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IN THE MATTER OF THE GENERIC
PROCEEDING CONCERNING ELECTRIC
RESTRUCTURING ISSUES

DOCKET NO. E-00000A-02-0051
E-00000A-01-0630

**SALT RIVER PROJECT
AGRICULTURAL IMPROVEMENT
AND POWER DISTRICT'S AND
NEW WEST ENERGY'S NOTICE
OF FILING THEIR COMMENTS
REGARDING ELECTRIC
RESTRUCTURING ISSUES**

At the direction of the Commission at the workshop held on November 14, 2008, Salt River Project Agricultural Improvement and Power District and New West Energy Corporation submit their joint comments regarding the electric industry restructuring issues.

SUMMARY OF COMMENTS

The Commission has requested that interested parties address six points in their comments in this docket:

- potential risks and benefits of retail electric competition,
- whether retail electric competition is in the public interest,
- provider of last resort,
- whether the Commission's current electric competition rules are adequate,
- costs of competition, and
- other issues related to retail electric competition.

SRP and New West Energy address these issues comprehensively in the attached

1 position paper. In summary:

2 *1. Potential Risks and Benefits of Retail Electric Competition.*

3 SRP and New West Energy begin, in Sections I and II, with a discussion of the
4 economic theory behind electric industry restructuring. SRP and New West Energy
5 point out that the economists believed that benefits would flow from reorganizing the
6 industry to subject the generation sector to market forces. SRP and New West
7 Energy conclude that, for Arizona, the obstacles and risks to restructuring the
8 industry far outweigh the potential benefits. SRP and New West Energy point out
9 that the growing emphasis on renewable energy resources and the reduction of
10 carbon emissions add new costs, complexities and risks not anticipated when
11 Arizona's Retail Electric Competition Rules were originally adopted. SRP and New
12 West Energy emphasize that with our current fragile economy, and the emphasis on
13 renewable resource and carbon reduction, it is not the time to experiment with new
14 regulatory structures.

15 *2. Whether or Not Competition is in the Public Interest.*

16 Arizona now enjoys award winning electric service at prices that are among
17 the lowest in the Southwest. Arizona utilities currently offer an array of options to
18 customers, with more rolling out on a regular basis. In Section IV, SRP and New
19 West Energy detail the customer satisfaction in Arizona, demonstrated by the receipt
20 of national awards. SRP and New West Energy also detail some of the programs
21 offered by SRP to its customers. Finally SRP and New West Energy compare Arizona
22 retail prices to other states. The strong conclusion is that there is little need in
23 Arizona to even consider assuming the risks of attempting to restructure the
24 industry.

25 *3. Provider of Last Resort (PLOR).*

26 History has demonstrated that in each experiment with restructuring, the
27 central issue is the failure to recognize and address the provider of last resort

1 function of the electric system. It is the provider of last resort who assures that
2 adequate system capacity is available to serve all of its retail load, assures that
3 sufficient capacity for the system is built and maintained, insures long term planning,
4 builds the generation mix needed for long term stability, provides a baseline price
5 (sometimes called standard offer service) to mitigate retail price spikes, and assures
6 that long term programs for renewable resources and carbon emission reductions are
7 in place. It is crucial to carefully address the need for POLR responsibility in any
8 restructured system. In Section II(C), SRP and New West Energy discuss the POLR
9 issue, relying heavily on the testimony of Dr. Frank Graves, of the Brattle Group,
10 whose testimony was filed in the Sempra docket. SRP and New West Energy
11 conclude that the POLR has not been adequately addressed in Arizona, or elsewhere.

12 4. *Whether the Commission's Current Electric Competition Rules are*
13 *Adequate.*

14 The conclusion naturally follows from the above discussions that the
15 Commission rules in no sense contemplated the full extent of the accommodation for
16 the POLR obligation. This issue cannot be ignored. Moreover, the Commission will
17 need to significantly revise the rules as they are basically in disarray. Some have
18 been waived, as the Commission determined that divestiture was not a good idea.
19 Some have been invalidated by the Courts. And, even with restructured rules, there
20 still exists a legal risk that they are contrary to Arizona law.

21 5. *Costs of Competition.*

22 There are two ways of looking at the issue. First, one can look at the hard
23 costs to restructure the industry. These are huge. Estimates are that in the last go-
24 around the Arizona utilities spent close to \$100 million. The estimate in California is
25 closer to \$1 billion. But, the bigger issue is the cost of "competition as a whole".
26 Conservatively, the experiment in California cost the State \$10 billion. In the case
27 studies presented in Section III, SRP and New West Energy show how customers,

1 both residential and commercial, have consistently paid more and reaped few
2 benefits in restructuring efforts across the nation. SRP and New West Energy urge
3 the Commission to consider the total cost of an experiment, not just the cost of
4 implementing a new system.

5 6. *Other Issues Relating to Retail Competition.*

6 SRP and New West Energy anticipate that the proponents of deregulation will
7 argue that restructuring the entire industry is not necessary; just let a few large
8 customers choose alternative providers. As discussed in the Conclusion section, a
9 partial deregulation proposal simply shifts costs to other customers, particularly
10 relating to the cost of providing POLR service. Partial deregulation would be a
11 serious mistake, without any rational basis.

12 DATED this 30th day of January, 2009.

13 JENNINGS, STROUSS & SALMON, P.L.C.

14
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January, 2009, to:

All parties of record

By: 

**Comments Regarding
Electric Restructuring Issues
of
Salt River Project
and
New West Energy**

January 30, 2009

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I. INTEREST AND POSITION OF SALT RIVER PROJECT AND NEW WEST ENERGY

This position paper is presented jointly by Salt River Project and New West Energy. Salt River Project has a significant interest in the issues pending in this docket. First, SRP and the Commission have a statutory obligation to coordinate their efforts relating to electric industry restructuring (A.R.S. §§ 30-802(A)¹, 30-806(A)², and 30-807(A)³). Second, SRP has a strong practical interest as its planning and economics will be directly effected were deregulation to be reinstated in Arizona. New West Energy, an electric service provider who held certificates in Arizona and California, and which is owned by SRP, has an interest to insure that Arizona does not repeat the mistakes of others.

SRP and New West Energy have spent significant effort in analyzing the experiences in other states and countries of their experiments into electric industry restructuring. Their conclusion is that industry restructuring, or "deregulation" or "retail competition", has consistently failed to deliver benefits to consumers. Failed restructuring approaches have generally led to much wasted money and higher costs.

This is not the result that SRP and New West Energy want for Arizona. The economy is teetering and customers can ill afford unnecessary increases in their electricity bills. The volatility of retail pricing in a "deregulated" market will only be compounded by the increased emphasis on renewable portfolios and carbon reduction efforts. Arizonans already enjoy award winning utility service at prices that are among the lowest in the Southwest. SRP and New West Energy urge that the Commission not to take any action at this time to change the current system of providing electricity to Arizonans.

This is not to say that Arizona should remain stagnant. As we move into an era of alternative fuel sources and increased emphasis on conservation, the

¹ A.R.S. § 30-802(A) provides in relevant part: "Public power entities and the commission shall coordinate their efforts in the transition to competition in electric generation service to promote consistent statewide application of their respective rules, procedures and orders."

² A.R.S. 30-806(A) provides in relevant part: "Public power entities shall adopt rules and procedures to protect the public against deceptive, unfair and abusive business practices. Public power entities and the commission shall coordinate their respective rules and procedures to promote consistent implementation statewide."

³ A.R.S. § 30-807(A) provides in relative part: "Public power entities and the commission shall coordinate their respective rules and procedures for public education programs to promote consistent implementation statewide."

Commission and the utilities should continue to explore methodologies, within the current structure, to provide retail users with options and alternatives.

II. ARIZONA'S DEREGULATION HISTORY

Electric industry deregulation was envisioned in a different time and place. In the early 1990s wholesale prices were low and the incremental cost of new capacity was below average cost. Against this scenario, economists advocated a theory that a deregulated electric industry would bring benefits to consumers, much like the deregulation of the airline or trucking industries. These economists envisioned a restructuring of the entire industry, from vertically integrated ownership (one company provides generation, transmission and distribution) to horizontal ownership (different companies own generation, transmission and distribution). This restructuring would allow unregulated competition within the generation sector, theoretically freeing market forces to produce lower prices.

California was the first to jump on the bandwagon, but Arizona was not far behind. Arizona debated and adopted a restructuring model that was the same in concept as California's:

1. The incumbent utilities would sell off (divest) their generation.
2. Transmission would be controlled by an independent system operator in a manner to permit open access to any generator.
3. Distribution would continue to be owned by the incumbent utilities, but now would be open to any generator on a non-discriminatory basis.
4. The buyers of the existing generation, and those who chose to construct new generation, would compete in both wholesale and retail markets, using the existing transmission and distribution systems.
5. Retail customers could choose a competitive generation provider on the basis of price or services.
6. The incumbent utilities would offer a standard price generation service, which would be phased out as competition matured.

Arizona's Retail Electric Competition Rules (R14-2-1601 *et seq.*) were adopted on December 31, 1998. The Legislature enacted complimentary laws for non-

jurisdictional utilities in the 1998 legislative session (A.R.S. § 30-801 *et seq.*). Between 1998 and 2000 the Commission issued competitive certificates of convenience and necessity (permitting the holder to offer competitive electric service in the State) to approximately 32 companies (including New West Energy). The incumbent utilities, under order from the Commission and the Legislature, spent millions to retool their systems and to educate the public about the new ways of buying electricity.

Fortunately the Arizona experiment never got off the ground. Only a handful of customers had signed up with new electric providers when in the spring of 2000 disaster struck the Western electricity markets. The more mature "competitive" markets in California were producing very bad results.

The story of the spectacular failure of the electric markets in California has been often told. The now independent and unregulated generators freed market forces to produce wildly gyrating prices. While wholesale power was selling at three cents per kWh when competition was envisioned, between May and December of 2000, prices rose over 2000 percent. Federally imposed caps did little to stop the bleeding.

By the end of 2000 the State of California itself was signing long term generation contracts, the incumbent utilities were insolvent, the California Power Exchange was closing its doors, rolling blackouts were common, and criminal investigations had begun. Estimates vary, but between the costs of setting up the system and the losses of the failed markets, it is estimated that the restructuring experiment in California cost the state over \$10 billion, without counting the collateral effect to the rest of the states in the Western markets.

III. RESTRUCTURING IS A DISCREDITED IDEA

A review of the literature, analyses and data compilations indicates that the root cause of the failure of restructuring lies in the unique attributes of the electric utility business. Attached to this paper as Appendix One is a compilation of some of the source material that forms the basis for the statements and conclusions of this Section III. Also supporting the factual assertions and conclusions is the testimony

of Peter Fox-Penner and Frank Graves, of the Brattle Group, that was pre-filed in the Sempra CC&N docket (Docket No. E-03964A-06-0168) on August 31, 2007.

A. Unique Attributes of the Electric Industry

We begin with a discussion of the attributes of the electric industries that are different, collectively making the industry quite unique from any other.

1. Extreme Capital Intensity

The utility industry is the most capital intensive industry in the market place. The resources needed to enter this industry are quite substantial – and a significant natural barrier to entry. The ability to obtain large sums of capital is essential. This is not a simple task in the best of times. Creditors want assurance that there are buyers for the output, and that the debt will be repaid over a lengthy period of time. Buyers want low prices for electric service, meaning slow capital cost recovery over decades. Given the risk adverse climate of current credit markets, securing needed capital will be significantly more challenging. While access to credit is slowly improving, clearly the future cost of capital will be higher than during the previous periods of experiments with electric deregulation. Financiers will want a higher risk premium and will require more certainty that the output has a buyer.

2. Long Lead Times Compound Risks/Create Long Response Times

It is estimated that from permitting, through construction, to commercial operation, a coal fuel plant takes seven years, a combined-cycle natural gas plant takes five years, and a simple-cycle plant approximately two years. These estimates do not even include the time for planning and developing such large capital projects. This long lead time makes it extremely difficult for new entrants to survive long enough to get a positive cash flow, let alone recoup their investment. It also makes it nearly impossible for the industry participants to respond effectively to short term signals. Needs must be anticipated and committed to well in advance. Competitive markets do not work well in this sort of construct – they tend to either over react (as in the overbuild of gas generation in the California market) or under react (as in PJM's inability to get new generation or transmission built, even with capacity market price signals).

3. Few Opportunities to Effect Underlying Economics

One of the intended benefits of competition is to encourage innovation and new technologies that will improve the underlying economics of the product or service, and thus bringing the cost down. While experiments in electric deregulation have created winners and losers, there is no evidence that it has led to real technology or productivity improvements. In fact, the Cato Institute has concluded that empirically, "there is evidence that operational efficiency has decreased under restructuring." This is not surprising as technology innovation and adoption evolves relatively slowly in an industry which has such enormous capital costs and reliability requirements. It must be proven effective for companies to take the investment risk. The result is all players have access to the same portfolio of resource options and the same fuel resources at essentially the same costs.

4. The Value of Generation is Dependent on Transmission

All products require a delivery channel, but few require it instantaneously. You can produce oil or gas and store it for a period while fixing problems with a delivery channel. But generation assets can produce no electricity, and therefore no value, unless they have both transmission paths and a load to use the product. Even with an open transmission system, paths become congested and long distance transmission is expensive. Practically speaking, the market for generation is entirely dependent on the existence, cost and availability of transmission.

5. Generation is Not Mobile and is Limited to Small Markets

Electricity follows the laws of physics, not those of supply and demand. Given that generation facilities have little mobility, and distant delivery involves significant line losses, they are most efficient if they are located in relative proximity to the load that it intends to serve. Open access transmission systems provide some opportunity to reach new markets as circumstances change, but this inherent attribute naturally limits competition, regardless of transmission availability.

6. Reliable Electricity Supply is Essential to Life and Business

Unlike many commodities, frequent, wide spread, or prolonged interruption to the supply of electricity has immediate and profound impacts which are unacceptable to modern life and business. It is more than inconvenient. It undermines productivity, safety, and our very social fabric (as evidenced by looting that often accompanies wide-spread urban blackouts). Electricity has become essential to life, and must be available and affordable, even for those who cost more to serve. There is little room to tolerate the experimentation and related failures that typically accompany competitive markets.

A clear obligation to plan for and provide a reliable and affordable source of electricity is essential. Reliability means designing for a *consistent* state of *over* supply, a concept that is inconsistent with competition.

7. Wild Fluctuations in Price are Not Acceptable

Electric use cannot be deferred. Electricity is an essential commodity. Enabling people and businesses to plan over a relatively stable price horizon has significant value that is not easily measured. California demonstrated how electric markets can lend themselves to wild price fluctuations. Were it not for the temporary fixed retail prices that were in place at the time, California would have seen unprecedented retail fluctuations. Indeed, customers of SDG&E did experience swings of 200-400% as some of the market fluctuations passed to the retail level.

8. The Electric System is a "System": It is Integrated and Inherently Complex

The electric system requires advance planning and shared responsibility and accountability to work. Vertical integration is not simply a business theory. It is a requirement to make the electric system work and to keep it running. Attempts to separate the whole into parts also sever the links between risk and accountability for the system as a whole. (As evidenced by the 2003 blackouts in "competitive" east coast regions caused in large part by a breakdown in accountability and responsibility for the integrity of the system as a whole). Because of the essential nature of electricity, the need to provide power when and where it is needed, the need to

locate relatively near the load, the need to construct new capacity against a long lead time, and the need to maintain excess capacity, advance planning is a part of the electric industry.

9. Opportunity for Multiple Market Participants Limited

Finally, even in a perfect system, the opportunity of real market participants (who own generation) is limited simply by the economies of generation. For the most part, the backbone of any system is large scale base or intermediate load generating units. As the economically viable number of these facilities is limited by demand, the number of potential for asset-based market participants is quite limited.

B. Issues Arising From Deregulation

Because of these inherent attributes of electricity and the electric markets, several issues inevitably arise when regulation is lifted.

1. Little Upside, Much Downside Risk

Though there are always claims of how deregulation will lower costs and unleash new value for consumers, there has been scarce evidence of such benefits in the experiments with competition. The historical reality is such benefits have occurred in regulated environments because of technology improvements that increased the efficiencies of generating facilities or that lowered the cost of fuel. (Such advances were prevalent in the 1950's and 1960's as power generation facilities benefited from improved materials and economies of scale, and again in the 1990's when improved efficiencies of combined-cycle units along with low cost natural gas created economics that favored new generation). What we have seen as regulations were removed is that potential "competitive" providers look to exploit the seams in the system. The result is a shift in costs from one group to another, not any real benefit to the system as a whole.

On the other side, downside risks are huge. The systems needed to manage these new markets and integrate with the complex and dynamic electric delivery system are hugely expensive. Mistakes have costly ramifications, as the experience in California demonstrated all too clearly. Most certainly prices will rise as new costs

are injected into the system (e.g. the cost of risk capital and the cost of infrastructure for new participants). But more importantly, when participants' risks and responsibilities are separated from those associated with maintaining the integrity and economics of the system as a whole, there is no assurance that electricity will always be available, at any price.

2. Inability to Attract Capital to New Projects

In order to attract capital, financial markets demand some assurance of the ability to repay the investment, namely a future demand for the product. But in a deregulated market, there is no assurance of future demand for generation, because there is the possibility of multiple market entrants, especially given the lead times required to develop new generation facilities. The result will be that plants will not be built without a long term contract with a credit worthy retail provider. As a result, plants will be built to service the load of the distribution utilities or not at all leading to a scarcity of generation resources and price increases for consumers.

3. Unacceptable Retail Price Fluctuations

Marginal cost pricing sounded promising when it looked like the marginal cost of new generation would be lower than the average cost of existing generation. The reality is that the equation has flipped, exposing consumers to higher prices than traditional cost based pricing in addition to extreme price volatility. Moreover, because electricity is a good that is essential to life and business, it is highly price inelastic. It is thus unacceptable to leave retail electricity prices to an unregulated wholesale market.

4. Market Manipulation

If California taught us anything, it is that an unregulated market for an essential and inelastic good creates opportunities for criminal behavior and the efforts to monitor and manage against such behavior creates expensive new layers of bureaucracy.

C. The Major Obstacle - The Provider of Last Resort Obligation

Perhaps the most vexing and fundamental issue arising from deregulation is the ability to fairly and effectively ensure there is a provider of last resort ("POLR"). The POLR is the utility that assures that adequate system capacity is available to serve all of its retail load, even load served by competitive providers. It is the POLR that assures that sufficient capacity for the system is built and maintained (avoiding the wholesale price run ups when demand exceeds supply). It is the POLR that insures long term planning. Thus the POLR plans and builds the generation mix needed for long term stability. It is the POLR who brings stability to the retail markets by providing a baseline price (sometimes called standard offer service) to mitigate retail price spikes. And, ideally the POLR assures that long term programs for renewable resources and carbon emission reductions are in place.

But the provider of last resort service comes with a steep price, as long term planning and capacity maintenance is one of the most expensive aspects of the utility business. The failure of all the experiments in the other states devolves to the reluctance to recognize and pay for the POLR costs. Thus we see artificially frozen retail prices, with the resultant eventual spikes, or worse yet, the financial failure of the provider. We have seen wholesale prices spin out of control because of inadequate capacity. We have seen poor system planning as competitors all build the cheapest, fastest to market, capacity available. And, we have seen a lack of fundamental and integrated demand side management and integrated planning programs.

The position of SRP and New West Energy are supported by the testimonies of Frank Graves of the Brattle Group, that was prefiled in the Sempra CC&N docket on August 31, 2007 (Docket No. E-03964A-06-0168). Dr. Graves, particularly addresses the essential importance of providing POLR service in a restructured market. Dr. Graves points out that Arizona does not have in place a system that in any respect can be considered adequate:

[The lack of adequate POLR service] has impeded the development of a pool of competitive ESPs, and in some cases it has imposed large, uncompensated financial risks on utilities providing the service. For SOS [Standard Offer Service] to avoid

these pitfalls, all the major elements of its design must be carefully and consistently specified, including customer class differentiation, switching rights, term (horizon), pricing rules, procurement mechanisms, and regulatory approval guidelines. This has not yet happened in Arizona. In particular, existing generation tariffs were not developed with the intent or effect of compensating the utilities for the costly risks associated with customer switching. Thus, these prices do not provide a fair or efficient SOS price for prodigal ESP customers.

Graves Testimony p.5:1-11.

Dr. Graves totally dispels the idea that Arizona has already addressed the issue:

POLR is a different, more complicated service than simply serving franchise customers with embedded generation, and its design, pricing, and procurement mechanism need to be specified in advance of allowing ESPs to begin serving customers. This has not yet happened in Arizona. Instead, the existing tariffs for generation service are being described as if they are the POLR service.

Graves testimony, p.11:6-11. Dr. Graves explains that the Arizona system is inadequate:

At present in Arizona, the tariffed rates for utility customers [purport to provide POLR protection], but those rates were not set with the intent or effect of compensating the utilities for bearing customer-switching risks. As discussed above, the required premiums can be significant. Instead, these are cost-of-service rates set to reflect generation accounting costs and a fair return on the underlying assets in a non-switching environment. If/when ESP customers switchback to this utility service, that can only occur at the expense of utility financial losses or increased costs to other customers who did not switch. Both outcomes are unfair and inefficient. Thus, these tariffed services should not provide comfort to the ACC about the just-and-reasonableness of ESPs' proposed maximum prices.

Graves testimony, p.17:18-23.⁴

⁴ Note that the provider of last resort obligation does not exist at all for customers of public power entities who use more than 100,000 kWh per year. A.R.S. § 30-806(I).

Dr. Graves concludes:

To my knowledge, virtually none of the several prerequisite steps involved in retail market design have yet transpired in Arizona: As a result, customer classes may have constituents with extremely different marginal costs, making them prone to cherry picking. The current generation services from utilities were not crafted or priced with POLR risks in mind, so they do not provide a suitable backstop service. Questions about how much risk to include in the price of POLR (e.g., some degree of real-time pricing) have not been debated, and the tension between Integrated Resource Planning and customer choice has not been fully recognized. The enabling legislation and law seems to require a review of ESP tariffs and profitability that is not well-defined and which could be counterproductive. Criteria for monitoring and evaluating the performance of retail market competition are not in place.

In short, there seem to be many aspects of this complex problem that have not yet been adequately considered. . . . Perhaps there is a lack of awareness of these issues, or perhaps there is a presumption that they were all well-vetted initially and we have simply been waiting for a more auspicious time to apply those prior insights. I would suggest that that is unlikely, given how much we have learned in other settings about the difficulties in getting retail access to work well. Failure to address these prerequisites before opening the doors to retail choice is likely to result in Arizona repeating the mistakes of others.

Graves Testimony, pp.29:10 - 30:4

It is undetermined whether a "competitive" market can co-exist with a true provider of last resort responsibility. As discussed below, certainly the concept has yet to be proven.

IV. THE RESULTS OF THE EXPERIMENTS

Various states have tried different schemes to try and address these inherent issues, all to no avail. Here are some of the high profile examples.

California

The California Model

In 1996, California adopted the classic restructuring model: it separated generation from an obligation to serve and left generation prices largely to an unregulated wholesale market. By 2000 over 80% of the generation used by California customers was sold and purchased in unregulated markets.

What happened?

There was no central control of supply and little control of wholesale market price. Thus, when demand exceeded the finite supply, prices rose almost without limit. Because of the inadequate supply, California retail customers were left, at times, without an adequate supply of electricity. To firm up supply, the State was forced to purchase electricity itself, under very expensive long term contracts. In early 2001 the State closed its power exchange, froze its direct access program, and basically retreated to regulated vertically integrated service. The result was a loss of many billions of dollars to the people of California.

Current Status

Not surprisingly, large industrial customers who profited in the short term from the disaster seek to restart "deregulation". In December 2006, a petition was filed with the CPUC by the Alliance for Retail Energy Markets and over two hundred other co-petitioners and supporters, asking they open an investigation into the continued suspension of the right to direct access and choice in energy suppliers. The CPUC continues to evaluate the petition, against fierce opposition from consumer and industry groups.

Texas

The Texas Model

"Deregulation" began in Texas in 2002, with utilities being required to unbundle into three separate categories: (1) generation, (2) distribution, and (3) transmission. Retail prices were artificially frozen for three years.

What happened?

The results thus far have not been good:

- New generation plants have tended toward those that are cheap and quick to build. This has moved Texas toward a system dominated by peaking capacity, resulting in higher fuel and operating costs.
- Allegations of market manipulation have been many. Texas PUC Staff, recommended a \$210 million fine against what was one of the State's largest utilities, TXU.
- Prices have risen at a very quick pace. It is estimated that prices have risen over 56% since 2002. A study recently released by the Texas Coalition of Cities for Utility Issues says "even the very lowest competitive rate available to millions of Texans is still higher than rates enjoyed by Texans served by fully regulated utilities, cooperatives and municipally-owned utilities."
- Competitive providers are dropping out. "Already, high spot-market prices have pushed five electricity retailers, serving about 45,000 customers, into default. More defaults are possible because many retailers are small companies working on thin margins. When retailers go under, customers' lights stay on as their accounts are switched automatically to "providers of last resort" -- nearly always with higher rates. Many customers don't find out about it until their next bill."
- Costs for managing the transmission system to facilitate "competition" have run way over budget, with no end in site. The Electric Reliability Council of Texas "is more than 100 percent over budget and two years behind schedule on its ongoing program to modernize the transmission system. ERCOT recently disclosed that in addition to the costs to establish and maintain the system, it expects to spend \$660 million alone to implement a system that divides the transmission network into thousands of 'nodes' rather than the current five zones.

Current Status

Texas is currently deregulated, although PUC Commissioner Barry Smitherman said, "[O]ne more false move by an electricity company could spark a backlash against the competitive market, leading to reregulation of the industry."

Pennsylvania

The Pennsylvania Model

Under the Pennsylvania model, customers were protected by an artificial rate freeze that extends through the end of 2010. Currently the PUC is considering plans to mitigate the impact of the significant price increases expected when the rate cap ends, including significant consumer education programs to help customers prepare for coming increases.

What happened?

An artificial rate cap does nothing more than delay the inevitable. The result is a massive and unexpected sudden price increase. For example the customers of Pike County Light and Power, who were subject to an early end of the rate cap, saw their prices rise by 73%. It is estimated that when the cap ends for the State's largest utility, PPL Electric Utilities Corporation, prices will rise by at least 35%.

On the competitive provider side, the 84% increase in wholesale rates between 1998 and 2001, combined with price caps, made it difficult for alternative suppliers to compete with utilities. The number of alternative suppliers dropped from 30 to under 10 in the period of 1998 to 2001.

On the consumer side, a December 2008 report by the PUC found that gas and electric shut-offs have climbed dramatically since a 2004 law made it easier for utilities to stop service to non-paying customers. Assistance programs for those unable to pay bills, funded by rate payers, have grown to \$330 million, or \$45/year/residential customer. In the current environment, PPL and other energy companies can't justify taking on the financial risks of building much-needed new power plants. At the same time, consumers, shielded from higher prices, don't have

as much incentive to conserve energy. The worst-case scenario, according to PPL CEO James Miller, is that PPL would be unable to charge customers enough to recoup its expenses and meet its own financial obligations, resulting in bankruptcy.

Current Status

Pennsylvania is currently "deregulated" and has retail choice, though price caps are still in place for most customers through 2009 or 2010.

Maryland

The Maryland model

Maryland phased-in deregulation with 33% of customers in 2000, 66% of customers in 2001 and 100% of the customers in 2002. The legislative plan mandated a rate reduction followed by a rate freeze.

What happened?

During the winter of 2005, the market-based cost of electricity skyrocketed in the wholesale electricity auctions. In July 2006 the market-based cost of electricity for an average residential customer increased 72% in the Baltimore Gas and Electric service territory. Increases of 35% and 39% occurred in services territories covered by Delmarva and PEPCO, respectively. Although Maryland consumers have an option to change electric service providers, "Maryland's customers have not switched from their default service provider to competitive suppliers."

Current Status

Since 2006, there have been numerous attempts to re-regulate or ease price increases. The General Assembly attempted to depose the Public Service Commission, but was overturned by the State Court of Appeals. In May 2007, the General Assembly passed a bill that requested the Public Service Commission "reevaluate the general regulatory structure, agreements, orders, and other prior actions of the Public Service Commission under the 1999 Maryland Customer Choice and Competition Act". The newly passed bill also requested the "determination of

and allowances for stranded costs" and to "conduct hearings" as part of its evaluation of the 1999 Settlement. Today, Maryland remains deregulated and has retail choice. (note: Maryland has decided that it would be too expensive to "reregulate".)

New York

The New York Model

Deregulation began in 1997 through a Public Service Commission decision. Through 2001 deregulation was implemented in phases by company and/or by customer. In 1999, metering was unbundled for all large customer classes and/or industry segments.

What happened?

With no single entity responsible for supplying power to the consumers of New York, plant operators have been reluctant to assume the risks that come with new generation, citing environmental concerns over emissions that may be a liability in the future. Although there have been capacity expansions since the deregulation inception, levels of expansion are not adequate. This, combined with a transmission system that was not designed for a competitive market, results in the overuse of outdated and inefficient generation, including century old steam turbines.

Under the New York system, electric service providers are required to pay the same price to all plant operators – the marginal cost of electricity. When inefficient, century-old plants are being utilized, that marginal cost is much higher than when newer, efficient plants are being used. Congestion charges, rooted in the inability of the New York system operator to properly handle the transmission system in a way that is competition-compatible, have been pegged at \$90 per New York City resident annually.

Additionally the state regulatory commission is investigating a possible scam that saw energy-market traders use deceptive routing practices in order to avoid higher transmission costs.

Power in the Public Interest wrote, "In 2000, the average price for all customers in New York was 10.6 cents/kWh; the comparable figure for the collective regulated states was 6 cents/kWh—or a difference of 4.6 cents. As of June 2007, the difference had widened to 6.8 cents (14.5 cents/kWh for New York and 7.7 cents/kWh for the regulated states). For the 12 months ending June 2007, New Yorkers paid \$22 Billion for their electricity. The same amount of electricity at the regulated states' average rate would have cost \$11.6 Billion—a difference (or comparative purchasing-power disadvantage to New Yorkers) of \$10.4 Billion for a 12-month period".

Current Status

New York is currently deregulated. However, state legislators are actively working to end the current system.

Virginia

The Virginia Model

In December 2001, the Virginia State Corporation Commission ("SCC") directed each utility to maintain separate divisions along functional lines for the generation, transmission and distribution functions. The incumbent utilities will continue to provide delivery service for all customers and default service for the customers who do not choose an alternative provider. Prices are currently capped through 2010.

What happened?

About a dozen competitive suppliers are licensed to market electricity to Virginia customers. But for now they are "sitting on their licenses" as it is almost impossible for anyone to compete against the prices produced by regulated service.

Current Status

Dominion Virginia Power's plan to give the State more control over utility rates and shield Virginians from the kind of power bill spikes seen in states that have opened their retail electric markets to residents signals the end of deregulation in

Virginia. The SCC in a report last year declared that the State had made little progress in creating healthy electric competition. "The right to choose has still not evolved into the ability to choose," SCC staff wrote. In addition, the SCC had concerns that deregulation would lead to significant cost increases for consumers when the rate caps in the law expire.

V. WHERE WE ARE IN ARIZONA

Arizona is in an enviable position. Its customers enjoy award winning service and some of the lowest prices in the Southwest. Arizona utilities continue to develop new and innovative pricing structures and renewable options.

A. Award Winning Service

For, example, Salt River Project is a consistent winner of the JD Power Award for excellence in customer service. Over the past ten years Salt River Project received these awards:

J.D. Power Residential Service

- *1999 - SRP first in the West
- *2000 - SRP first in the West (first in the nation)
- *2001 - SRP second in the West (one point behind TEP)
- *2002 - SRP first in the West
- *2003 - SRP first in the West
- *2004 - SRP first in the West (first in the nation)
- *2005 - SRP first in the West
- *2006 - SRP first in the West (first in the nation)
- *2007 - SRP first in the West
- *2008 - SRP first in the West (second in the nation)

The business study was expanded in 2004 to include utilities like Salt River Project. Since that time:

- *2004 - SRP first in the West (first in the nation)
- *2005 - SRP first in the West

- *2006 - SRP first in the West
- *2007 - SRP fourth in the West, tenth in the US
- *2008 - SRP third in the West, tenth in the US

B. Favorable Retail Prices

In addition to enjoying award winning service, Arizonans enjoy some of the lowest prices in the Southwest. Below is a chart comparing Arizona retail residential prices and all prices against those of other Southwest regions.

RATE COMPARISON BY REGION, cents/kWh

<u>REGION</u>	<u>RES. AVE</u>	<u>TOTAL AVE</u>
SO. CALIFORNIA	14.46	13.32
NEVADA	12.14	11.28
ARIZONA	10.45	9.68
COLORADO	10.07	8.62
NEW MEXICO	9.64	8.48
SRP	9.49	8.33
UTAH	8.24	6.21

C. Vast Array of Choices Currently Available to Customers

Additionally SRP offers a very large array of choices and options to its customers. In consultation with its customers SRP continually updates these options and offers, to better meet customer expectations and needs. Choices and options include:

Options to standard price plans:

E-20: An experimental super peak TOU price plan.

E-24: The M-Power plan, which is an optional pre-pay price plan for residential accounts, is the largest of its kind in North America.

E-26: This is an optional TOU price plan for residential accounts.

E-28: This is an optional "M-Power" pre-pay time of use price plan for residential accounts.

E-32: An optional time of use price plan for commercial accounts.

E-34: an optional "M-Power" pre-pay price plan for commercial accounts

E-48: An optional off peak price plan for commercial and municipal pumping accounts.

E-57: An optional plan for unmetered lighting applications including private residences, commercial applications and other lighting applications.

E-61: An optional time of use plan for accounts with a monthly consumption in excess of 300,000 kWh for three consecutive months that are metered at the secondary voltage level.

E-63: A time of use plan for accounts with a monthly consumption in excess of 300,000 kWh for three consecutive months that are metered at the primary voltage level.

E-65: This TOU price plan is for accounts with a monthly consumption in excess of 300,000 kWh for three consecutive months that have dedicated or customer-owned substations.

Available riders to standard price plans:

Renewable Energy Credit Pilot Rider: This rider allows customers to obtain Renewable Energy Certificates (REC's) from SRP. REC's are associated with energy generated from sources that may include, but are not limited to, solar biomass, landfill gas, wind, geothermal or small hydroelectric.

Buyback Service Rider: This rider allows customers with onsite generation to sell power back to SRP using a market-indexed price, less a transaction fee.

Solar Net Metering Rider: This rider nets solar generation against a general service customer's total energy usage for systems of 20 kW or less. This rider is intended to encourage installation of solar electricity conversion systems.

Energy For Education Pilot Rider: This rider is intended to assist schools with replacing or retrofitting equipment so that the schools use less electricity and therefore save on operating costs. Under this limited pilot rider, SRP allows the customer to pay for the capital cost of the equipment over time.

EarthWise Energy Rider: This rider is for customers who are interested in supporting the development of local renewable resources. Customers voluntarily pay a \$3 per-month premium per block to support the EarthWise Energy program.

EarthWise Energy Rider For Large Customers: This rider is similar to the EarthWise Energy Rider, but it allows for a discounted payment for EarthWise Energy blocks for large subscriptions.

Time-Dependent Demand Riders: These riders, for E-36 and E-47 price plans, allow customers to have the peak demand used in calculation of the demand charge to be based on the highest demand recorded during the on-peak period.

Critical Peak Experimental Price Plan: This plan is supplemental to E-65 and features a reduced on-peak price on "standard" days and a higher on-peak price during peak hours for "critical peak" days.

Standby Electric Service Rider For Power Production Facilities: This rider applies to qualified cogeneration and small power production facilities equal to or greater than 3,000 kW.

Facilities Rider: This rider include: 1) an average distribution facilities charge for customers taking service from SRP's general distribution system; and 2) a customer-specific charge for substation service.

Use Fee Interruptible Rider: This rider offers credits to customers in exchange for the customer curtailing load.

Instantaneously Interruptible Rider: This rider credits customers for the right to interrupt their load, without notice, for reliability purposes.

Interruptible Rider With 10 Minutes Notice: This rider credits customers for the right to interrupt their load, with ten minute notice, for reliability purposes.

Customized Interruptible Rider: This rider is available to customers who agree to be interrupted at terms and prices not currently available under other programs.

Full Electric Service Requirements Rider: This rider provides a discount for customers with at least 1 MW of load who elect to sign a service contract.

Monthly Energy Index Rider: This rider provides an average monthly energy charge, based on firm market prices at Palo Verde.

PowerWise Programs

Standard Business Solutions - promotes the purchase of industry-proven, high-efficiency equipment. Rebates are available for qualifying lighting, HVAC, motors and variable frequency drive measures.

Custom Business Solutions - provides a comprehensive platform for cost-effective non-residential energy efficiency projects such as chillers, process improvements, and energy management systems.

Large Business Solutions - provides large customers technical service support to identify and quantify energy savings opportunities.

Compressed Air Solutions - provides technical support and rebates to identify and implement energy conservation practices in existing commercial and industrial compressed air systems 100 HP and larger

Cool Roof Solutions - program focus on providing rebates for customers that install a qualifying cool roof on an existing building.

Rebate Programs

In addition to these many service options SRP offers rebate plans to encourage energy efficiency. These include:

Lighting rebates: \$0.20/Watt of reduced demand

Motors and Variable Speed Drives: \$2.00 to \$30/Horsepower

A/C Retrofit: \$50 to \$100/Ton

Custom Energy Efficiency: \$0.11/annual kwh savings - first year

Energy Studies: Preliminary \$3000, technical 50% up to \$15,000

Compressed Air: \$0.11/annual kWh savings

Cool Roof: \$.05/square foot

Demand Response: Eneroc 20-30 MW; Begin FY2010

Photovoltaic: \$2.50/kW DC, Capped at \$500,000, Adjusted based on performance

Solar Hot Water: \$0.50/kWh for 1-year metered energy production, not to exceed 60% system cost.

Solar Pool Heating: \$0.50/kWh of 1st year metered energy production, not to exceed 60% system cost.

Compact Fluorescent Lighting: Discounts at participating retailers.

Appliance Recycling: \$30 and pick up of working refrigerators for recycling.

High Efficiency Washers and Dishwashers: \$20 for qualified dishwashers, \$50 to \$75 for qualifying washers.

Solar Hot Water: \$0.50/installed kWh of energy savings

Photovoltaic: \$3/Watt up to \$60,000.

VI. CONCLUSION

What would it hurt to give some customers a choice of retail electric service providers? The lessons of history have taught us that those few customers who switch will not be receiving new value, but will simply be exploiting seams in the system, to the detriment of other customers. Here are some examples of the issues that will arise if some customers are given "choice" over a system of regulated vertically integrated service:

1. There will be no planning for the future of any customer who has the right to switch. Yes, the provider of last resort obligation could be provided by incumbent utilities, or bid out. But, the true cost of constructing and holding capacity to serve customers, who may or may not be taking service, is prohibitive.

It can be argued that a customer "comes back" at its own risk. The consequences may be high prices or no service at all. But, this is not realistic. Politically our state will not let major businesses close for lack of electric capacity planning. The bottom line will be that all customers will share in the cost of maintaining the capacity needed to re-serve customers looking for short term benefits (at the expense of other customers).

This issue alone, as supported by the testimony of Frank Graves, is enough to strongly conclude that restructuring is not now in the public interest.

2. Even if capacity is constructed for "competitive" customers, it will not be effectively integrated with the resource plan for the region. We have seen in other states that the tendency is to build cheaper gas-fueled facilities. But, proper planning of the system requires a mix of more expensive base load and intermediate load resources, as well as integrated renewable resources. While cheap resources may work in the short term, the long term is detrimental to the system, system operation and system costs.

3. The risk of market manipulation increases. Even if some of the system is subject to regulation, the deregulated part of the retail load presents opportunities for market manipulation. This is particularly true where competitors are buying from the market, rather than devoting their own resources to retail customers. While wholesale markets are now more stable than in the past, there is no assurance that the same defects that produced the California energy crisis in 2000 are gone.

4. Overall costs will increase. As mentioned, real economies are difficult to achieve. Yet, multiple vendors produce duplicate costs, increasing the costs of the system as a whole.

5. Price volatility will increase. Additionally, the volatility of retail pricing in a "deregulated" market will only be compounded by the increased emphasis on renewable portfolios and carbon reduction efforts.

6. Participation of competitive vendors in renewable programs will be questionable. It will be difficult for the Corporation Commission or the State of Arizona to cooperatively work with multiple out-of-state vendors to address the renewable needs and goals of Arizona.

7. Demand side and conservation initiatives will suffer. The most effective method of furthering the conservation goals of Arizona is through cooperative efforts among the State's utilities, businesses and governments. "Deregulating" retail service will be a move away from the objective of cooperative action.

8. The rules and laws that formed the basis of "deregulation" in the late 90s contemplated a complete restructuring of the electric industry in Arizona. Because of lessons learned, the Commission and the Legislature never implemented the restructuring. Now it is proposed that the industry be partially restructured. But, what does this mean? How is vertically integrated regulated service to be integrated with some unregulated market components? What will be the new structure? It is clear that if something is to be done, a serious effort will be needed to develop exactly what will be the new structure, then to develop rules and laws to implement it.

9. Finally, it is likely that a resumption of "deregulation" will create prolonged legal disputes, as occurred following the initial enactment of the Arizona competition rules. The Phelps Dodge case held that the Constitution requires that the Commission consider "fair value" in determining reasonable rates and charges. But, what does this mean? Is it enough that a potential market entrant simply provide a summary balance sheet of local office assets (as did Sempra in its application). Or does the fair value concept carry with it some more substantive requirements and corollaries?

The compelling answer is that Arizona should continue to watch the development of experiments in other states, protecting its economy and being content with the great benefits that it now receives from the current structure of the electric industry. As former Commissioner Mike Gleason said, Arizona should not be first, but should wait to see if any successful models are demonstrated elsewhere.

APPENDIX ONE

BIBLIOGRAPHY

- Alexander, B. R. (2001). *Default Service: Can Residential and Low Income Customers be Protected When the Experiment Goes Awry?* Report prepared under contract with the Oak Ridge National Laboratory Energy Division.
- Apt, J. (2005). Competition Has Not Lowered U.S. Industrial Electricity Prices. *Electricity Journal*, 52.
- Associated Press. (9 November 2007). *New York measure would reregulate electricity.* Albany, NY.
- Baker, D. R. (2008, February 29). State PUC wants to revive "direct access". *San Francisco Chronicle*.
- Blumsack, S. A., Apt, J., & Lave, L. B. (2006). Lessons from the Failure of US Electricity Restructuring. *The Electricity Journal*, Volume 19, No.2.
- Borenstein, S., & Bushnell, J. (2000, February). Electricity Restructuring: Deregulation or Reregulation? *Regulation, The Cato Review of Business and Government, Volume 3, No. 2*, p. 48.
- Bowers, W. P. (2009, January 13). Credit and Capital Issues Affecting The Electric Power Industry. (S. b. Commission, Interviewer)
- Business Wire. (2001, June 6). Retrieved from Pennsylvania Electric Deregulation May Be Headed For Failure, According to Energy Info Source:
<http://www.allbusiness.com/energy-utilities/utilities-industry-electric-power/6083705-1.html>
- Cambridge Energy Research Associates. (2005). *Beyond the Crossroads: The Future Direction of Power Industry Restructuring.* Special Report, Cambridge.
- Electric Energy Market Competition Task Force. (7 April 2006). *Supplemental Comments on Wholesale and Retail Electricity Competition Submitted by Electricity Consumers Resource Council ("ELCON").* FERC.
- Energy Information Administration. (n.d.). *Status of Electricity Restructuring by State .* Retrieved January 1, 2009, from
http://www.eia.doe.gov/cneaf/electricity/page/restructuring/restructure_elect.html
- Fine, H. (2000, November 27). Power Exchange: A Lightning Rod Blame. *Los Angeles Business Journal*.
- Fuquay, J. (2008, November 27). ERCOT is 100 percent over budget on revamp of Texas electric Grid. *Fort Worth Star-Telegram*.

- Hoge, N., & Coyle, E. (2003, April 1). The Myth of Deregulation. *The Utility Reform Network: The Utilities Project, Volume 3*.
- Johnson, D. C. (2006, December 13). Grid Limitations Increase Prices for Electricity. *New York Times*.
- Jordan, J. S. (2007, March 29). State regulators propose \$210M fine for TXU. *Dallas Business Journal*.
- Kennedy, S. (2007, October 7). PPL Chief: Industry facing challenge: Some lawmakers favor extending caps on rate hikes. *The Morning Call (Allentown, Pennsylvania)*.
- Kwoka, J. (2008). *Barriers to New Competition in Electricity Generation*. Report to American Public Power Association.
- LoTempio, J. (2007, November 19). Schumer wants open investigation of energy trading. *The Press-Republican, Plattsburgh, NY*.
- Mendel, E. (2008, March 10). Shake-up could be coming in electricity. *San Diego Union-Tribune*.
- O'Hara, T. a. (2006). Electricity Deregulation: High Cost, Unmet Promises. *Washington Post*, A01.
- Power in the Public Interest. (2007, October 8). Electricity Price Trends in New York Compared to Trends in Price-Regulated States: based on EIA data through June 2007.
- Roanoke Times Editorial Staff. (2008, December 16). Electric deregulation is not for Virginia: A Dominion Virginia Power proposal would pull the plug on the move toward a deregulated electric marketplace. *Roanoke Times*.
- Sautter, J. A. (2007). Where Have All the Benefits Gone? Cost Allocation Toward Residential Ratepayers in Restructured Electricity Markets. *The Electricity Journal*, 36-43.
- Seppa, T. O. (2000). *Physical Limitations Affecting Long Distance Energy Sales*. IEEE.
- Seth A. Blumsack, J. A. (2006). Lessons from the Failure of U.S. Electricity Restructuring. *The Electricity Journal*, 15-32.
- Showalter, M. (2008). *Electricity Price Trends Deregulated vs Regulated States*. Olympia: Power in the Public Interest.
- Smith, R. (2008, July 17). Deregulation Jolts Texas Electric Bills. *Wall Street Journal*, p. A1.
- Souder, E. (2008, January 20). Is electricity deregulation a raw deal for Texas?: As consumers grumble and other states rethink deregulation, Texas politicians support the free market. *The Dallas Morning News*.

- Souder, E. (2008, December 11). New study shows Texans pay more for electricity in deregulated areas. *The Dallas Morning News*.
- Souder, E. (2008, October 11). PUC official warns TXU buyers to avoid public backlash: Commissioner: Bad move could lead to re-regulation. *The Dallas Morning News* .
- Strader, J., & Squires, P. C. (August 2004). Electric Deregulation. *Virginia Business* .
- Texas Coalition of Cities for Utility Issues. (2008). *The TCCFUI Annual Texas Rate Report: Comparison of Competitive and Non-Competitive Rates*. Texas Coalition of Cities for Utility Issues.
- Trebing, H. M. (2008). A Critical Assessment of Electricity and Natural Gas Deregulation. *Journal of Economic Issues*, 469-478.
- Wald, M. L. (2005, September 16). Experts Assess Deregulation as Factor in '03 Blackout. *New York Times*.
- Wang, J.-L. (2008). *Impact of the Financial Turmoil on Electric Power*. Cambridge, MA: Cambridge Energy Research Associates.
- Whitworth, J. Z. (2006). Has electric utility restructuring led to lower electricity prices for residential consumers in Texas? *Energy Policy*, 2191-2200.
- Wu, F. F., Wen, F., & Duan, G. (2004). *Generation Planning and Investment Under Deregulated Environment: Comparison of USA and China*. IEEE.