodgers, James. "Sales Tax, Income Taxes and Other Revenues"; Management Policies in Local Government Finance: **232).** Funding for streets, police and fire departments, libraries and parks has, more and more, come to be reliant on utility transfers. While revenue comes primarily from the electric systems, water, sewer. and other utilities are called upon to provide funds as well. Once competition in the industry is widespread, those cities which have inflated electrical rates due to these transfers will be in great jeopardy of having their largest, most reliable and often most profitable customers "cherry picked" by lower cost providers. This could leave small local governments holding the financial bag for millions of dollars worth of potentially unrecoverable infrastructure. If this occurs, bailouts may be required which would make the savings and loan industry pale by comparison. Many retirement funds, insurance investments, and individual life savings are now invested in AAA rated utility bonds which could literally be in jeopardy overnight. This is of utmost concern to all.

The literature suggests that the following hypotheses can be drawn about the expectations of managers of public utility systems in Texas with regard to payments to local city governments in the form of cash and other in-kind contributions following deregulation of the industry:

WORKING HYPOTHESES #5: Managers will have opinions about the effect of deregulation / competition on the **level of payments to local city government** in the form of payments in lieu of taxes, franchise fees, unbilled or "in kind" services or other transfers.

WH 5a. Managers will believe that payments /transfers will be greatly impacted (reduced) in the future as a result of open competition in the electrical markets.

WH 5b. Managers will believe that payments / transfers will be impacted (reduced) more in the longer term (ten years from now) than in the short term (five years from now) due to the need for reduced governmental subsidies in an open competitive electrical market.

The literature on deregulation / open competition in the electrical power industry coupled with discussion on the subject at various seminars attended by the researcher, provide the framework for developing the five working hypotheses. These hypotheses and their sub-hypotheses follow a theme which is almost universal in the literature. The consistency with which these themes reoccur provided a strong indication that the managers would in fact have strong opinions and expectations in the five categories.

In acquiring responses within the conceptual categories stated, it should also be possible to get a sense from the managers as to when they expect each of these changes to occur.

The table which follows provides a summarization of the five conceptual categories for this research and description of the hypotheses which can be drawn from the literature review:

Table 2.3 - **Summary** of **Hypotheses**

Effect on Pricing **Hypotheses 1**	Residential / Small Commercial **Customers**	Industrial / Large Commercial Customers
Short term (five years)	Increased	Reduced
Long term (ten years)	Greater Increases	Greater Reductions

Effect on Staff Levels **Hypotheses 2**	Administrative / Support & Distribution Personnel	Generation / Transmission Personnel
Overall	Greater Decrease than Generation & Transmission	Lesser Decrease than Admin. / Support & Dist
Short Term (five years	Reductions	Reductions
Long Term (ten years)	Greater Reductions	Greater Reductions

Quality of Service Issues Hypotheses 3	Residential / Small Commercial Customers	Industrial / Large Commercial Customers
Effect on Service Reliability	Enhanced - Less Than LC and Industrial	Enhanced - More Than Residential and SC
Effect on Outage Response Time	Enhanced - Less Than LC and Industrial	Enhanced - More Than Residential and SC
Availability of Enhanced	Accelerated	Accelerated

Technologies		
Availability of New / Improved Customer Programs	Accelerated	Accelerated

Effect on Socially Motivated Programs Hypotheses 4	Expectation
Requirement To **Serve**	Reduced or eliminated
Availability of Lifeline Rates	Reduced or eliminated
Restrictions to Cut-Off Provisions	Reduced or eliminated
Availability of Discounted Rates	Reduced or eliminated
Environmentally Motivated Programs	Reduced or eliminated

Effect on Payments and In-Kind Contributions to Local City Governments	Shorter Term (five years)	Longer Term (ten years)
Overall Expectation	Significant Reductions	Greater Reductions

In the process of conducting this research, the manager's views regarding when these open access, open competition initiatives are likely to effect customers at various class levels will be analyzed. The literature indicates that great change is imminent in the next few years. It appears by all accounts that the electrical power industry is about to

undergo unprecedented and radical change. Several of the authors proffered the idea that, much like with other industries that have gone through the process of deregulation, electric industry managers will have to rely upon a new set of learned skills including an abundance of "cunning and guile" in order to survive in the new frontier (Kawasaki, 1995: 10). The result may be a more customer oriented, technologically enhanced industry with higher costs for residential and small commercial customers, lower costs for large commercial and industrial users, less environmental / socially based initiatives and more choice for all. The only sure thing seems to be that change is now inevitable and immanent.

Public power utilities have, for quite a long time, been regulated by the Federal, State and Local Governments. Existing legal oversight and administrative law which governs the industry is the subject of the next chapter.

Chapter III: Legal Setting

Introduction

The purpose of this chapter is to make the reader aware of the legal structure that has provided an evolving framework in which publicly owned electric power systems have operated. Development and regulation of the industry can be subdivided into four distinct time frames, each of which was characterized by a progressive public awareness of the utility industry and its increasing impact on the day to day lives of the people served by the industry from both a service and financial standpoint. On the national level, there have been at least fourteen major Congressional Acts which have set the overall tone for regulation of the industry. State Legislatures have acted within these guidelines to establish control over the industry in a manner that is somewhat unique to each State.

Formative Stage: Pre - 1950

The first State regulatory agencies were established in New York and Wisconsin in 1907 (Rudolph and Ridley, 1986:193). In Texas, the electrification which took place in the 1920's and 1930's prompted the State Legislature to enact law to establish the powers which a municipal utility could use to initiate local service. Included in this enabling legislation were the guidelines for establishing service territories, control of the system, the ability to sell bonds and set rates, account for income and expenses, and for transferring discretionary funds (if and when available) to the general fund of the host city. The "bible" for establishing these specific powers and guidelines in Texas are Articles 1111 through 1118 of Vernon's Annotated Civil Statutes which were formulated

in 1925. These Statutes, along with local city charter, established in home rule municipalities the operational guidelines for the utilities. City Councils were given the power to control operations by regulating rates, setting service standards, and approving bond issues for any and all utilities serving within their municipal boundaries.

The enabling power for a new electric utility thus came from state law, city charter and bond indentures. Home rule municipalities thus had the power to set rates for the entire service area served by their municipal electric utility. Often, as is still the case, the utility served customers outside the municipal limits as well as within. Those ratepayers situated outside the city limits had little or no representation from city councils and utility boards who set their rates. A person or entity wishing to appeal rates established by the municipality could do so through the process of appeals in the court system. In practice, this happened very infrequently because the odds of success were very slight except in the most extreme cases of excessive rate collection or discriminatory charges.

An important court case shaping equity in ratemaking in Texas during this period was **Dallas Power and Light vs. Carington** (Court of Civil Appeals; 1922). In that case the court found that it was discriminatory and an arbitrary difference in pricing when one city, having its light and power plant within its city boundaries, furnishing electricity to both itself and another municipality, to charge much higher rates to the citizens of the second municipality than to those in which the power plant was located. This case established the "reasonable rate of return" concept and set it at ten percent based upon the utilities investment in plant. It also specified that if a utility intended to charge differing rates it must do so through a classification of customers and districting of

temtories based on real and measurable differences; something more than arbitrary municipal limits.

During this period (the 1930's) on the national level, President Roosevelt called upon Congress to approve the Tennessee Valley Authority Act during the frst one hundred days of his administration. The new president told Congress in 1933 of his plan for utilization of the Tennessee River (Rudolph and Ridley, 1986: 70). If envisioned in its entirety, Roosevelt told them, the development would transcend electric power to include flood control, soil conservation, afforestation, retirement of marginal farmland, and diversification of industry. To provide a unified direction, he proposed that congress create "a corporation clothed with the power of Government but possessed of the flexibility and initiative of a private enterprise"--the Tennessee Valley Authority (Rudolph and Ridley, 1986: 71). When considered by the full House, Republican congressmen raised cries of "bolshevism" and "communism" in an effort to defeat the legislation. Representative Joe Martin of Massachusetts, for example, declared that the TVA was "patterned clearly after one of the Soviet dreams". Private power companies viewed the legislation as a cancer in the heart of their power base but it was eventually passed (Rudolph and Ridley, 1986: **72).**

In 1935, the nation labored in the depths of the Depression and the Roosevelt Administration continued their efforts to get the TVA off the ground. In the same year, Samuel Insull, one of the most wealthy, powerful and influential CEO's in the private power industry, was brought to New York to stand trial for embezzlement, violation of bankruptcy laws and mail fraud. Insull was regarded by the public as the embodiment of big business gone bad and the kind of wheeler dealer responsible for the stock market

crash and flood of misery that had swept the nation. This was the mood of the nation when Roosevelt seized the opportunity to try to halt the common abuses heaped on consumers and investors by the huge, powerful holding companies which controlled the electric power industry (Rudolph and Ridley, 1986: 75).

Benjamin V. Cohen, general counsel for the National Power Policy Committee, drafted the bill that Burton K. Wheeler of Montana introduced in the Senate and Sam Rayburn of Texas brought to the House on February 6, 1935. The bill turned the tables on the private power companies charging that the holding companies had developed a form of "private socialism" in which their combined corporate interests practiced grave abuses on American investors and consumers. The result was passage of the Public Utility Holding Company Act which represented a significant victory over the private power empire forcing a partial restructuring of the industry. It also allowed for further expansion of public power systems. It was in the midst of the fight over the PUHC Act that Roosevelt issued an executive order which established the Rural Electrification Administration (REA). This in turn gave birth to the rural electric cooperatives and mutual light and power associations (Rudolph and Ridley, 1986: 80).

Growth Stage: 1951-1970

This twenty year period saw many Acts passed by the federal government aimed at regulation which would encourage the growth of the electric power industry. Early in this period, Congress passed the second Atomic Energy Act (1954) and the Electric Energy Development Act (1955) (Rudolph and Ridley, 1986: 195). Both of these attempted to encourage the development of the nuclear power industry to support ever-

growing demand for electricity from individual consumers, industry and the government itself. It was the consensus at the time that the good of the nation was best served by developing nuclear plants which would provide an ever increasing supply of low cost energy. Electrical power was cheap and its use was being encouraged.

Environmental Stage: **1970-1992**

The Clean Air Act (1970) and Clean Water Act (1972) both served as mandates for states to set pollution regulations and enforce them. Despite passage of this legislation, a campaign was mounted to get the nuclear industry back on track. Government leaders and industry officials still clung to their dream of a society based on unbounded supplies of energy (Rudolph and Ridley, 1986: 137). Claiming that nuclear power was the technology that would bring about a clean environment and declines in the cost of electricity, the campaign was spectacularly successful. Advertising campaigns stressed "all-electric homes", "all-electric cities" and even "infinite energy". Seventy six nuclear reactors were ordered built in a three year period from 1970-1972.

The consumer climate changed radically following the Arab oil embargo. In 1973, electric prices began to rise dramatically due to soaring fuel prices. Consumers began to cut back on usage that had been inflated by inefficient systems and cheap power. In 1975, nearly $5.9 billion in fuel adjustment charges were passed through to consumers. As prices soared, so did consumer anger. In 1974 and 1975 local and statewide consumer groups came forward, pressing for institutional changes in regulation. In several states, legislatures passed laws requiring commissions to conduct monthly audits of utilities, semiannual hearings on fuel charges, and annual review of

power company procurement policies (Rudolph and Ridley, 1986: 198). The federal government responded by reorganizing agencies and shuffling personnel in the Energy Reorganization Act of 1974. But there were no substantive changes in policy.

In response to the public outcry in Texas, the State Legislature passed the Public Utility Regulatory Act (PURA) in 1975. The Act established the Public Utility Commission (PUC) which had jurisdiction over the electric, water, wastewater and telecommunications industries. Over a period of time, the water and wastewater oversight was transferred to the Texas Water Commission (now the Texas Natural Resource Conservation Commission). PURA, also known as Article 1446c, contained sixty one pages of guidelines regarding virtually every aspect of public utility operations. The Act did not ovemde any of the provisions allowed to municipalities which had elected to retain their authority under home rule provision. Rights were given in the Act, however, to customers served by such a municipality with regard to appeal of electric rates charged by the city. Outside city limit customers could now petition for relief from the PUC. An infrequently exercised provision of PURA allows for a municipality to have a one time election to forfeit their ratemaking authority in favor of the PUC.

Energy policy was a major part of the 1976 Presidential campaign and this would provide the impetus for substantive change in 1978. The Public Utilities Regulatory Policies Act (PURPA) essentially deregulated the generation (power production) side of the utility business and had a significant impact on conservation and renewable energy sources. The Act, among other things, required utilities to buy electricity generated by "qualifying facilities" (Miller, 1996: 66). In effect, the Act required the local host utility to buy back any excess power produced by small independent power producers.

Qualifying facilities include those which use renewable energy sources and those which "cogenerate"--produce power for their own operations. These industries typically create small amounts of power from steam that normally would be vented: the plants use some of the electricity for their own industrial processes, then sell the rest. More than 200 cogenerators have sprung up throughout the United States since the Act was passed. Not surprisingly, utilities which are required to buy this cogenerated power are now expressing concern about the cost of this power in a newly competitive environment. The requirement to purchase such power without any control over its cost or efficiency could put the host utility at a disadvantage competitively. Because of this fact, some utilities have begun to argue that it may be time to repeal PURPA, that it has outlived its usefulness (Miller, 1996:66).

PURPA provided for nuts and bolts reform and conservation guidelines to be undertaken at the state level. The law posed a potential revolution in the power industry (Rudolph and Ridley, 1986: 200). It required regulatory agencies in each state to compile a series of standards to promote conservation, energy efficiency, and equity in utility policies by November of 1989. The cogenerator buy back provision reversed the age-old trend of centralization and brought a wave of new economic competition to the natural monopoly the industry had enjoyed for so long. PURPA was as far reaching as the laws passed during the New Deal era. The Act was held up in court for five years and went before the Supreme Court passing in a close 5-4 vote (Rudolph and Ridley, 1986: 201).

Little legislation of note with regard to the power industry was passed in the 1980's. The most prominent was passage in 1982 of the Nuclear Waste Policy Act

designed to help pave the way for the "second coming" of nuclear power. The legislation was thus backed by the power industry and the federal government which was searching for a means to dispose of wastes from its atomic weapons program.

Deregulation Stage: 1992-Present

In many ways, the earth shifted beneath the bedrock of America's electric utility industry early in the 1990's. Following two decades of deregulating airlines, banks, and gas utilities, Congress turned its attention to electric utilities (Beck, 1994:30). The beginning of the end of the monopoly status of the utility industry was accelerated with the passage of the Energy Policy Act (EPA) in 1992 (Beck, 1996:30).

EPA enhanced competition by changing the rules primarily at the wholesale level. Those utilities formerly stymied from transacting wholesale power purchases and sales with other utilities, would now have a means of gaining access to the interconnecting transmission system. This allows them to "wheel" the wholesale power between utility buyer and utility seller (Booth, 1994:4). Similarly, non-utility power generators now have greater transmission wheeling access to more potential utility buyers at the wholesale level.

But perhaps most far reaching of all, the EPA of 1992 has opened the door to retail wheeling[2] by establishing that the individual states are the appropriate forum to decide the issue.

The Texas legislature, during the 74th Legislative Session, passed an all-encompassing piece of legislation that allowed for wholesale competition in the electric utility market in an effort to lower electricity rates for all consumers in the state. This legislation took nearly four years of extensive negotiations among all interested parties to finally pass both houses of the legislature (TX Senate Interim Report, 1996:95). The passage of Senate Bill 373 brought to a close the four year sunset review of the Public Utility Commission's operations and its regulation of the electric industry. The Bill introduced a number of significant changes to promote the development of competition among wholesale providers of electricity. Exempt wholesale generators and power marketers are now authorized to sell power at wholesale levels, and the state's transmission system is open to the wholesale transmission of power. The Bill provides an integrated resource planning process which includes a requirement to conduct a solicitation when the utility needs to add capacity (PUC Report, June, 1995: 3).

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[2] Retail wheeling has the effect of unbundling the various components of electric service provided by the utility much like long distance charges were unbundled during telecommunications industry deregulation. Under the new rules, the local utility "host" would now only be assured of the continued local delivery of services to its customers, i.e., the distribution and transmission components of electric rates. Other utilities and even non-utility parties are free to compete for providing the customer with the commodity, the electricity itself, which is the retail energy component of electric rates (Booth, 1994:4).

The Bill declares that the "development of a competitive wholesale electric market is in the public interest" (PUC Report, June, 1995: 3). Utilities are required to provide wholesale transmission service on a comparable and non-discriminatory basis. In other words, the utility must provide transmission service to a third party on the same basis as it provides transmission service to itself. Ancillary services, services related to the transmission or distribution of power, must also be provided on a comparable, non-discriminatory basis. The Bill requires that electric utilities provide a discount of 20 percent off of base rates for certain institutions of higher learning (PUC Report, June, 1995: 9).

It is expected that major legislation regarding further deregulation of the electric power industry will be forthcoming from the Texas Legislature in 1997. It remains to be seen how quickly and to what level of customer open competition will come but all indications are that revolutionary change through deregulation or re-regulation will continue to be reviewed in the next legislative session.

The next chapter will present the setting for this research as its focus and will examine the potential effects of deregulation of the industry in Texas.

Chapter IV: Research Setting

Introduction

The purpose of this chapter is to describe for the reader the different types of publicly owned electric utilities in Texas. These publicly owned utilities operate differently than investor owned utilities. This chapter also describes the categorization of these public organizations, for the purpose of this research, into groupings based upon the number of customers served. Special issues regarding deregulation of the industry as they relate to Texas are explored.

Types of Public Power Systems

Texas is sewed by ten investor owned electric utilities, 75 municipal utilities (the largest being Austin and San Antonio), 86 electric cooperatives and 4 river authorities. These utilities provide electric services to about seven million households and businesses, employ more than forty thousand workers, and earn annual revenues of about fifteen billion dollars per year. Texas Utilities Electric Company, serving the Dallas-Fort Worth metroplex and Central Texas, and Houston Lighting and Power Company are the two largest electric utilities in Texas (Adib and Clark, 1996: 80). Each of the three types of publicly owned utilities, municipal, cooperative and river authority, operate quite differently from one another. In fact, within the categorization of municipal utilities, there are variations in the organizational structure of the entity. A review follows.

River Authorities - Primarily established for the purpose of flood control, these entities began producing power as a by-product. Dams established for flood and soil erosion

control gave rise to the opportunity to produce clean hydroelectric power as rural electrification of Texas was taking place in the 1930's. Today, electrical power generation and transmission is a primary business for large river authorities such as the Lower Colorado River Authority. LCRA provides power to 44 wholesale electric customers from Central Texas to the Coastal Region, including the City of San Marcos.

Electric Cooperatives - Formed in Texas in the 1930's pursuant to the federal Rural Electrification Act of 1933, their purpose was to electrify rural areas that could not be economically served by investor owned utilities (IOUs). The Co-ops were financed through federal loans acquired through the Rural Electrification Administration (REA). The Co-ops have been successful in delivering electric service to Texas' rural areas. Despite their non-profit self-governing status, however, Co-ops were regulated in the same manner as Investor Owned Utilities (IOUs) until the recent passage of SB 373. Being under the rate jurisdiction of the PUC led to excessive costs for the Co-ops, even though their rate cases are generally uncontested (TX Senate Interim Report, 1996: 161).

Like their municipal counterparts, electric cooperatives contribute to the general operating funds of many Texas cities. Cooperatives operating within the city limits of a municipality generally make a cash transfer, referred to as a franchise fee payment, to the host city. The norm for this fee transfer is approximately 4% of operating revenue earned by the Co-op for sales within the city limits (TPPA Seminar materials (Fall 1994). More recent agreements have been capped at 2%.

Municipals - There are at least 75 cities in Texas which own and operate their own electrical utility for the benefit of the local citizens. Many of the smaller municipal utilities were formed following elections by local voters to issue bonds to buy their local electric distribution system from:

- Larger municipal systems serving satellite cities. This was quite often the case until the 1940's. At that time cities such as New Braunfels and Seguin, for example, purchased the local distribution system from San Antonio's City Public Service.
- River Authorities which had provided local service. This was the case in San Marcos and Kerrville until the mid-eighties when those cities opted to issue bonds to purchase their local power distribution systems from the LCRA.
- Investor owned utilities. Although the opposite has also occurred, local buyout of privately owned power systems has been a trend that had been gaining momentum in the last decade. The deregulation movement has slowed this somewhat as cities who might otherwise have considered a local buyout are now taking a "wait and see" approach.

Public Power in Texas

To some extent, publicly owned power systems might be considered "lightweights" in comparison to the investor owned utilities. In terms of electric revenue sales to ultimate customers, publicly owned systems make up only **12.7%** of the total sales in the United States (Schuler, **1996: 22).** The essence of public power, however, is very different from that of a corporate enterprise such as an investor owned utility. Public power is locally owned, community directed, and not for profit. Public power also comes in many forms. It can exist to serve a large city, like San Antonio, or as a consortium of small systems that both generate and transmit power. Then there are the several hundred public-power systems that only offer distribution services (Schuler, 1996: 24).

Retail competition may become a reality in Texas and other states in the next few years, but it is important that government ensure that all customers benefit from a more competitive marketplace. Regulators must put in place appropriate mechanisms both to preserve universal service in a competitive environment and to protect the reliability and quality of service (Adib and Clark, 1996: 80). The PUC in 1996 proposed its own innovative plans for restructuring the industry, and, in fact, its work on the open-access comparable transmission service rules may become a model for other states and the Federal Energy Regulatory Commission (FERC) (Adib and Clark, 1996: 81).

In addition, the PUC has proposed a plan known as the "Texas Model", that would foster competition by requiring utilities to divest their generation assets. The PUC's open-access comparable transmission services rules have guided the FERC in the development of a similar rule being applied nationally (Adib and Clark, 1996: 81).

The PUC will present the 75th Legislature with recommendations on stranded investment and the scope of competition in the electric industry in Texas. Among the issues to be considered in the legislative session are:

- Deregulation of power generation. It is likely that legislators will take additional steps to complete the deregulation of the generation segment of the electric industry.
- Competitive alternatives. Legislative activities are expected to create a competitive environment for alternative resources such as renewables and energy efficiency programs.
- Stranded investment. Stranded investment amounts to about $8 billion in Texas. Legislative decisions may be made on the way these stranded costs will be shared by utility stockholders and ratepayers.
- Existing socially beneficial activities, sometimes referred to as "stranded benefits". Utility initiatives such as low-income customer rates, energy efficiency and conservation programs and research and development, which may not survive under a more competitive environment, may be protected by legislative actions.
- Customer protection / quality of service. Additional safeguards may be imposed, strengthening the utilities' obligation to serve and the quality of service provided.

- Reform of ratemaking. Performance-based regulation may replace cost-of-service regulation in certain areas. Emphasis will be on achieving certain benchmarks before utilities are allowed to recover their costs.
- Retail/self-service wheeling / power exchange. On a limited basis, large industrial customers in Texas may be allowed to bypass their host utilities to shop for lower rates (Adib and Clark, 1996: 82).

In addition to these issues that will be addressed at the state level, utility managers will have to contend with at least two other issues at the local level:

1. The effect of competition on employment levels within their organizations and thus in their communites in general.
2. The effect of competition on local rates to customers which in turn determines the financial viability of the utility. The "trickle down" effect of this downward rate pressure will be felt by potentially lower payments fiom the utility to the city's general fund to be used to finance other operations of the city such as police and fire protection.

With regard to payments to the host city general fund, Moodys Investor service is concerned that the potential exists for weak business practices that can hurt credit quality and lead to a rating downgrade (Aschenbach, 1996: 2). According to Moody's, reasonable limits on enterprise system transfers are critical and should be based upon the enterprise's profitability. Payments should be made only fiom revenues that remain after debt service and operations and maintenance expense requirements have been met (Aschenbach, 1996: 2). Electric systems will not be able to sustain large transfers once strong competitive market pressure exists pushing costs downward. Some utilities have already begun the process of lowering and / or limiting the amount of transfers to the city's general fund. Such is the case in Austin where an independent study funded by the City and conducted by Price Waterhouse strongly suggests that transfers be trimmed dramatically over a period of five years fiom 1995-2000. The Jacksonville Electric Authority has already taken steps to ensure that the utility maintains its financial integrity

before making any transfers to the city. City officials have changed JEA's charter to lower the permitted transfer. In 1995, JEA's transfer was reduced to less than 8% of gross revenues.

Texas' Competitive Position

Overall, Texas is in an enviable position as compared to other states. The pressure from high rates felt by other states such as Massachusetts has not yet affected the state's ability to retain large industrial customers. In fact, Texas fares well in the area of economic development as indicated below (TX Senate Interim Report, 1996: 95-96).

- The number of new business incorporations in Texas increased by more than 6 percent from 1993 to 1994, compare to a 5 percent national average.
- Texas had 25 companies on the Inc. Magazine 1994 list of the fastest-growing companies in the US.
- Texas ranks fourth in total Fortune 500 Company headquarters. A number of prominent companies call Texas home, including American Airlines, Exxon, and JC Penney.

Electricity in Texas is considered a necessity by its citizens. Reliability is so basic to electric service that electricity consumers in this state presume power will be available whenever it is needed. Historically, that presumption has been well founded because the reliability and quality of electric service within the state has been high. There is no reason to assume in advance that a competitively restructured bulk power market cannot maintain the high quality of service that the existing structure provides, but that question is on the minds of industry leaders at this time. This cannot be considered a certainty until the shape of the competitively restructured market has been

determined and interested parties can decide for themselves whether the new structure adequately addresses reliability concerns (TX Senate Interim Report, 1996: 97).

When considering changes to the current regulatory framework of the electric utility industry in Texas, it is important to understand the distinct differences between the type of deregulation that is likely to take place in the power industry and, for example, deregulation of the telecommunications industry. Although many similarities exist among the two industries, some key distinctions should be noted in this comparison. First, deregulation of the electric industry would be much more complex with many more potential impacts, than deregulation of long-distance telephone service. At the time of the 1982 consent decree permitting increased competition in the long distance market, AT&T had a 90% share of the market. Today there are only three large long distance providers (AT&T, MCI, and Sprint) and we are bombarded daily with advertising of the services of these three providers. In stark contrast, the electric utility industry is comprised of 3,000 investor owned, cooperative, or municipal utilities nationwide. Second, the potential for unreliable telecommunication service does not generally create as many risks to productivity, safety, and health as does the potential for unreliable electric service (TX Senate Interim Report, 1996: 98).

Reliability of electric service infrastructure is critical to Texans and the Texas economy. Even with diverse fuels and generating resources in place, ensuring reliability of electric service is no easy task in a state where, as in Texas in 1996, the temperature at DFW airport has varied from 8 to 95 degrees Fahrenheit (TX Senate Interim Report, 1996: 99).

In order to learn the opinions and expectations of public utility managers regarding the many aspects of and potential impacts of deregulation, a survey was sent to the city manager or general manager of each public power entity in Texas. Furthur discussion of the research methodology used in this study is presented in the next chapter.

Chapter V: Research Methodology

Introduction

The Purpose of this chapter is to review the research methodology that was used in the project. The method of data collection, measurement and operationalization of the data, and statistical analysis thereof will be discussed. Strengths and weaknesses of survey research and of the data are reviewed in this chapter.

Research Method

This research is descriptive. The attitudes and beliefs of electric public power system managers regarding the potential impact of deregulation of the industry was gathered using a standardized survey. This technique allowed the researcher to collect data by formulating questions which relate directly to the hypotheses and sub-hypotheses. The hypotheses were developed as a direct result of the review of the literature with the intent of providing some insight into those questions which are foremost on the minds of the utility managers.

The raw data from the survey responses have been compiled in a manner which allows for the hypotheses to be tested as to their validity. Manager responses are categorized using a Likert type scale for the research questions relating to pricing outcomes, staff level changes, and socially motivated programs. Percentage of change, plus or minus, in relation to today's levels are also used. This methodology helps to determine the manager's beliefs concerning the degree of impact which deregulation will have on the various aspects of the industry. Likert scales measuring the level of

agreement or disagreement are used to analyze the manager's opinions about deregulation's impact on socially motivated programs and quality of service issues.

Responses are categorized by size and type of utility responding to the survey for all of the questions in order to determine if there is a difference in the responses based upon the type and size of utility. Each response has been aggregated with like responses in the appropriate categories using a simple frequency distribution.

In order to determine the viability of the survey instrument prior to sending it to the utility managers themselves the document was tested and modified. The survey instrument was reviewed by a municipal utility general manager, a manager from an electric cooperative utility, an electric industry consultant, and the Executive Director of the Texas Public Power Association (TPPA). Each of their suggestions was incorporated into the survey document.

Unit of Analysis

The unit of analysis in this research are the managers of public power systems in Texas. The population in this research consists of one hundred percent of the managers of the 163 public power systems presently operating in Texas. A survey was sent to the manager of each entity.

The standardized questionnaire was used to determine the characteristics of the population (see the Survey Document) as to type and size of utility and title of respondent.

Strengths and Weaknesses of the Utility Manager Survey

Survey research inherently has some strengths and weaknesses (Babbie, 1992: 278-279). Survey data is considered to be strong in terms of reliability but is generally weak in terms of its validity (Babbie, 1992: 279). By using a standardized survey instrument the exact same questions were asked of each respondent. This standardization is one strength of survey research in that it minimizes interpretation required of the respondent. While there is always room for interpretation of the questions on the survey document, a conscious effort was made by the researcher to minimize ambiguities in their wording. All of the questions provided either a Likert-type range of response by degree or specified response categories based on percentage change plus or minus from present day status.

Due to the fact that this is an evolving issue, it is possible that the managers could have other concerns of equal or greater importance than those targeted in the research. To date, however, the issues addressed in this survey are still important, relevant and timely for electric industry managers of all types of power systems with regard to deregulation.

In an effort to minimize one of the more common weaknesses of survey research, space was provided following each question for narrative discussion by the respondent. In so doing, the respondents were given the opportunity to add context to the raw data culled from the survey. These narratives were then used to provide greater depth of response in the discussion of the survey results as contained in Chapter 7.

Due to the relatively short time frame for receiving responses, there was insufficient time to send out follow-up copies of the survey. The response rate was

somewhat low at 34% overall, but was very consistent within the types of public power systems (See Table 5.1).

Questions asked in this survey were of a very relevant nature focusing on contemporary events. This type of investigation of prevalent attitudes lends itself well to survey research (Yin, 1994: 6). It is highly likely that the respondents had contemplated these issues for some time prior to receiving the survey document, thus adding to the strength of the research. By forwarding this survey to electric utility managers, the most competent expert / practioners in the field were given the opportunity to respond to the questions.

Data Categorization

Public power organizations can generally be categorized as municipal, cooperative, or other governmental agency such as a river authority. These entities vary greatly in how they are operated and how their organizations are structured. Some municipal utilities operate directly within the city government as a department, much like police and fire, while others have separate boards which govern all aspects of their operations. Cooperatives and river authorities operate autonomously from local governments and have their own governing boards.

Other variations can occur with regard to the overall operation of the entity in that other utility services such as water, gas or wastewater treatment can also be provided by the same utility supplying electric service. Electric public power utilities vary greatly in size in terms of number of customers (meters) served. These size and type variables

were used to differentiate amongst the responses to determine if there are discernible differences based upon them.

The final variable in the responses is based upon a time element of short (five year) and longer (ten year) impact in three of the five conceptual categories. The intent was to determine whether the managers believed the effects of deregulation would vary over time as has been the case with deregulation of the telecommunications industry.

Operationalization of the Research Hypotheses

Each of the 5 major hypotheses contained in this study was addressed by using a set of relevant survey questions designed to reveal the manager's beliefs regarding the issue. The overall research question determining the managers attitudes and expectations with regard to the effects of deregulation on the industry is addressed in the same process. Table ***5.2*** lists the ***5*** major hypotheses and correlates them with the appropriate survey questions which were used to operationalize them.

Following the Hypotheses Operationalization Chart as presented on Table ***5.2,*** results of the survey are discussed in Chapter **7.**

Table 5.1 Analysis of Responding Utilities

Total Responses								Number of Surveys Distributed	Percentage of Completed Surveys Returned
	<5,000	5,000-15,000	15,000-25,000	25,000-50,000	50,000-100,000	100,000+	Total		
Municipals	16	5	1	3	1	2	28	75	37%
Co-Operatives	3	11	5	2	2	2	25	84	30%
River Authorities	1						1	4	25%
	20	16	6	5	3	4	54	163	33%

Table 5.2 - **Hypotheses Operationalization Chart**

Working Hypotheses	Questionaire Item	Statistic Used
Number 1	Question Number 1	Frequency Distribution
Effect on Future Pricing Outcomes		
WH 1a - Increase expectation for Residential and Small Commercial	Question Number 1	Frequency Distribution
WH 1b - Decrease expectation for Large Commercial and Industrial	Question Number 1	Frequency Distribution
WH 1c - Manager expectation for differentials to increase long term	Question Number I	Frequency Distribution
Number 2	Question Number 2	Frequency Distribution
Effect on Future **Staffing** Levels		
WH 2a - Decrease expectation for distribution - operations and administrative - support **personnel**	Question Number 2	Frequency Distribution
WH 2b - Decrease expectation for generation and transmission personnel	Question Number 2	Frequency Distribution
WH 2c - Manager expectation for staff reductions to increase long term	Question Number 2	Frequency Distribution
Number 3	Question Number 3	Frequency Distribution
Effect on Quality of Service **Issues**		
WH 3a - Manager expectation that service reliability will be enhanced	Question Number 3	Frequency Distribution
WH 3b - Manager expectation that outage response time will be enhanced	Question Number 3	Frequency Distribution
WH 3c - Manager expectation that new technology development will be enhanced	Question Number 3	Frequency Distribution
WH 3d - Manager expectation that customer programs will be enhanced	Question Number 3	Frequency Distribution
Number 4	Question Number 3	Frequency Distribution
Effect on Socially Motivated Programs		
WH 4a - Managers "agree" regarding reduction to local requirement to serve **rule**	Question Number 4	Frequency Distribution
WH 4b - Managers "agree" regarding reduction in availabilty of "lifeline rates"	Question Number 4	Frequency Distribution
WH 4c - Managers "agree" regarding reduction to restrictions to cut-off provisions	Question Number 4	Frequency Distribution
WH 4d - Managers "agree" regarding reduction in availabilty of discounted rates"	Question Number 4	Frequency Distribution
WH 4e - Managers "agree" regarding reduction in environment-motivated programs	Question Number 4	Frequency Distribution
Number 5	Question Number 5	Frequency Distribution
Effect on Casb and In-Kind Contributions to Local City Government		
WH 5a - Managers will "agree" that **payments/transfers** will be negatively impacted	Question Number 5	Frequency Distribution
WH 5a - Managers will "agree" that negative impacts will increase in the long	Question Number 5	Frequency Distribution

Chapter VI: Results

Introduction

The purpose of this chapter is to test the five working hypotheses and the sub-hypotheses as stated in Chapter 2. Data generated by the respondent's answers to the survey questions are presented in tables. The tables are used to analyze the responses in such a manner as to determine whether or not the research hypotheses were supported.

On Tables **6.1** through **6.13,** located throughout the chapter, the raw data is presented using a frequency distribution to categorize the responses given by the managers. In addition the data has been sectionalized into responses from the three types of public utilities surveyed; municipal, cooperative, and river authority. The raw data is further segmented based upon the size (in terms of number of electric meters sewed) of the respondent manager's utility. At the bottom of each table, a summary is used to present the data in a more user-friendly, quick reference format by consolidating responses into more general categories without the detail of the raw data.

Responses were also given a weighted value based upon where they fell in the response categories. For example, responses which fell in the category of <-25% for question number one were given a weighted value of **-3** points per response. The next range, **-10** to **-25%** was assigned **-2** as its weighted value, with **-1** to **-10%** receiving **-1** point for each response. No points were given for a **0%** change response. Conversely, responses on the other side of "zero" received weighted values of **+1, +2,** and +3 points respectively. The weighted scores are then added together and a negative sum indicates a price decrease expectation while a positive sum indicates a price increase expectation.

This was done in order to measure the strength of the respondents beliefs with regard to each question. **A** higher positive or negative score, therefore, indicates the overall strength of the manager's opinions and the severity of the results expected with regard to the issue in question.

Based upon the narrative sections of the survey responses, it is apparent that, as expected, the managers are keenly aware of the impact deregulation is having and will continue to have on theoperations of theiir entities and on themselves. Narrative responses were very insightful and are used to add substance to the numerical data in testing the results for each of the hypotheses.

The five sections which follow discuss the survey results in depth and test the working hypotheses and subhypotheses.

Section I: Future Pricing Outcomes

This section presents the evidence that test the hypotheses which relate to the effect that deregulation and competition will have on the price of electricity for various customer groups. The fust survey question was designed to determine the managers' expectations regarding price outcomes as a result of deregulation from their present levels for four types of customers. The four customer types are: residential, small commercial, large commercial, and industrial. In addition, the survey was structured so that the managers expectations regarding potential price shifts would also be measured in terms of time sensitivity. The timing results are discussed in this section and are also the subject of Table 7.1 in Chapter **7.** The four **part** question regarding pricing,

therefore, sought responses for both the short term (5 year) and longer term (10 year) shifts in pricing.

General Pricing Hypotheses

The general hypotheses for pricing outcomes based upon review of the literature was that managers will have formed opinions on the pricing effects of deregulation by this time;

WORKING HYPOTHESES #1: Managers **will have opinions about the effect of deregulation I competition on future pricing outcomes.**

Clearly, the responses received from the managers indicate a keen awareness of the impact which deregulation has had on the industry to date and the potential impact of further deregulation. The responding managers have strong opinions about what these impacts may be and they were very willing to share them on their survey responses.

Residential and Small Commercial Customers

The first sub-hypothesis in the pricing category relates to the managers expectation for smaller (in terms of kilowatt hour consumption) customers. Additionally, the third sub-hypothesis stated that the expected price increases will be greater as time goes on.

WH 1a. Managers will believe that the aggregated costs of unbundled electric services will bring about an overall increase in the price of electricity for **residential and small commercial customers.**

WH 1c. Managers will believe that these **price differentials will be more dramatic in the longer term (ten years from now) than in the short term** (five years from now).

Tables 6.1 and 6.2 summarize the managers responses to the question regarding price outcomes for residential and small commercial customers. The average residential customer consumes a small number of kilowatt hours per month (about 1100 to 1200 per

month average in Texas) and smaller commercial customers use only somewhat more. The costs to generate power and then carry it over transmission lines is generally the same for all types of customer, but other costs are higher on a per unit basis for residential and small commercial customers. Whether a customer uses 1100 kilowatt hours or 1,000,000 kilowatt hours in a month, as some large industrial customers do, some basic, fixed costs are usually incurred. For each of the customers just mentioned the meter must still be read, the bill produced, mailed, and subsequently collected and credited to the customer. These costs are significantly higher for the smaller user when calculated on a per kilowatt hour basis. Typically, this drives the customer charge or minimum bill for residential and small commercial customers higher in relation to the other parts of the bill.

Many electric utilities subsidize these higher fixed costs for smaller consumers by shifting some of the cost burden to the larger power users. This type of subsidization has been acceptable and prevalent in the past but will no longer be prudent in the deregulated future. New power suppliers with no residential or small commercial load to serve will not be burdened with this type of subsidy and may be able to offer the larger users tremendous cost incentives to leave the host utility system. Once gone, the local utility may have little choice but to pass on higher fixed costs to the smaller users.

Overall, the managers believe that deregulation will have an adverse effect on pricing for residential customers both in the short and long term (see Table 6.1). In fact, they believe that price increases will be worse for residential customers in the longer term. Of the 72% of managers who expect increases in the long term nearly half of those expect those increases to be "large", from +10% to more than 25%. The weighted value

score for residential customer increases is +29 for five years and +47 for ten years. This indicates the strength of the managers beliefs that price increases will be worse in the longer term for residential customers.

Although a majority of the managers see increases for residential customers on the horizon (61% short term and 72% long term), there are a substantial number who believe that price decreases will result from competition. This is especially hue in the short term where 26% stated they expect residential prices to decline with 21% responding this way in the longer term. Another 13% short term and 8% long term said they expect no price change fiom competition.

Narrative comments regarding the price increase expectation focused on the managers belief that residential customers will not have the same buying power as larger customers. Larger customers will receive the most benefit from competition from the local electrical provider because they will have much greater ability to "leave" the host system. Like in most sales transactions, if you buy a lot of a product you normally expect and get substantial price breaks. Many large industrial customers are already asserting pressure on local utilities to provide such decreases. Conversely, small customers will be "captured" and forced to bear the burden of remaining fixed costs and other losses incurred including those that may result fiom stranded assets. As larger customers leave to buy power fiom the lowest bidder, expensive infrastructure may go unused or at least be underutilized. Parallels can be drawn to the Airline industry which has massive capital investment in equipment as well; the airplanes themselves. The asset exists and debt payments continue whether anyone rides the plane or not. In the electrical industry, however, the asset cannot be easily sold. Another airline company

may desire to buy a used plane but it is unlikely that utility companies will be able to sell off portions of their assets and remain a viable entity.

The minority view expressed was that competition will drive prices downward for all types of customers, including residential and small commercial customers. In that regard, however, most managers who believe that all pricing will drop do concur with the majority opinion that the larger commercial and industrial customers will reap the lion's share of price reductions.

Table 6.2 shows the managers price expectation for small commercial customers and it closely resembles the survey results for residential customers. More than half of the managers anticipate short term price increases. The weighted value score of +18 in the five year timeframe indicates the managers expect increases of somewhat lesser severity than they do for residential customers. In the longer term, the same trend is evident with the number of respondents stating that they anticipate increases escalating to 65%. Just as in the five year timeframe, the weighted value score is exactly 11 points less than it was for residential customers at a score +36. About the same number of respondents as in the residential categories feel no increase at all is to be expected.

The narrative rationale for the small commercial responses closely parallels the residential responses just as the numerical data does. Small commercial customers are considered to be almost as equally helpless to avail themselves of competitive pricing as the residential customer.

Results of the survey, therefore, support Working Hypothesis #1, WH 1a, and Wh 1c.

Table 6.1

1.1 What impact will deregulation and competition have on overall pricing for residential customers?

Utility & Meter Count	Residential Price Change Short Term -- Five Years							Residential Price Change Long Term – Ten Years						
	>-25%	-10 to -25%	-1 to -10%	0%	+1 to 10%	+10to +25%	>+25%	>-25%	-10 to -25%	-1 to -10%	0%	+1 to 10%	+10 to +25%	>+25%
Weighted Value	-3	-2	-1	0	1	2	3	-3	-2	-1	0	1	2	3
Municipal:														
<5,000		2	5	9	2	3	1		1	3	2	4	5	1
5,000-15,000			2			1				1	1			
15,000-25,000					1									
25,000-50,000				1	1	1				1				
50,000-100,000						1								
100,000>			1		1					1				
Sub-Total	0	2	8	4	5	6	1	0	1	6				1
Co-Op:														
<5,000			1		1	1				1			1	
5,000-15,000			1	2	9	1				1	1	7	3	2
15,000-25,000			1	1	3					1		2	2	
25,000-50,000					1	1						1	1	
50,000-100,000					2							2		
100,000>			1		1					1		1		
Sub-Total	0	0	4	3	17	3	0	0	0	4	1	13	7	2
Authority:														
<5,000						1						1		
TOTAL	**0**	2	05	**7**	22	**10**	**1**	**0**	**1**	00	**4**	20	05	**3**
Total Weighted Value	**0**	**-4**	**-12**	**0**	**22**	20	3	**0**	**-2**	**-10**	**0**	20	30	9
W V Totals				**29**							**47**			
	Summary													
Municipal	Decrease	10	No change	4	Increase	12		Decrease	7	No change	3	Increase	15	
Co-Op	Decrease	4	No change	3	Increase	20		Decrease	4	No change	1	Increase	22	
River Authority	Decrease	0	No change	0	Increase	1		Decrease	0	No change	0	Increase	1	
Total	Decrease	**14**	No change	**7**	Increase	**33**		Decrease	**11**	No change	**4**	Increase	**38**	
%	Decrease	**26%**	No change	**13%**	Increase	**61%**		Decrease	**21%**	No change	**8%**	Increase	**72%**	

Percentages may not add to 100% due to rounding

Table 6.2

1.2 What impact will deregulation and competition have on overall pricing for small commercial customers?

Utility Type & Meter Count	Small Commercial Price Change Short Term – Five Years							Small Commercial Price Change Long Term – Ten Years						
	>-25%	-10 to -25%	-1 to -10%	0%	+1 to 10%	+10 to +25%	>+25%	>-25%	-10 to -25%	-1 to -10%	0%	+1 to 10%	+10 to +25%	>+25%
Weighted Value	-3	-2	-1	0	1	2	3	-3	-2	-1	0	1	2	3
Municipal:														
<5,000		2	5	3	2	3	1		1	3	2	4	5	1
5,000-15,000			2						1		1			
15,000-25,000					1								1	
25,000-50,000				1	1	1				1				1
50,000-100,000					1						1			
100,000>			1		1					1		1		
Sub-Total	0	2	8	4	6	4	1	0	2	5	4	5	6	2
Co-Op:														
<5,000			2		1					1		2	2	
5,000-15,000			2	3	7	1				1	2	6	2	
15,000-25,000			1	1	3					1		3	1	
25,000-50,000				1	1						1	1		
50,000-100,000					2							2		
100,000>			1							1		1		
Sub-Total	0	0	6	5	15	1	0	0	0	4	3	15	5	0
River Authority:														
<5,000						1						1		
TOTAL	**0**	**2**	**14**	**9**	**21**	**6**	**1**	**0**	**2**	**9**	**7**	**21**	**11**	**2**
Total Weighted Value	**0**	**-4**	**-14**	**0**	**21**	**12**	**3**	**0**	**-4**	**-9**	**0**	**21**	**22**	**6**
W V Totals				**18**							**36**			

Summary

Municipal	Decrease	10	No change	4	Increase	11		Decrease	7	No change	4	Increase	13	
Co-Op	Decrease	6	No change	5	Increase	16		Decrease	4	No change	3	Increase	20	
River Authority	Decrease	0	No change	0	Increase	1		Decrease	0	No change	0	Increase	1	
Total	Decrease	**16**	No change	**9**	Increase	**28**		Decrease	**11**	No change	**7**	Increase	**34**	
%	Decrease	**30%**	No change	**17%**	Increase	**53%**		Decrease	**21%**	No change	**13%**	Increase	**65%**	

Percentages may not add to 100% due to rounding

Large Commercial and Industrial Customers

The second sub-hypothesis relates to the managers expectation for larger (in terms of kilowatt hour consumption) customers. As was the case with WH la, it was also anticipated based upon the review of the literature that price differentials (decreases in this case) will escalate over time;

WH Ib. Managers will believe that the aggregated costs of unbundled electric services will bring about an overall decrease in the price of electricity for large commercial and industrial customers.

WH lc. Managers will believe that these price differentials will be more dramatic in the longer term (ten years from now) than in the short term (five years from now).

Tables 6.3 and 6.4 show dramatically different results than did Tables 6.1 and 6.2. The managers' expectations are clearly expressed in the narratives and coincide with the numerical results shown on these two Tables. Large commercial and industrial customers are expected to see dramatic price decreases in the short and long term. Contrary to expectations, however, is their belief that these decreases will become less pronounced in the longer term. With the responses for residential and small commercial customers showing ever increasing prices, it is interesting that large commercial and industrial customers are not expected to maintain their gains in the longer term.

Table 6.4 reports the managers expectations with regard to pricing for the largest electrical customers, the industrial users, and the results are as expected. The number of managers anticipating price decreases is the largest of any category at 94%. As stated, however, the number drops to 81% in the longer term. The narrative suggests that as time goes on, pricing will still be paramount to the end user but other aspects of service, such as quality and reliability of power, will begin to gain in value. Large commercial

and industrial customers in particular will be the ones most likely to be willing and able to pay for these quality aspects of power delivery. The opinion of the managers is that this demand will cause an upward shift in pricing for these customers.

Weighted value scores for the large commercial customers reported on Table 6.3 are much higher than those reported for the residential or small commercial customers in both the short and long term. The -52 score for short term price change indicates a very strong expectation from the managers that prices will decrease for large commercial customers. Since there were 53 respondents, it can be interpreted that the reduction expected will be approximately -5% (in the -1 to -10% category). The longer term results decrease to a weighted value score of **-42.** Still a strong indicator that price cuts will be substantial and long term in nature.

Industrial customers are expected to fare even better in an openly competitive market. Receiving by far the strongest weighted value scores of -80 short term and -61 long term. Managers are expecting decreases in the -10 to -25% range short term, tailing of somewhat in the long term.

Results of the survey, therefore, support WH lb. WH lc, as it relates to the large commercial and industrial customers, was not supported by the survey results.

Table 6.3

1.3 What impact will deregulation and competition have on overall pricing for large commercial customers?

Utility Type & Meter Count	Large Commercial Price Change Short Term – Five Years							Large Commercial Price Change Long Term – Ten Years						
	>-25%	-10 to -25%	-1 to -10%	0%	+1 to 10%	+10 to +25%	>+25%	>-25%	-10 to -25%	-1 to -10%	0%	+1 to 10%	+10 to +25%	>+25%
Weighted	-3	-2	-1	0	1	2	3	-3	-2	-1	0	1	2	3
Municipal:														
<5,000		4	9	3					4	7	2	2	1	
5,000-15,000		1	1						1		1			
15,000-25,000			1											
25,000-50,000			3						1	1	1			
50,000-100,000			1								1			
100,000>			2							2				
Sub-Total	0	5	17	3	0	0	0	0	6	10	5	2	1	0
Co-Op:														
<5,000		1	2					1	2		1			
5,000-15,000		2	9	1	1				1	6	3	2		
15,000-25,000		1	3		1				1	4				
25,000-50,000			2							1	1			
50,000-100,000		1	1						1	1				
100,000>			1			1			1				1	
Sub-Total	0	5	18	1	2	1	0	1	6	12	5	2	1	0
River Authority:														
<5,000			1							1				
TOTAL	**0**	**90**	**36**	**4**	**2**	**1**	**0**	**1**	**12**	**23**	**10**	**4**	**2**	**0**
Total Weighted Value	**0**	**-20**	**-36**	**0**	**2**	**2**	**0**	**-3**	**-24**	**-23**	**0**	**4**	**4**	**0**
W V Totals				**-52**							**-42**			
	Summary													
Municipal	Decrease	22	No change	3	Increase	0		Decrease	16	No change	5	Increase	3	
Co-Op	Decrease	23	No change	1	Increase	3		Decrease	19	No change	5	Increase	3	
River Authority	Decrease	1	No change	0	Increase	0		Decrease	1	No change	0	Increase	0	
Total	Decrease	**46**	No change	**4**	Increase	**3**		Decrease	**36**	No change	**10**	Increase	**6**	
%	Decrease	**87%**	No change	**8%**	Increase	**6%**		Decrease	**69%**	No change	**19%**	Increase	**12%**	

Percentages may not add to 100% due to rounding

Table 6.4

1.4 What impact will deregulation and competition have on overall pricing for industrial customers?

Utility Type & Meter Count	Industrial Price Change Short Term – Five Years							Industrial Price Change Long Term – Ten Years						
	>-25%	-10 to -25%	-1 to -10%	0%	+1 to 10%	+10 to +25%	>+25%	>-25%	-10 to -25%	-1 to -10%	0%	+1 to 10%	+10 to +25%	>+25%
Weighted Value	-3	-2	-1	0	1	2	3	-3	-2	-1	0	1	2	3
Municipal:														
<5,000	1	3	10	2					5	6	2	2	1	
5,000-15,000		1	1					1			1			
15,000-25,000		1							1					
25,000-50,000	2		1							2				
50,000-100,000		1								1				
100,000>		1	1						1	1				
Sub-Total	3	7	13	2	0	0	0	1	7	10	3	2	1	0
Co-Op:														
<5,000	1	1	1						2					
5,000-15,000	2	4	7					2	1	8	3			
15,000-25,000		3	2					1	2	2				
25,000-50,000	1	1						1		1				
50,000-100,000		2							2					
100,000>			1			1			1				1	
Sub-Total	4	11	11	0	0	1	0	4	8	11	3	0	1	0
River Authority:														
<5,000			1							1				
TOTAL	**7**	18	25	2	**0**	**1**	**0**	5	15	22	**6**	2	2	**0**
Total Weighted Value	**-21**	-36	-25	**0**	**0**	**2**	**0**	-5	**-30**	**-22**	**0**	**2**	**4**	**0**
W V Totals				**-80**							**-61**			

Summary

Municipal	Decrease	23	No change	2	Increase	0		Decrease	18	No change	3	Increase	3	
Co-Op	Decrease	26	No change	0	Increase	1		Decrease	23	No change	3	Increase	1	
River Authority	Decrease	1	No change	0	Increase	0		Decrease	1	No change	0	Increase	0	
Total	Decrease	**50**	No change	**2**	Increase	**1**		Decrease	**42**	No change	**6**	Increase	**4**	
%	Decrease	**94%**	No change	**4%**	Increase	**2%**		Decrease	**81%**	No change	**12%**	Increase	**8%**	

Percentages may not add to 100% due to rounding

Section II: Effects on Staff Levels

This section presents the evidence that test the hypotheses which relate to the effect that deregulation and competition will have on the level of staff for various aspects of the electric utility industry. The second survey question was designed to determine the managers expectations regarding the effects of deregulation on staffing from their present levels for four types of electric industry employees. The four employee types are: generation (power production), transmission, distribution and operations, and administrative / support personnel. In addition, the survey was structured so that the managers' expectations regarding potential staff levels would also be time sensitive. The four part question regarding staffing, therefore, sought responses for both the short term (5 year) and longer term (10 year) shifts in employee staffing levels. The timing aspects of these anticipated changes will be discussed in this chapter and are summarized on Table 7.1 in Chapter 7.

General Staff Level Hypotheses

The general hypotheses for staff level expectations based upon review of the literature was that managers will have formed opinions on the effects of deregulation with regard to future employment levels in the industry by this time;

WORKING HYPOTHESES #2: Managers will have opinions about the effect of deregulation / competition on future staffing levels in various functions of the utility.

As was the case with pricing the responses received from the managers indicate a keen awareness of the impact which deregulation will have on the industry with regard to employment levels. The responding managers have strong opinions about what these impacts will be and this hypothesis is therefore supported.

Distribution and Operations & Administrative I Support Personnel

The first sub-hypothesis in the staffing category relates to the managers' expectation for administrative I support type personnel and for workers in the distribution and operations field. These would include employees who are responsible for maintaining and repairing lower voltage lines, and other aspects of the power supply system. These employees would generally be associated with the "retail" aspects of the industry. Additionally, the third sub hypothesis stated that the expected staff decreases will be greater as time goes on.

WH 2a. Managers will believe that staff reductions will take place in both support personnel and in distribution and operations personnel.

WH 2c. Managers will believe that staff reductions will be greater in the longer term (ten years from now) than in the short term (five years from now).

The managers who responded to the survey believe that distribution and operations employees are not expected to maintain their present levels in the deregulated industry. Table 6.7 shows that 55% of the managers look for reductions in this category short term holding fairly steady but with some recovery at 47% reduction longer term. Weighted value scores at -26 short term fade to -18 long term. Interpreting these scores in a similar fashion to those in the pricing categories, it would seem that the managers expect short term D & O staff reductions at about -3 to -5%. Longer term, the decreases lessen, perhaps to -1 to -3% lower levels than today.

There is also a significant group of respondents who see increases for this group, especially in the longer term, 18% growing to 28%. Another one out of four managers expect no change in D & O personnel levels in either time period.

Fairing worst of the four employment groups in both the short and longer term are administrative and support personnel as evidenced on Table 6.8. 58% of the managers expect decreases in the five year window. Few of the managers reported losses of more than **10%** expected for this group, however, which is consistent with the other employee categories. Longer term, recovery is expected. This is a recurring theme in each of the employment categories. Weighted value scores for the A / S group are similar to those registered for the distribution and operations personnel and are also surprisingly close to those shown for generation staff. A / S scores were **-25** and **-20** for short and long term respectively. Interpreting the responses would once again result in a **-5%** decrease expected short term recovering to **-2** to **-3%** within the ten year timeframe.

Narrative comments focused on overall reductions in categories which can be classified as "overhead" as the cause for targeting support personnel. More utility mergers are anticipated as a driving force in lowering overall employment levels. In particular support and distribution and operations personnel will be hardest hit according to the respondents. Many of the managers noted that systems maintenance will deteriorate in the short term as the focus comes on pricing alone for a time. Distribution and operations personnel will be cut as maintenance is deferred. Managers are also expecting a great deal more outsourcing of this type of work in the future. Even small utilities handle much of this type of routine maintenance work with in-house support staff today.

The minority opinions expecting growth in these two employee groups pointed to specifics in their region or in their own utility as the basis of their rationale for adding employees. Almost one out of four managers overall listed an increase expectation.

Others felt that new opportunities for support personnel would exist in the areas of marketing and customer retention. Likewise, employment levels were expected to rise as customer desire for greater reliability versus price began to return to the market. Once maintenance again becomes a priority, a recovery in distribution and operations personnel is anticipated.

One manager has a bleak outlook with regard to deregulation in terms of a government inspired "form-filing-frenzy" which may ensue. He feels that the massive papenvork requirements of the newly deregulated industry will, in and of itself, cause an increase in support personnel.

Results of the survey, therefore, support WH 2a. WH 2c was not supported by the survey results.

Generation (Power Production) and Transmission Personnel

The second sub-hypothesis in the staffing category relates to the managers' expectation for employees in the fields of power production and transmission. These would include employees who work at power plants and those who are responsible for maintaining and repairing high voltage lines, power substations and other "wholesale" aspects of the supply system. Additionally, the third sub hypothesis stated that the expected staff decreases will be greater as time goes on.

WH 2b. Managers will believe that staff reductions will occur for generation and transmission personnel to a lesser degree than for support and distribution and operations personnel.

WH 2c. Managers will believe that staff reductions will be greater in the longer term (ten years from now) than in the short term (five years from now).

Table 6.5 lists the managers responses with regard to employees who work in the generation (power production) aspects of the industry. Fully half of the respondents believe that there will be downsizing in employment levels for this type employee. The results indicate that the decreases will not be "radical", with approximately -1% to -10% reduction expected in the short term. Another 40% feel that no changes will occur in this category in the next five years. On the longer horizon, there is a shift further downward in the expectations for cuts or, it could be said, that rehiring in this area is expected to take place within ten years time.

As was the case in the fust two employment groups examined, the longer term horizon shows a recovery or at the least a lessening in the drop in staff levels. Weighted value scores for the generation group were surprisingly similar to those of distribution & operations and administrative / support personnel. Scores of -25 short term and -18 longer term are virtually the same as for those two employee groups. The only distinguishable difference lies in the fact that many more respondents expect no change in this group. 40% see no change short term while 36% have this viewpoint through the ten year period. One manager surveyed stated that as existing power production capacities are eliminated (which he feels will happen within the next five years) smaller generation plants requiring more personnel per megawatt of power produced will gradually increase employment levels in the generation category.

Table 6.6 reports employment expectations for transmission employees. The managers' five year timeframe shows 44% predicting a decrease falling to 36% in the longer term. Similar to the generation results, many managers look for no change with 38% long term and 36% short term reporting this way.

Table 6.5

2 1 What impact will deregulation and competition have on staff levels for generation (power production) employees?

Utility Type & Meter Count	Generation Staff Level Change Short Term – Five Years							Generation Staff Level Change Long Term – Ten Years						
	>-25%	-10 to -25%	-1 to -10%	0%	+1 to 10%	+10 to +25%	>+25%	>-25%	-10 to -25%	-1 to -10%	0%	+1 to 10%	+10 to +25%	>+25%
Weighted Value	-3	-2	-1	0	1	2	3	-3	-2	-1	0	1	2	3
Municipal:														
<5,000		1	3	8	1				1	2	8	3		
5,000-15,000			1	1							1	1		
15,000-25,000		1							1					
25,000-50,000			2	1					1	1				
50,000-100,000			1								1			
100,000>			1	1						2				
Sub-Total	0	2	8	11	1	0	0	0	3	5	10	4	0	0
Co-Op:														
<5,000				2						1	1			
5,000-15,000		1	5	3	2				1	2	3	2	1	
15,000-25,000			2	2	1				1	2	1	1		
25,000-50,000		1	1							1	1			
50,000-100,000			1	1					1	1				
100,000>			2							2				
Sub-Total	0	2	11	8	3	0	0	0	3	9	6	3	1	0
River Authority:														
<5,000		1								1				
TOTAL	**0**	**5**	09	**19**	**4**	**0**	**0**	**0**	**6**	**15**	16	**7**	**1**	**0**
Total Weighted Value	**0**	**-10**	-19	0	**4**	**0**	**0**	**0**	**-12**	**-15**	**0**	**7**	**2**	**0**
W V Totals				**-25**							**-18**			

Summary

Municipal	Decrease	10	No change	11	Increase	1		Decrease	8	No change	10	Increase	4	
Co-Op	Decrease	13	No change	8	Increase	3		Decrease	12	No change	6	Increase	4	
River Authority	Decrease	1	No change	0	Increase	0		Decrease	1	No change	0	Increase	0	
Total	Decrease	**24**	No change	**19**	Increase	**4**		Decrease	**21**	No change	**16**	Increase	**8**	
%	Decrease	**51%**	No change	**40%**	Increase	**9%**		Decrease	**47%**	No change	**36%**	Increase	**18%**	

Percentages may not add to 100% due to rounding

Table 6.6

2.2 What impact will deregulation and competition have on staff levels for transmission employees?

Utility Type & Meter Count	Transmission Staff Level Change Short Term -- Five Years							Transmission Staff Level Change Long Term – Ten Years						
	>-25%	-10 to -25%	-1 to -10%	0%	+1 to 10%	+10 to +25%	>+25%	>-25%	-10 to -25%	-1 to -10%	0%	+1 to 10%	+10 to +25%	>+25%
Weighted Value	-3	-2	-1	0	1	2	3	-3	-2	-1	0	1	2	3
Municipal:														
<5,000		1	3	8	1	1			1	1	9	2		1
5,000-15,000			1	1							1	1		
15,000-25,000			1							1				
25,000-50,000			1	2							1		1	
50,000-100,000				1								1		
100,000>					2							2		
Sub-Total	0	1	6	12	3	1	0	0	1	2	11	6	1	1
Co-Op:														
<5,000			1			1				1	1			
5,000-15,000		2	4	2	3				1	3	2	3		
15,000-25,000			2	2	1					3	1	1		
25,000-50,000		1	1							1		1		
50,000-100,000			1	1						2				
100,000>			2							2				
Sub-Total	0	3	11	5	4	1	0	0	1	12	4	5	0	0
River Authority:														
<5,000				1							1			
TOTAL	*0*	**4**	**17**	**18**	**7**	**2**	*0*	*0*	**2**	**14**	**16**	**11**	**1**	**1**
Total Weighted Value	**0**	**-8**	**-17**	**0**	**7**	**4**	**0**	**0**	**-4**	**-14**	**0**	**11**	**2**	**3**
W V Totals				**-14**							**-2**			

Summary

Municipal	Decrease	7	No change	12	Increase	4		Decrease	3	No change	11	Increase	8	
Co-Op	Decrease	14	No change	5	Increase	5		Decrease	13	No change	4	Increase	5	
River Authority	Decrease	0	No change	1	Increase	0		Decrease	0	No change	1	Increase	0	
Total	Decrease	**21**	No change	**18**	Increase	**9**		Decrease	**16**	No change	**16**	Increase	**13**	
%	Decrease	**44%**	No change	**38%**	Increase	**19%**		Decrease	**36%**	No change	**36%**	Increase	**29%**	

Percentages may not add to 100% due to rounding

Table 6.7

2.3 What impact will deregulation and competition have on staff levels for distribution and operations employees?

Utility Type & Meter Count	Distribution & Operation Staff Level Change Short Term – Five Years							Distribution & Operation Staff Level Change Long Term – Ten Years						
	>-25%	-10 to -25%	-1 to-10%	0%	+1 to 10%	+10 to +25%	>+25%	225%	-1010-25%	-1 to-10%	0%	+1 to 10%	+10 to +25%	>+25%
Weighted Value	-3	-2	-1	0	1	2	3	-3	-2	-1	0	1	2	3
Municipal:														
<5,000		1	6	6	2	1			4	1	7	2		1
5,000-15,000				1	2							2		
15,000-25,000				1						1				
25,000-50,000			2		1				1			1		
50,000-100,000					1								1	
100,000>					2							2		
Sub-Total	0	1	8	8	8	1	0	0	5	2	7	7	1	1
co-op:														
<5,000		1	2					1	1	1				
5,000-15,000		1	7	4	1				1	5	2	3		
15,000-25,000			4	2						2	2	1		
25,000-50,000	1		1					1			1			
50,000-100,000			1	1					1	1				
100,000>		1	1											
Sub-Total	1	3	16	7	1	0	0	2	3	9	5	4	0	0
River Authority:														
<5,000		1								1				
TOTAL	**1**	**5**	**24**	**15**	**9**	**1**	**0**	**2**	**8**	**12**	**12**	**11**	**1**	**1**
Total Weighted Value	**-3**	**-10**	**-24**	**0**	**9**	**2**	**0**	**-6**	**-16**	**-12**	**0**	**11**	**2**	**3**
W V Totals				**-26**							**-18**			

Summary

Municipal	Decrease	9	No change	8	Increase	9		Decrease	7	No change	7	Increase	9	
Co-Op	Decrease	20	No change	7	Increase	1		Decrease	14	No change	5	Increase	4	
River Authority	Decrease	1	No change	0	Increase	0		Decrease	1	No change	0	Increase	0	
Total	Decrease	**30**	No change	**15**	Increase	**10**		Decrease	**22**	No change	**12**	Increase	**13**	
%	Decrease	**55%**	No change	**27%**	Increase	**18%**		Decrease	**47%**	No change	**26%**	Increase	**28%**	

Percentages may not add to 100% due to rounding

Table 6.8

2.4 What impact will deregulation and competition have on staff levels for support employees?

Utility Type & Meter Count	"Support" Personnel Staff Level Change Short Term -- Five Years							"Support" Personnel Staff Level Change Long Term -- Ten Years						
	>-25%	-10 to-25%	-1 to -10%	0%	+1 to 10%	+10 to +25%	>+25%	>-25%	-10 to -25%	-1 to -10%	0%	+1 to 10%	+10 to +25%	>+25%
Weighted Value	-3	-2	-1	0	1	2	3	-3	-2	-1	0	1	2	3
Municipal:														
<5,000		1	6	6	2	1			4	1	6	2	1	1
5,000-15,000					2							2		
15,000-25,000				1						1				
25,000-50,000				1	2						1	1		
50,000-100,000					1								1	
100,000>		1	1						1			1		
Sub-Total	0	2	7	8	7	1	0	0	5	2	7	6	2	1
Co-Op:														
<5,000	1		1					1	1					
5,000-15,000			8	1	4					4	3	2	1	
15,000-25,000			4		1				1	2	1	1		
25,000-50,000	1	1						1	1					
50,000-100,000			2							2				
100,000>		1						1						
Sub-Total	2	2	15	1	5	0	0	3	3	8	4	3	1	0
River Authority:														
<5,000		1	1						1	1				
TOTAL	2	5	23	9	12	1	0	3	9	11	11	9	3	1
Total Weighted Value	-6	-10	-23	0	12	2	0	-9	-18	-11	0	9	6	3
W V Totals				-25							-20			

	Summary													
Municipal	Decrease	9	No change	8	Increase	8		Decrease	7	No change	7	Increase	9	
Co-Op	Decrease	19	No change	1	Increase	5		Decrease	14	No change	4	Increase	4	
River Authority	Decrease	2	No change	0	Increase	0		Decrease	2	No change	0	Increase	0	
Total	Decrease	**30**	No change	**9**	Increase	**13**		Decrease	**23**	No change	**11**	Increase	**13**	
%	Decrease	**58%**	No change	**17%**	Increase	**25%**		Decrease	**49%**	No change	**23%**	Increase	**28%**	

Percentages may not add to 100% due lo rounding

Transmission employment results for the longer, ten year window show that the managers are clearly divided as to what will occur. An equal number (36% each) believe there will be a small decrease or no change in staffing levels. Another significant group (29%) believe that staff levels will actually increase in this category for the long term, up from 19% short term. Weighted value scores echo the results of the frequency distribution. Low scores of -14 short term and only -2 long term indicate the differentiation of opinion here.

It can be concluded that the managers feel that transmission employees will be least effected in the short and long term based on the survey results. They received both the smallest decrease expectations and the largest overall increase expectations of any group.

Results of the survey show marginal support for WH 2b. Clearly, transmission related personnel are expected to have fewer reductions in staff than the administrative / support or distribution & operations groups. The same cannot be said, however, for generation personnel. The results for this group are almost indistinguishable from the first two. Once again, WH 2c was not supported by the survey results.

Section III: Quality of Semces Issues

This section presents the evidence that test the hypotheses which relate to the effect that deregulation and competition will have on certain quality aspects for electrical service. The question was designed to determine the managers' expectations regarding the impact that deregulation will have on system reliability, outage response time, new or enhanced technologies in the industry, and new or enhanced customer programs.

There was no time element included in this question. The two questions relating to reliability and outage response were subdivided into a response for residential versus commercial customers.

General Quality of Semce Hypothesis

The general hypotheses for quality of service expectations based upon review of the literature was that managers will have formed opinions on the effects of deregulation with regard to these issues by this time;

WORKING HYPOTHESES #3: Managers will have opinions about the effect of deregulation / competition on **quality of semce issues** including reliability of electrical service, outage response time, availability of new or enhanced technologies, and development of new or enhanced customer programs.

Once again, the evidence is clear from the responses received that the managers are very much aware of the impact which deregulation has had and will continue to have on the industry with regard to quality of service issues. The responding managers have strong opinions about what these impacts will be and this hypothesis is therefore supported.

Residential and Commercial Semce Reliability and Outage Response Time

The first and second sub-hypotheses in the quality of service category relate to the managers expectation for utilities' ability to maintain reliable service in a deregulated, competitive world. In addition, opinions were sought from the managers as to what effect deregulation would have on their ability to respond to customer electrical outages.

WH 3a. Managers will believe that service reliability will be enhanced for both residential and commercial customers, but more so for commercial.

WH 3b. Managers will believe that outage response time will be enhanced (quickened) for both residential and commercial customers, but more so for commercial.

Table 6.9 lists the managers' responses to the system reliability and outage response time questions. Review of the literature revealed that competition normally raises customer expectations with regard to the quality of service delivered. The managers responses do not concur with this generalization as applied to a deregulated electrical industry. An average of only 12% of the managers believe that these two aspects of service quality will be enhanced for both residential and commercial customers. Conversely, more than half of the managers, 51.5% average of the four responses, expect that a deterioration in these areas is likely. There were also a significant group (about 37%) who believe that deregulation and competition will neither enhance nor cause a deterioration in these areas. Weighted value totals are very even in the four categories listed on table 6.9. All four numbers are negative and three of the four scored a weighted value of -20 with one result at -21. This demonstrates the managers' overriding belief that these quality issues will deteriorate system wide and thus have an impact on all types of customers.

Interestingly, the managers' responses with regard to both reliability and response time issues, show higher deterioration *and* enhancement results for the commercial customers. It appears that they have strong feelings that the effects on the commercial group will be more pronounced than for residential customers regardless of which way the pendulum swings. Clearly, a majority believe the swing will be toward deterioration, however.

This view is perhaps indicative of the managers expressed belief that the residential class of customers will be the one most likely to receive continued

governmental support though re-regulation or continued enforcement of programs designed to assist and protect the smaller users of electricity.

Several managers stated in their narratives that reliability will have a greater price in the future and that those customers willing to pay more can expect enhanced service. The remaining customers will have a lower priority for restoration of power. With less maintenance, it seems likely that system reliability will gradually erode. Because local utilities will be competing with independent power marketers who have no system to support, the feeling among some managers is that profit margins will be reduced to levels that do not allow support as we have come to expect it today. More than one manager stated that, legal or not, response time will be better for those customers who are still purchasing their power from the local utility than for those who have switched over to an alternative provider. Due to the overall expectation that customers will be able to switch providers, the question arises as to how much the host utility will be willing to commit its stretched resources to these functions.

Having reviewed the managers' responses to employee levels, it seems obvious that the sheer reduction in numbers will also have a bearing on a utility's ability to maintain the system (reliability) and to repair it once damaged.

Based upon this review and analysis of the survey responses, neither WH 3a nor WH 3b is supported. It appears that the managers belief that pricing issues will override these quality issues, at least initially. The managers clearly do not expect that competition will enhance these aspects of the industry as it has in others.

Table 6.9

3.1 What impact will deregulation and competition have on system reliability and outage response time for residential and commercial customers?													
Utility Type & Meter Count	Res System Reliability			Comm System Reliability			Res Outage Response Time			Comm Outage Response Time			
	Deteriorate	No Impact	Enhanced	Deteriorate	No Impact	Enhanced	Deteriorate	No Impact	Enhanced	Deteriorate	No Impact	Enhanced	
Weighted Value	-1	0	1	-1	0	1	-1	0	1	-1	0	1	
Municipal:													
<5,000	6	8	2	8	5	3	8	7	1	9	5	2	
5,000-15,000		2	1	1		2		2	1	1	1	1	
15,000-25,000	1			1			1			1			
25,000-50,000	2		1	2		1	1	1	1	1	1	1	
50,000-100,000	1					1		1				1	
100,000>	1	1		1	1		1	1		1	1		
Sub-Total	11	11	4	13	6	7	11	12	3	13	8	5	
Co-Op:													
<5,000	2	1		2	1		2	1		2	1		
5,000-15,000	7	4	1	8	3	1	7	4		8	3		
15,000-25,000	2	2	1	2	2	1	1	3	1	1	3	1	
25,000-50,000	2			2			1	1		1	1		
50,000-100,000	2			2			1	1		1	1		
100,000>	1	1		1	1		1	1		1	1		
Sub-Total	16	8	2	17	7	2	13	11	1	14	10	1	
River Authority:													
<5,000		1			1			1			1		
TOTAL	**27**	**20**	**6**	**30**	**14**	**9**	**24**	**24**	**4**	**27**	**19**	**6**	
Total Weighted Value	**-27**	**0**	**6**	**-30**	**0**	**9**	**-24**	**0**	**4**	**-27**	**0**	**6**	
W V Totals		**-21**			**-21**			**-20**			**-21**		
	Summary												
Municipal	11	11	4	13	6	7	11	12	3	13	8	5	
Co-Op	16	8	2	17	7	2	13	11	1	14	10	1	
River Authority	0	1	0	0	1	0	0	1	0	0	1	0	
Total	**27**	**20**	**6**	**30**	**14**	**9**	**24**	**24**	**4**	**27**	**19**	**6**	
%	**51%**	**38%**	**11%**	**57%**	**26%**	**17%**	**46%**	**46%**	**8%**	**52%**	**37%**	**12%**	
Percentages may not add to 100% due to rounding													

Availability of New or Enhanced Technologies and Customer Programs

The third and fourth sub-hypotheses in the quality of service category relate to the managers' expectations with regard to the impact which deregulation and in particular competition will have on the development or enhancement of industry related technologies. Likewise, information was sought as to their awareness of the effect competition will have on new or enhanced customer satisfaction based programs.

WH 3c. Managers will believe that the availability of new or enhanced technologies will be accelerated by deregulation / competition.

WH 3d. Managers will believe that the availability of new or improved customer programs will be accelerated by deregulation / competition. Customer programs for this research are defined as any program which is, in general terms, aimed at increasing overall customer satisfaction and / or loyalty.

Table 6.10 reports the results of these two enhancement program questions. Many technological advances were seen in the telecommunications industry following deregulation and there is some expectation in the literature reviewed that this will be the case with the electrical industry as well. With regard to the technological advances, the managers show 58% in agreement that deregulation and competition will indeed bring about at least moderate acceleration. Another 21% believe the acceleration will be pronounced for a total of 79% in agreement. Virtually the same percentage of managers (79%) expect that pronounced acceleration will take place in the area of new or enhanced customer programs. The number responding that pronounced acceleration is anticipated, however, was higher at 33%.

Weighted value scores are very high for both the technological and customer enhancement aspects. At +104 and +110, these can be viewed as two expected outcomes of deregulation and competition that the managers feel very strongly about. The managers see both these areas as crucial to competing for new customers and retention of existing ones.

While it is obvious that the managers believe that in the new deregulated competitive world price will be king, good customer service and enhanced products will also play an important role. Advances in the productive utilization of personnel in all aspects of the business are anticipated. There is a definite tone in the narrative responses that customers in the "new" deregulated industry environment will be looking for greater value for their electrical dollar. If a utility can provide that though technology or customer satisfaction programs they will have an advantage over a competitor who does not.

One area in which the managers expect a greater offering of choices to the customer is in the area of metering. Once enhanced technologies are in place, different pricing options could be made available to the customer. Time of use rates, for example, would give customers greater choice and an opportunity to save money on electrical costs if they are willing and able to make certain lifestyle adjustments. Another type of new meter is expected to monitor the use of each individual appliance within the home. Once again, marketing will be a key focus.

Results of the survey and subsequent analysis, therefore, strongly support WH 3c, and WH 3d..

Table 6.10

Utility Type & Meter Count	3.2 What is the degree to which competition will accelerate the availabiltiy of new or enhanced technologies in the electric power industry?			3.3 What is the degree to which competition will accelerate the availabiltiy of new or enhanced customer programs in the electric power industry?		
	No change	Moderate acceleration	Pronounced acceleration	No change	Moderate acceleration	Pronounced acceleration
Weighted Value	1	2	3	1	2	3
Municipal:						
<5,000	6	7	3	7	7	2
5,000-15,000		2	1		2	1
15,000-25,000		1			1	
25,000-50,000	1	1	1		1	2
50,000-100,000			1			1
100,000>		2			2	
Sub-Total	7	13	6	7	13	6
Co-Op:						
<5,000	1	1				2
5,000-15,000	1	9	2	1	7	4
15,000-25,000	2	1	2		3	2
25,000-50,000		1	1	1		1
50,000-100,000		2			1	1
100,000>		2		1		1
Sub-Total	4	16	5	3	11	11
River Authority:						
<5,000		1		1		
TOTAL	**11**	**30**	**11**	**11**	**24**	**17**
Total Weighted Value	**11**	60	∃∃	**11**	M	SO
W ∀ Totals		**104**			**110**	
	Summary					
Municipal	7	⊐∃	6	⊐	13	6
Co-Op	4	16	5	3	11	11
River Authority	0	1	0	1	0	0
Total	**11**	∃O	**11**	**11**	**24**	O⊐
%	**21%**	**58%**	**21%**	**21%**	**46%**	**33%**

Percentages may not add to 100% due to rounding

Section IV: Socially Motivated Programs

This section presents the evidence that test the hypotheses which relate to the effect that deregulation and competition will have on certain socially motivated programs that are now prevalent in the electrical service industry. The question was designed to determine the managers' expectations regarding the impact that deregulation will have on these programs. There was no time element included in this question.

General Socially Motivated Programs **Hypothesis**

The general hypotheses for socially motivated program expectations based upon review of the literature was that managers will have formed opinions on the effects of deregulation with regard to these issues by this time. While it is clear that the managers surveyed agree that deregulation will have an impact on all five sub-categories of socially motivated programs, certain areas are expected to fair better than others.

WORKING HYPOTHESES #4: Managers will have opinions about the effect of deregulation / competition on socially motivated programs such as the local requirement to serve rule, life-line rates to indigent ratepayers, discounted rates for church, charity, or non-profit entities and environmental programs.

Once again, the evidence is clear from the responses received that the managers are very much aware of the impact which deregulation will have on the industry with regard to social issues. The responding managers have strong opinions about what these impacts will be and this hypothesis is therefore supported.

Requirement to Serve Provision I Lifeline Rates I Cut-Off Restrictions

The fourth survey question was designed to determine the managers expectations regarding the effects of deregulation on socially motivated programs. The response groupings focus on requirements which, over the years, have been placed upon public power systems in the regulated environment. The first three question sub-groupings relate to:

- The requirement to serve provision which states that the host utility must provide service regardless of cost / benefit or financial payback.
- The availability of lifeline rates, subsidized rates to the smaller user to insure that a minimum public health and safety standard can be maintained.
- Restrictions to cut-offs dependent upon such factors as weather conditions.

The hypotheses regarding the effect of deregulation on this grouping of socially motivated programs based upon a review of the literature were as follows:

WH 4a. Managers will "agree" that deregulation / competition will bring about a reduction in or elimination of the local requirement to serve rule.

WH 4b. Managers will "agree" that deregulation / competition will bring about a reduction in or elimination of lifeline rates.

WH 4c. Managers will "agree" that deregulation / competition will bring about a reduction in or elimination of restrictions to cut-off provisions based upon weather or hardship.

Table 6.11 addresses these three sub-categories. First, the requirement to serve provision. The managers are sharply divided on this issue but a small majority, 53%, disagreed or strongly disagreed that this provision would be removed or drastically modified. 15% of the respondents felt compelled to strongly disagree with the statement

while another 8% strongly agreed. The narratives provide some rationale for their apparent opposing positions on this matter. In the "disagreeing" managers opinion, some form of regulatory or governmental oversight will remain that will force continuance of this particular provision. This is more or less supportive of the argument toward re-regulation of the industry as opposed to deregulation.

The "agreeing" managers feel that deregulation will be more complete and the decision to serve a certain customer will be based more upon a cost benefit approach than has been customary up to now. The weighted value score of -8 indicates a very slight tendency toward disagreement that the requirement to serve provision will be removed or drastically modified.

With regard to utilities being able to sustain lifeline rates, 41% believe they will continue while 59% believe this will be one socially motivated program that will be greatly damaged or no longer offered at all in the deregulated industry. The weighted value score of +13 indicates moderate agreement on the managers part that lower than cost based lifeline rates will no longer be available. If this is true, it is another indication that the smallest consumers and / or those who can least afford this modem day necessity will not be the ones to benefit from deregulation and competition. As was the case with the requirement to serve provision and all of the socially motivated programs in this section for that matter, many managers believe government intervention is inevitable.

The expectation for hardship / weather cut-off restrictions is similar to that for requirement to serve. An even larger group, 58% believe that this provision will be protected. The weighted value score at -12 indicates moderate disagreement that lifeline rates will cease to exist or face severe cutback.

Table 6.11

4.1 What impact will deregulation and competition have on socially motivated programs?

Removal or drastic modification of:	The requirement to serve provision - host utility must serve all customers regardless of cost/benefit analysis.				The availability of "lifeline rates" with lower than cost of service based changes for minimum services.				Restrictions to cut-off provisions based upon weather or other hardship which protects non-pay customers.			
Utility Type & Meter Count	Strongly Disagree	Disagree	Agree	Strongly Agree	Strongly Disagree	Disagree	Agree	Strongly Agree	Strongly Disagree	Disagree	Agree	Strongly Agree
Weighted Value	-2	-1	1	2	-2	-1	1	2	-2	-1	1	2
Municipal:												
<5,000	1	6	7	1		7	8			10	5	
5,000-15,000	3				1	1	1		1	1	1	
15,000-25,000				1				1		1		
25,000-50,000		1	1	1			1	2			3	
50,000-100,000			1					1			1	
100,000>		1	1			1	1			1	1	
Sub-Total	4	8	10	3	1	9	11	4	1	13	11	0
Co-Op:												
<5,000	1		1	1	1		1	1	2			
5,000-15,000	3	6	4		1	5	7		2	7	4	1
15,000-25,000		3	2		1	1	3			3	2	
25,000-50,000			2				1	1			2	
50,000-100,000		1						1			1	
100,000>		2				2				2		
Sub-Total	4	12	9	1	3	8	12	3	4	12	9	1
River Authority:												
<5,000			1				1				1	
TOTAL	**8**	**20**	**20**	**4**	**4**	**17**	**24**	**7**	**5**	**25**	**21**	**1**
Total Weighted Value	**-16**	**-20**	**20**	**8**	**-8**	**-17**	**24**	**14**	**-10**	**-25**	**21**	**2**
W V Totals				**-8**				**13**				**-12**
	Summary											
Municipal	4	8	10	3	1	9	11	4	1	13	11	0
Co-Op	4	12	9	1	3	8	12	3	4	12	9	1
River Authority	0	0	1	0	0	0	1	0	0	0	1	0
Total	**8**	**20**	**20**	**4**	**4**	**17**	**24**	**7**	**5**	**25**	**21**	**1**
%	**15%**	**38%**	**38%**	**8%**	**8%**	**33%**	**46%**	**13%**	**10%**	**48%**	**40%**	**2%**

Percentages may not add to 100% due to rounding

There are quite a few managers who, once again, believe that protection of this program will carry a price. The question remains as to who will be made to bear the cost. It was pointed out that investor owned utilities have reduced these programs whenever possible and, assuming the playing field is leveled following deregulation, many public power systems may do so as well if given a choice in the matter. These programs cost money and their continuance may be completely dependent upon governmental intervention. If the programs continue to be required in the future, one manager refers to them as "just another unfunded mandate".

Results of the survey, therefore, support WH 4b. WH 4a and WH 4c were not supported by the survey results.

Discounted Rates and Environmental 1 Conservation Programs

The second two question sub-grouping for socially motivated programs relate to:

- The availability of discounted rates to churches and not-for-profit enterprises.
- Environmentally motivated programs such as conservation and load management.

The hypotheses regarding the effect of deregulation on the second grouping of socially motivated programs based upon a review of the literature were as follows:

WH 4d Managers will "agree" that deregulation I competition will bring about a reduction in the availability or existence of discounted rates for churches, charitable organizations or other non-profit entities.

WH 4e Managers will "agree" that deregulation I competition will bring about a reduction in environmentally motivated programs such as those which control emissions at power plants minimizing one of the causes of acid rain.

Table 6.12

4.2 What **impact** will deregulation and **competition** have on socially motivated programs?

Removal or drastic modification of:	The **availability** of discounted rates with lower than cost of service based changes for charitable, church or **non-profit** organizations.					Utility initiatives, whether voluntary or mandated, which are motivated by environmental **concerns** at a higher **cost** than other options.				
Utility Type & Meter Count	Strongly Disagree	Disagree	Agree	Strongly Agree		Strongly Disagree	Disagree	Agree	Strongly Agree	
Weighted Value	-2	-1	1	2		-2	-1	1	2	
Municipal:										
<5,000	1	6	8				7	8		
5,000-15,000	1	1	1			1	1	1		
15,000-25,000			1					1		
25,000-50,000		1		2				2	1	
50,000-100,000			1					1		
100,000>		1	1				1	1		
Sub-Total	2	9	12	2		1	9	14	1	
Co-Op:										
<5,000	1		1	1		1	1		1	
5,000-15,000	1	3	9				3	7	3	
15,000-25,000		2	2	1			2	3		
25,000-50,000	1			1			1		1	
50,000-100,000			1	1					1	
100,000>			1				1	1		
Sub-Total	3	5	14	4		1	8	11	6	
River Authority:										
<5,000			1				1			
TOTAL	5	14	27	6		2	18	25	7	
TotalWeighted Value	-10	14	27	12		-4	18	25	14	
W V Totals					15					17
	Summary									
Municipal	2	9	12	2		1	9	14	1	
Co-Op	3	5	14	4		1	8	11	6	
River Authority	0	0	1	0		0	1	0	0	
Total	5	14	27	6		2	18	25	7	
%	10%	27%	52%	12%		4%	35%	48%	13%	

Percentages may not add to **100%** due to rounding

Table 6.12 indicates that the final two aspects of socially motivated programs, discounted rates and environmental programs will be hit the hardest by deregulation and competition. 64% of the managers believe that rates which are lower than cost-of-service based will no longer be available or will be cut dramatically following deregulation. They expect this despite the fact that many utilities, especially those that are publicly owned, offer this type of discounted rate today. Likewise, 61% expect the same fate for environmentally motivated programs. Weighted value scores were similar to each other at +15 and +17. These scores indicate general agreement that these two types of programs will in fact face reduction or elimination.

A significant group of the managers do hold out hope for these two types of programs, however. It was stated in one narrative that after the price "feeding frenzy", the buying public may be willing to pay more for power generated in a more environmentally friendly manner. **An** example of this would be hydroelectric power, which uses a renewable energy source, water, to turn the turbines which generate the electricity. It is hoped that an increasing number of ratepayers will be interested in "green power" of this nature.

Results of the survey, therefore, support WH 4d, and WH 4e.

Section V: Payments to Local Government

This section presents the evidence that test the hypotheses which relate to the effect that deregulation and competition will have on cash and in-kind payments from a

host utility to the local government for uses other than utility related. The question was designed to determine the managers' expectations regarding the impact that deregulation will have on these payments and transfers. There was a short and long term time element included in this question.

General Funds Transfer Hypothesis

The general hypotheses regarding expectations for payments to local government based upon review of the literature was that managers will have formed opinions on the effects of deregulation with regard to these transfers by this time:

WORKING HYPOTHESES #5: Managers will have opinions about the effect of deregulation / competition on the level of payments to local city government in the form of payments in lieu of taxes, franchise fees, unbilled or "in kind" services or other transfers.

It is clear that the managers surveyed have formed strong opinions about the effect of deregulation / competition on these payments. In fact, this question brought forth more of an emotional response than any other question in the survey. This hypothesis was strongly supported.

Short and Lone Term Impact

The fifth and last survey question was designed to determine the managers' expectations regarding the effects of deregulation on the payments made by electric public power utilities to the host city government. Answers were provided which allowed for a determination of the short and long term expectations of the managers with regard to these payments.

The hypotheses regarding the effect of deregulation on payments to local governments based upon a review of the literature were as follows:

WH 5a. Managers will believe that payments / transfers will be greatly impacted (reduced) in the future as a result of open competition in the electrical markets.

WH 5b. Managers will believe that payments / transfers will be impacted (reduced) more in the longer term (ten years from now) than in the short term (five years from now) due to the need for reduced governmental subsidies in an open competitive electrical market.

The managers surveyed most certainly agree that deregulation will have a dramatic impact on payments and transfers of this nature. The large majority feel the impact will be negative toward local city government funding, but another minority group feels differently even if vastly outnumbered.

Many cities have developed a growing reliance on such transfers, especially from municipally owned electrical systems. Cooperatives tend to have lower payment levels through their kanchise fees. Typically, new kanchise agreements are now being contracted at only 2% of sales and only for those sales from inside the city limits. Because of this fact responses based on the type of utility, municipal or cooperative, were markedly different. This was the only response category that this was true. Table 6.13 indicates that as a group, the managers expect reductions in city payments. In the short term, 57% of the managers see reductions. The number escalates to 69% in the longer term. A significant percentage of the respondents foresee reductions of greater than 25% of existing payment levels. In particular, managers of municipal systems see greater reductions. A number of managers see no impact from deregulation, but only 10% (average of short and long term) are predicting that payments would actually

increase. Weighted value scores here are high with -38 reporting for short term effects and -48 in the longer term.

The basic rationale is that subsidization of local government activities of this kind will be attacked by price-driven cost cutting measures just as any other cost. Cities which cannot wean themselves of overdependence on utility payments will be at risk to lose their customer base altogether according to several managers. One manager questioned in his narrative whether or not a "new' utility would be required to make any payment at all? If not, how could an existing utility compete if forced to continue making a city payment of this nature? Another manager argues that more utility boards will be set up in a manner which makes them autonomous from direct oversight of the city government. Otherwise transfers of this type, sometimes referred to as a "hidden tax" which is regressive in nature but noticed by few could continue to grow. This is anticipated due to the fact that competition will only fuel the fires for more cuts in government making tax increases a continuing problem for local governments.

The minority opinions expressed state that, contrary to these arguments, they expect city payments to increase. Rational for this position include a belief that new providers of electricity wishing to serve in urban areas will provide local governments with incentives to "cooperate". This could be true if cities maintain some type of control over utilities to the extent that the local government can determine which of them may serve in the city limits. In a totally open, retail wheeling environment this is not expected to be the case.

Results of the survey, therefore, support WH 5a, and WH 5b.

Table 6.13

5. What impact will deregulation and competition have on payments made by an electric utility to city government?

Utility Type & Meter Count	Short Term -- Five Year Impact							Long Term -- Ten Year Impact						
	>-25%	-10 to -25%	-1 to -10%	No impact 0	+1 to 10%	+10 to +25%	>+25%	>-25%	-10 to -25%	-1 to -10%	No impact 0	+1 to 10%	+10 to +25%	>+25%
Weighted Value	-3	-2	-1	0	1	2	3	-3	-2	-1	0	1	2	3
Municipal:														
<5,000	3	1	8	3			1	2	4	5	3	1		1
5,000-15,000	1	1			1			1		1		1		
15,000-25,000		1						1						
25,000-50,000			2	1				2		1				
50,000-100,000			1						1					
100,000>			2							2				
Sub-Total	4	3	13	4	1	0	1	6	5	9	3	2	0	1
Co-Op:														
<5,000		1			1					1			1	
5,000-15,000		1	2	9				1	2	5	3		1	
15,000-25,000			1	2						1	2			
25,000-50,000				1	1						1		1	
50,000-100,000		1						1						
100,000>	1		1					1		1				
Sub-Total	1	3	4	12	2	0	0	3	2	8	6	0	3	0
River Authority:														
<5,000				1						1				
TOTAL	**5**	**6**	**17**	**17**	**3**	**0**	**1**	**9**	**7**	**18**	**9**	**2**	**3**	**1**
Total Weighted Value	**-15**	**-12**	**-17**	**0**	**3**	**0**	**3**	**-27**	**-14**	**-18**	**0**	**2**	**6**	**3**
W V Totals				**-38**							**-48**			

Summary

Municipal	Reduction	20	No impact	4	Increase	2		Reduction	20	No impact	3	Increase	3	
Co-Op	Reduction	8	No impact	12	Increase	2		Reduction	13	No impact	6	Increase	3	
River Authority	Reduction	0	No impact	1	Increase	0		Reduction	1	No impact	0	Increase	0	
Total	Reduction	**28**	No impact	**17**	Increase	**4**		Reduction	**34**	No impact	**9**	Increase	**6**	
%	Reduction	**57%**	No impact	**35%**	Increase	**8%**		Reduction	**69%**	No impact	**18%**	Increase	**12%**	

Percentages may not add to 100% due to rounding

The final chapter of this research provides a general discussion of findings expressed in the first six chapters.

Chapter VII: Discussion

Introduction

The purpose of this chapter is to discuss the findings of the research in summary form and describe the limitations of the research.

This study was intended to provide the reader with an insight into the possible outcomes resulting from deregulation and competition in the electric power industry. By conducting a survey of the attitudes and expectations of public power managers as to these potential outcomes, tremendous insight has been gained. Discussion of these key elements is ongoing in the industry on a daily basis. While much has already been written on the subject, the researcher knows of no other study which taps into the viewpoint of the expert practioners of the day-to-day operations of electric public power systems of Texas. It is hoped that this accumulation of data will give the reader practicle insight as to how these changes will eventually effect their daily lives. The reader may then use the information in whatever appropriate manner to prepare for deregulation of the industry which at this point in time seems inevitable and in all of our immediate futures (see Table 7.1).

The data provides evidence that change of an unprecedented scale is imminent for an industry that has served the public well for over one hundred years. It is also apparent that the effects of deregulation will be far-reaching. It is clear that a lot is at stake financially. The electric industry is large in terms of revenues generated and no doubt there will be big winners and big losers as a result. Small consumers who have benefited in the past from government induced subsidies could well see them be greatly reduced or

even disappear. What financial hardships this shift will cause and what environmental or socially motivated programs will be protected, if any, remain to be determined.

These outcomes will be determined as the debate is played out in utility commission hearing rooms and state legislative sessions in the very near future. New technologies could develop which will make the industry change at an even more rapid pace than it would have been if driven by competition alone.

Price shifts should mean lowered costs to large commercial and industrial customers. American industries should see tremendous gains in their ability to compete internationally if the price benefits of competition fall as heavily toward them as the managers surveyed in this study expect. It is anticipated that this could translate into more and better jobs for the citizens of Texas and the United States in the long run. If payments to local governments are impacted as dramatically as the managers expect, it remains to be seen how and if these lost revenues will be made up for in the future. It is possible that many services offered by local government will be impacted in the short term and longer term. It appears that the direction is toward additional direct-assignment of costs, perhaps causing increases in user fees. Subsidies, whether for altruistic or socially motivated reasons, appear to be headed for severe challenge on all fronts.

Table 7.1 - Timeline

Deregulation Outcome	
Price Shifts	Dramatic price shifts are expected in the near future (within 5 years) for all classes of customers. Prices are expected to continue to shift throughout the next ten years as well.
Staff Levels	Reductions in staff levels are expected across the board for all the employee categories used in this survey in the next five years. In the longer, ten year timeframe, a recovery is expected but not back to present day levels.
Payments to Local Govenment	Reductions in funding of local city government operations through utility transfers are expected in the near future (withing five years). Furthur, more dramatic reductions, are anticipated in the longer, ten year timeframe.

Note: The survey document was not designed to produce a timeline response from the managers for questions 3 and 4 which relate to system reliability issues and socially or environmentally motivated programs. The narrative responses, however, give the indication that the expected timing of these changes is directly tied to deregulation in the same manner as the pricing, employment and fund transfer issues. It can be stated, therefore, that changes are expected in the near future (within five years) with regard to: system reliability, outage response time, new technologies and enhanced customer programs. Additionally, deregulation will have an immediate impact on the requirement to serve provision, the availability of lifeline and discounted rates, hardship cutoff restricitons, and environmentally motivated programs.

Limitations of this research include the fact that only public utility managers in Texas were surveyed. No data was obtained from investor owned utilities which could very well have a different viewpoint on the subjects that were the focus of this study. Additionally, only Texas managers were surveyed and regional concerns other than the Southwest are therefore not in evidence. Based on the overall consistency of the managers' responses, however, the researcher believes that a fair representation of public utility manager attitudes as of this writing are contained in the research project.

A follow-up study, perhaps at the five year time horizon (2001) and ten year (2006) would certainly be interesting since many of the survey questions were presented with those timeframes in mind. The telecommunications deregulation is now twelve years past and it appears that the effects are still evolving daily. A similar study directed at investor owned utility managers would provide an interesting contrast for comparison as well. Research involving managers of other states and perhaps of other countries which have already undergone deregulation of their electric power industry would also be of value.

BIBLIOGRAPHY

Books

Babbie, Earl, *Practicing Social Research,* sixth edition, Wadsworth Publishing, Belmont, California. 1992

Boadway, Robin W. and David E. Wildasin *Public Sector Economics,* Little, Brown & Company, Boston, Toronto. 1984.

Derthick, Martha and Paul Quirk, *The Politics of Deregulation,* The Brookings Institution, Washington D.C.. 1985.

Leftwich, Richard H. *A Basic Framework for Economics* , Business Publications, Inc., Dallas, TX. 1980.

Morehouse, John C. *Electric Power - Deregulation and the Public Interest,* Pacific Research Institute for Public Policy, San Francisco, CA. 1986.

Poole, Robert W. *Unnatural Monopolies; The Case for Deregulating Public Utilities,* Lexington Books, Lexington, KY. 1985.

Rudolph, Richard and Scott Ridley *Power Struggle; The Hundred Year War over Electricity* Harper and Row, Publishers, New York, NY. 1986.

Yin, Robert K. *Case Study Research Design and Method,* second edition, Sage Publications. 1994.

Journals

Abib, Parviz M., and Candice Clark. "Regulatory Reform, Texas Style: The Electric and Telecommunications Industries," Texas Business Review (August 1996). 80-84.

Beck, Bill. "Competition and Deregulation: Changing the Way Electric Utilities Do Business," *Area Development* (February 1996): 30-34.

Booth, Jim. "Retail Wheeling - The Evolution of the Electric Utility Industry," *R.W. Beck Update* (Fall 1994) 4-5.

de Rouffignac, Ann. "New Power Player Will Rival HL & P," *Houston Business Journal* Vol. 24 No. 39, (Feb. 10-16, 1995).

Dukert, Joseph. "A Short Energy History of the United States," *Edison Electric Institute,* (1980).

Greensberger, Leonard S. "Poised On the Edge of Competition Like Baby AT & T's", *Public Utilities Fortnightly* (Nov. 15, 1991) 30-31.

Hight, Bruce "PUC Slows Plan for Competition," *Texas Public Power Association Monthly Publication,* (October, 1995) 1-5.

Kawasaki, Guy "How to Drive Your Competition Crazy," *On Achieving Excellence* (August, 1995). 10-11

Manshio, Calvin "The Realpolitik of Regulation," *Public Utilities Fortnightly* (May 1, 1992) 17-19.

Meyer, William "The New England Experiment: Industry Restructuring on a Regional Basis," *Competitive Utility* (Vol. 1, Issue 8, 1996) 10-14.

Public Power Weekly "California, Wisconsin Regulators Act on Restructuring," *APPA Publication* (December 25, 1995) 1-5.

Public Power Weekly "CPUC Calls for Choice in 1998," *APPA Publication* (December 25, 1995) 1-5.

Rodgers, James D., "Sales Taxes, Income Taxes, and other on-Property Revenues", *Management Policies in Local Government Finance* J. Richard Aronson and Eli Schwartz ed. (International City Management Association, Washington D.C.) 1987.

Schuler, Joseph F., "A Champion", *Public Utilities Fortnightly* (July. 1, 1996) 22-25.

Studness, Charles M. "Utility Competition and Residential Customers, " *Public Utilities Fortnightly* (Nov. 1, 1994) 37-41.

Magazines

Aschenbach, Dan "General Fund Transfers - Milking the Cash Cow?", *Moody's Municipal Issues* (1996) 2-4.

Destec Supplement. "Are You Shocked by Your Utility Bills?," *Texas Monthly* (October, 1994).

Fox, Marla "Business Positions Impact Municipal Bond Ratings", *CreditWeek Municipal* June 26, 1995.

Hagerman, Ron "Wired Up and Looking For A Fight", *Governing, The Public's Capital - A Forum on Infrastructure Issues* (March, 1995) 59-64.

Macey, Daniel "Getting a Degree in Competition," ***Megawatt Magazine*** (Winter, 1996) 6-7.

McCullough, Robert "What Are We Waiting For?," ***MegaWatt Magazine*** (Winter, 1996) 2-3.

Miller, William "Power-ful change," ***Industry Week*** (Feb. 19, 1996) 65-68.

Nulty, Peter "Utilities Go To War," ***Fortune Magazine*** (Nov. 13, 1995) 200-204.

O'Brien John N. "Its Time to Look at Areas With High Priced Electrical Power," ***Area Development Magazine*** (February, 1996) 8.

Newspaper Articles

Dworin, Diana "Highly Charged Debate," ***Austin American Statesman*** (February, 1995) B1 - B2.

Hight, Bruce "Electric Coalition Wins Support of Key Lawmaker," ***Austin American Statesman*** (January 17, 1996) C1-C3.

Hight, Bruce "PUC Idea Would Shield Utilities," ***Austin American Statesman*** (January 10, 1996) D1-D4.

Ivins, Molly "Stranded Assets - Think Utility Bailout," ***Austin American Statesman*** (February 15, 1996) C1.

Legal Reports

Public Utilities Commission Report on Senate Bill 373, (June, 1995) 1-9.

Texas Senate Committee on State Affairs Interim Report on the Implementation of SB 373, (June 24, 1996) 1-164.

Other

O'Leary, Danial. "Municipal Revenue Sources For General Fund Expenditures: A Review of Texas Cities." Applied Research Project, SWTSU, Spring, 1995.

Texas Public Power Association Seminar materials (Fall 1994).

Survey Document

Electric Utility Survey

Respondent Job Title	_____					
Type of Entity	Municipal	Co-operative	State Authority	Joint Action Agency	Other _____	
Size of Entity (Electric Meters)	< 5,000	5,000 - 15,000	15,000 - 25,000	25,000 - 50,000	50,000-100,000	>100,000

1). – Deregulation and competition could have a varying impact on pricing for differing types of customers. In your opinion, what will be the short term (five year) and longer term (ten year) impact on overall pricing in each of the four customer categories listed below? Circle one % range for each category.

	Short Term – Five Years							Long Term – Ten Years						
Residential	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%
Small Commercial	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%
Large Commercial	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%
Industrial	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%

Please provide a brief rationale for your selections. _____

_____

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2). – Deregulation and competition could have an impact on the number of personnel employed in differing aspects of the utility industry. In your opinion, what will be the short term (five year) and longer term (ten year) impact on staffing levels for various types of personnel, those directly involved with power production, transmission, distribution, and operations and maintenance of those systems as opposed to "support" personnel including management, billing, human resources, purchasing, customer services, etc. Circle one % range for each category.

Personnel in:	Short Term – Five Years							Long Term -- Ten Years						
Generation	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%
Transmission	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%
Distribution and Op.	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%
"Support" Personnel	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%	> -25%	-10 to -25%	-1 to -10%	0%	+1 to +10%	+10 to +25%	>+25%

Please provide a brief rationale for your selections. _____

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3). – Deregulation and competition could have an impact on various quality of service aspects including systems reliability, outage response time, the development of new or enhanced technologies, and the development of new types of customer service programs.. In your opinion, what will be the impact on the various quality of service aspects for the two customer categories of Residential and Commercial (all types) listed below'? Circle one response for each category.

System Reliability - Refers to number of outages for whatever reason at all voltage levels of the delivery system and consistent quality of the power provided.

Residential	Overall system reliability will:	Deteriorate	Not be significantly impacted	Be enhanced.
Commercial	Overall system reliability will:	Deteriorate	Not be significantly impacted	Be enhanced.

Please provide a brief rationale for your selections. _____

Outage Response Time - Refers to the time elapsed between a reported incident (outage) and the restoration of power.

Residential	Outage response time will:	Deteriorate	Not be significantly impacted	Be enhanced.
Commercial	Outage response lime will:	Deteriorate	Not be significantly impacted	Be enhanced.

Please provide a brief rationale for your selections. _____

What is the degree to which competition will accelerate the availability of new or enhanced technologies in the electric power industry?

No significant change as a result of competition	Moderate acceleration due to competition	Pronounced acceleration due to competition

Please provide a brief rationale for your selection. _____

What is the degree to which competition will *accelerate* the availability of new or enhanced customer programs (any program or initiative specifically designed to increase customer satisfaction *and/or* loyalty) in the electric power industry?

No significant change as a result of competition	Moderate acceleration due to competition	Pronounced acceleration due lo competition

Please provide a brief rationale for your selection. _____

4). – Deregulation and competition could have an impact on various socially motivated programs including the requirement to serve provision, restrictions on cut-off based on weather and 'lifeline rates", availability of rate discounts for charitable, church or non-profit organizations, and environmental initiatives taken by utilities on both a voluntary and non-voluntary basis. In your opinion, what will be the impact on the various quality of service aspects listed below? Circle one response for each category.

Deregulation and competition will cause a removal or drastic modificalion of:

The requirement lo serve provision - host utility must serve all customers regardless of cost/benefit analysis.	Strongly Disagree	Disagree	Agree	Slrongly Agree
The availability of 'lifeline rates' with lower than cost of service based changes for minimum services.	Strongly Disagree	Disagree	Agree	Slrongly Agree
Restrictions to cutoff provisions based upon weather or other hardship which protects non-pay customers.	Strongly Disagree	Disagree	Agree	Slrongly Agree
The availability of discounted rales with lower than cost of service based changes for charitable, church or non-profit organizations.	Slrongly Disagree	Disagree	Agree	Slrongly Agree
Utility initiatives whether voluntary or mandated which are motivated by environmental concerns at a higher cost than other options.	Slrongly Disagree	Disagree	Agree	Slrongly Agree

Please provide a brief rationale for your selections. _____

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5). – Deregulation and competition could have an impact on payments made by an electric utility to city government. Such payments could be in the form of cash payments or transfers to the city's general fund, franchise fees, payments in-lieu of taxes, or in-kind contributions. In your opinion, what will be the short term (five year) and longer term (ten year) impact on such payments? Circle one % range for each category.

Short Term (Five Year) Impact	Reduction of	> -25%	-10 to 25%	-1 lo -10%	No impact 0%	Increase of +1 to 10%	+10 to 25%	>+25%
Longer Term (Ten Year) Impact	Reduction of	> -25%	-10 lo 25%	-1 to -10%	No impact 0%	Increase of t l to 10%	+10 to 25%	>+25%

Please provide a brief rationale for your selections. _____

_____

_____

_____

Approximately what % of your entity's Electric Operating Revenue is presently paid / transferred to the general fund of the host city government? _____%

Approximately what % of total income from all sources to the city does the electric revenue transfer represent? _____%

List of Participating
Cities
Co-Operatives
River Authorities

Cities

City of Austin
City of Bartlett
City of Boerne
City of Brenham
City of Brownfield
City of Brownsville
City of Bryan
City of Caldwell
City of Castroville
City of Cuero
City of Denton
City of Floydada
Floresville Electric Light & Power System
City of Georgetown
City of Giddings
City of Gonzales
Kerrville Public Utility Board
Kirbyville Light & Power
City of LaGrange
Lubbock Power & Light
City of Mason
City of Moulton
City of Plains
City of San Antonio
City of Weatherford
City of Yoakum
Unknown
Unknown

Co-Operatives

Bandera Electric Co-Operative
Bluebonnet Electric Cooperative, Inc.
Brazos Electric Cooperative
Central Texas Electric Cooperative, Inc.
Coleman County Electric Cooperative
Cooke County Electric Cooperative
Deep East Texas Electric Co-Operative
Dickens Electric Co-Operative, Inc.
Fayette Electric Cooperative, Inc.
Fort Belknap Electric Co-Opereative

Co-Operatives (continued)

Greenbelt Electric Co-Operative
Houston County Electric Cooperative, Inc.
Kaufman County Electric Cooperative, Inc.
Kimble Electric Co-Operative, Inc.
McLennan County Electric Cooperative, Inc.
Media Electric Cooperative, Inc.
Navasota Valley Electric Cooperative, Inc.
Nueces Electric Cooperative, Inc.
Pedemales Electric Cooperative
Rio Grande Electric Cooperative, Inc.
Sam Houston Electric Cooperative, Inc.
South Plains Electric Cooperative, Inc.
Swisher Electric Cooperative, Inc.
Unknown
Wharton County Electric Cooperative, Inc.

River Authorities

Guadalupe Blanco River Authority