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before the

U.S. House of Representatives Committee on Financial Services  
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Good morning, Mr. Chairman, Congressman LaFalce, and members of the committee. Thank you for inviting me to comment on the energy crisis in California and its impact on the U.S. economy. It's also a pleasure to share the witness table with my soon to be colleague, Professor Vernon Smith. My name is Jerry Ellig and I am a senior research fellow specializing in regulatory issues with the Mercatus Center at George Mason University. It is important that I mention that my views expressed this morning are my own, and do not represent any official position of that university.

As the Committee is aware, the various states are in different stages of retail electric restructuring. Although it is too early to identify definitive results in most states, it is important to note that there are some clear successes. California has, of course, received enormous publicity as an alleged example of the "failure" of electric restructuring. Pennsylvania has received much less attention—which is unfortunate, because Pennsylvania is electric restructuring's most prominent success story.

I would like to address three topics today: The source of California's power crisis, the state's lack of success in encouraging retail electric competition, and Pennsylvania's relative success in avoiding California-style problems in both the wholesale and the retail markets.

## **THE CALIFORNIA POWER CRISIS AND THE WHOLESALE MARKET**

California's much-publicized blackouts have actually occurred due to forces largely separate from electric restructuring. Electricity demand in California has risen by 25 percent during the past eight years, but generating capacity has increased by only 6 percent. No new power plants have been built in California for 12 years. After California's restructuring legislation was enacted in 1996, several companies applied for permission to build new power plants, but not one had been approved by the summer of 2000. Until the current crisis prompted California to speed up its approval process, the state's permitting process for power plants took three times as long as in Texas. The Los Angeles Times has reported that California's largest independent power producer plans to build a plant on an Indian reservation so it will only have to deal with federal regulations.

Investors who purchased the utilities' divested power plants at a premium foresaw this imbalance, which is why they were willing to pay such high prices for power plants that some people speculated would lose a lot of their value once competition arrived. The wholesale market price of power seems to indicate that additional capacity is needed, but no significant new power plants or transmission facilities have been built in California for more than a decade. In the meantime, the state's economy has boomed, boosting demand. Since the price spikes occurred after California claimed to deregulate the retail market, "deregulation" gets blamed for the price increases.

It is instructive to consider how California's utilities would have dealt with the supply-demand imbalance in the absence of restructuring. Instead of paying market prices for power to the owners of divested power plants, the utilities would still own the plants. But under old-fashioned monopoly regulation, neither the utilities' plants nor the independently owned power

plants would be capable of generating any more power than they currently generate under a less regulated system. At peak periods, the supply-demand imbalance would still exist. Regulators and utilities would face the same choice they face under today's system: allow retail prices to increase to cut back demand, or ration electricity through blackouts, brownouts, and mandatory consumption curtailments for large users. As economist Robert Michaels noted in the summer of 2000, "This is reality, and markets force people to face it in ways that politicians live to help them avoid. Things are tight all over the West, there isn't much demand flexibility, new plants are taking forever to arrive, and the simple choice is between high prices and shortages."

There are, of course, widespread allegations that power producers in California gamed the system by withholding power supplies in order to raise prices. Power companies maintain that they only took supplies off the markets when plants needed to be shut down for maintenance. The element of judgment involved in maintenance decisions suggests that we may never know for sure whether power producers deliberately sought to raise market prices by withholding capacity.

It is worth noting, however, that the structure of California's wholesale and retail markets may well have permitted and encouraged such strategic behavior. The power that utilities sell at a fixed price to consumers is procured in a volatile spot market. Consumers are entitled to purchase as much power as they want at the fixed, regulated price, regardless of the cost of power at the time they want to use it. As a result, utilities (and now the state government) are virtually compelled to pay almost any price for spot market power when consumer demand is strong and supplies are tight. In economic terms, wholesale demand for power is highly inelastic. A small decrease in supply can lead to large price increases in the wholesale market. In such an environment, it would not be surprising if some power producers tried to test their

ability to affect prices by withholding supply. The market was structured in a way that encouraged such behavior.

It is one thing to say that power producers might withhold supply in order to raise prices; it is quite another thing to agree on an appropriate solution. Price controls may appear to solve the problem by preventing prices from rising above some specified level. However, price controls carry their own costs and dangers that have been well-documented by economists over the course of several centuries. In addition, price controls fail to address the underlying reasons for the price spikes: artificially inelastic demand and constraints on new supply. A genuine solution to alleviate the price spikes is to restructure the market so that retail and wholesale demand are more responsive to price (as my future colleague Vernon Smith has discussed in detail) and to remove regulatory obstacles to construction of new power plants (which California has now started to do.)

## **RETAIL ELECTRIC COMPETITION IN CALIFORNIA**

California has a reputation for being the first state to deregulate its electric market, but California's plan suffered from several significant flaws. Until late 2000, utilities had to purchase all of their power through a state-mandated, centralized Power Exchange. They could not make bilateral deals with individual generators, which would let them avoid inefficiencies or "gaming" made possible by poorly designed Power Exchange rules. They could not sign long-term contracts for power with individual generators, which might help mitigate price fluctuations. Retail competition is also distorted by mandated rate cuts, mandated rate freezes, and an accelerated stranded cost recovery schedule. These three factors have essentially prevented the development of competition in the retail market for residential and small business customers.

California ranks surprisingly low in an independent assessment of the openness of state electricity markets. The Center for the Advancement of Energy Markets (CAEM), with which I am affiliated, has developed the Retail Energy Deregulation Index -- a list of 22 attributes that measure the extent to which each state has put in place policies that will lead to a workably competitive retail electricity market. CAEM surveys state public utility commissions to ascertain their progress on each attribute and synthesizes the results into a ranking that allows each state to see where it compares nationally. (Scholars affiliated with the Mercatus Center and George Mason University have found CAEM's data extremely helpful, and I would recommend that the Committee make use of this information. It is available to representatives of the public sector at [www.caem.org](http://www.caem.org).)

The state ranks only 13<sup>th</sup> on the CAEM's RED Index, despite the fact that California was the first state to enact restructuring legislation. Many of the other states that restructured relatively early rank near the top, including (1) Pennsylvania, (2) New York, and (3) Maine. Even jurisdictions that acted more recently, such as Arizona (1998), Maryland (1999), New Jersey (1999), and the District of Columbia (2000) outrank California. Given this ranking, it should come as no surprise that California's deregulation effort has been plagued by problems and has resulted in relatively little customer switching in the residential market. Of course, lack of customer switching does not necessarily indicate that the market is uncompetitive. Even in a fully competitive system, the vast majority of customers might choose to take service from their familiar old utility, or its marketing affiliate, if they perceive the utility to offer the best deal. But the structural analysis underlying the RED Index suggests that the lack of switching in California is due to a poorly designed market.

## **PENNSYLVANIA: A RESTRUCTURING SUCCESS STORY**

Pennsylvania probably provides the best example of successful electric restructuring. Since its retail competition program was enacted, more than 500,000 Pennsylvania customers have switched electricity suppliers. The Pennsylvania Office of Consumer Advocate reports that more than 444,000 of these are residential customers. In addition, Pennsylvania ranks first in the RED Index, which suggests that it has done a good job of creating an environment conducive to competition. More residential customers have switched suppliers in Pennsylvania than in all other states combined. Approximately 20 percent of Pennsylvania's customers have switched, compared to 2 percent for California.

Entry of new supply is also easier in Pennsylvania than in California. In the Pennsylvania-New Jersey-Maryland Power Pool, 1,000 mw of new generation were built in 2000, and the power pool expects an additional 15,000 mw to come on-line by 2005. The Pennsylvania Department of Revenue projects that average electricity prices in Pennsylvania will be 16.9 percent lower in 2004 than they would be if regulation had continued. Prices will be 14.6 percent lower for residential customers, 18.8 percent lower for commercial customers, and 17.9 percent lower for industrial customers. The Pennsylvania Public Utility Commission estimates that competition saved electricity customers \$750 million in 1999.

A key factor affecting the success of competition is the extent to which state policies distort price relationships from those that would exist in a truly competitive market. A comparison of retail competition in California vs. Pennsylvania illustrates how price distortions can undermine competition.

In California, the state’s “deregulation” legislation ordered utilities to give residential and small commercial customers a 10 percent rate cut. As a result, residential customers received a rate cut even if they made no effort to learn about competitive offers or switch to a new power supplier. The value of this “gift” becomes even greater when one considers that as long as the rate cut is in effect, residential customers who stick with their utility are also protected from increases in the market price of power. As a result, the only California residential customers who initially paid higher prices because of the price spikes were those served by San Diego Gas & Electric, which was not subject to rate caps in the summer of 2000 because it had recovered all of its stranded costs. The recovery period for utilities’ stranded costs was also accelerated, so that utilities received the opportunity to recover these costs over four years. Customers who switch suppliers must still pay these costs—a fact that further diminishes their incentive to shop around.

Pennsylvania, on the other hand, adopted smaller rate cuts whose size and length were negotiated on a utility-by-utility basis. Customers who choose alternative suppliers receive a “shopping credit” representing the amount per kwh that they no longer have to pay for electricity they are no longer purchasing from the utility. The shopping credit is always less than the utility’s unbundled generation rate, so customers who switch still make a contribution to cover stranded costs. According to the Federal Trade Commission, the recovery period for these investments will be approximately 10 years, which regulators believe is closer to the useful life of the assets. These policies effectively mean that the price paid by Pennsylvania customers who switch suppliers is closer to the true, free-market price than the price paid by customers who switch in California.

Residential customers in Pennsylvania can achieve savings of 13-29 percent by opting for competitive suppliers. Before the current power crisis, California customers could save 5-6 percent at most. (See Table 1.) Almost all of the alternative suppliers available to California residential customers sell various forms of renewable energy that are sometimes more expensive than power offered by the utilities. Such suppliers are competitive only because renewable power is heavily subsidized in California and because some customers are willing to pay a premium for “green” power.

California’s policies significantly distort price relationships in ways that reduce the customer’s benefit from switching power suppliers, and thus they discourage alternative suppliers from competing in the residential market. Pennsylvania’s policies involve much less distortion. California’s mandated price cuts are larger, and so are the charges for stranded costs that customers cannot escape when they switch suppliers.

**Table 1: Competitive Options in California vs. Pennsylvania (Pre-CA Power Crisis)**  
*(Utilities are italicized.)*

CALIFORNIA			PENNSYLVANIA		
	Sample bill, 500 kwh	Maximum % Savings		Sample bill, 500 kwh	Maximum % Savings
<i>PG&amp;E</i>	<i>\$54.89</i>		<i>Allegheny Power</i>	<i>\$16.22</i>	
Competitors, standard	\$54.66-57.14	0.4	Competitors, standard	\$12.97	20
Competitors, Renewable	\$51.89-66.89	5.5	Competitors, renewable	\$29.95-36.40	No savings
<i>SCE</i>	<i>\$59.32</i>		<i>Duquesne</i>	<i>\$24.00</i>	
Competitors,	\$61.57	No savings	Competitors,	\$19.20-	20

standard			standard	\$23.00	
Competitors, Renewable	\$56.32- \$71.32	5.0	Competitors, renewable	\$30.45- 36.40	No savings
<b>SDG&amp;E</b>	<b>\$49.10</b>		<b>GPU Energy – Met Ed</b>	<b>\$22.63</b>	
Competitors, standard	\$51.35	No savings	Competitors, standard	\$18.10- \$26.75	20
Competitors, renewable	\$46.10- \$61.10	6.1	Competitors, renewable	\$31.45- 39.40	No savings
			<b>GPU Energy – Penelec</b>	<b>\$22.64</b>	
			Competitors, standard	\$18.11- 26.75	20
			Competitors, renewable	\$31.45- 39.40	No savings
			<b>PECO Energy</b>	<b>\$27.75</b>	
			Competitors, standard	\$22.60- \$27.90	18.6
			Competitors, renewable	\$24.00- 39.40	13.5
			<b>Penn Power</b>	<b>\$27.42</b>	
			Competitors, standard	\$19.36- \$30.50	29
			Competitors, renewable	\$29.95- \$36.40	No savings
			<b>PPL Utilities</b>	<b>\$24.28</b>	
			Competitors, standard	\$18.52- \$25.65	24
			Competitors, renewable	\$31.35- \$39.40	No savings
			<b>UGI</b>	<b>\$21.58</b>	
			Competitors,	\$17.27- \$23.25	20

			standard		
			Competitors, renewable	\$31.45- \$39.40	No savings

Sources: California Office of Ratepayer Advocates Shopper’s Guide for Residential and Small Commercial Customers (March 1, 2000); Pennsylvania Office of Consumer Advocate Price Comparison Charts (July 31, 2000).

Electric restructuring has the potential to create net benefits, but not all restructuring plans are equally effective at moving from monopoly to competition. In particular, California’s restructuring plan has hampered the development of a competitive retail market, while Pennsylvania’s restructuring plan has been the most successful at promoting competition and producing consumer savings.

Examined in the broader U.S. context of deregulation and competition, California’s unpleasant experience with electric restructuring is the exception rather than the rule. Deregulation and competition tend to produce lower prices and greater nonprice benefits than monopoly regulation. The appendix to this testimony contains an extensive review of the deregulation experience in other industries, which was recently submitted to the Federal Trade Commission in response for the Commission’s request for comments on electric restructuring.

Thank you, Mr. Chairman. I look forward to answering whatever questions you and your colleagues have.

# **MERCATUS CENTER**

GEORGE MASON UNIVERSITY

## REGULATORY STUDIES PROGRAM

### **Public Interest Comment on**

### **The Federal Trade Commission's Notice Requesting Comments on Retail Electricity Competition Plans<sup>1</sup>**

V010003

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The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of the impact of regulation on society. As part of its mission, RSP employs contemporary economic scholarship to assess rulemaking proposals from the perspective of the public interest. Thus, our response to the Federal Trade Commission's request for comments on retail electricity competition does not represent the views of any particular affected party or special interest group, but is designed to evaluate the effect of retail electricity competition on overall consumer welfare.

The Commission's notice requesting comments notes that substantial price increases and reliability problems have occurred in some states that have restructured their electricity markets with the goal of promoting retail competition. The Commission seeks information that will assist it in (1) assessing the advantages and disadvantages of different approaches to restructuring and (2) recommending what, if any, further federal action is desirable. We commend the Commission for seeking more information. Experience shows that restructuring can deliver benefits to consumers, but not all restructuring plans are equally beneficial. The Commission's study should play a helpful role in identifying best practices and highlighting problems to avoid.

## **I. SUMMARY OF MERCATUS ANALYSIS**

Retail competition in electricity has the potential to produce significant price and nonprice benefits for consumers. Experience in a variety of other deregulated industries shows that competition and deregulation tend to produce price reductions of between 10 percent and 25 percent, along with service quality improvements whose value to consumers sometimes exceeds the value of the price reductions. These consumer benefits reflect both the static efficiency that results from the elimination of market power and the dynamic efficiency that results from innovation.

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<sup>1</sup>Prepared by Jerry Ellig, Ph.D. Dr. Ellig is a Senior Research Fellow at the Mercatus Center at George Mason University. The views expressed herein do not reflect an official position of George Mason University.

The consumer benefits arise not just because prices are likely to be lower, but because deregulated, competitive markets tend to produce prices that are more accurate signals of real resource scarcities. Retail competition would facilitate innovative price structures that would reward customers for shifting consumption away from peak times. If regulation holds prices below the levels that would exist in a competitive market, then short-term price increases induced by deregulation would actually benefit consumers by channeling scarce resources to their most highly-valued uses in the short run and providing incentives to increase capacity in the long run.

Electric restructuring has the potential to create net benefits, but not all restructuring plans are equally effective at moving from monopoly to competition. In particular, California's restructuring plan has hampered the development of a competitive retail market, while Pennsylvania's restructuring plan has been the most successful at promoting competition and producing consumer savings.

## **II. PROSPECTIVE BENEFITS OF RETAIL COMPETITION**

Deregulation and competition tend to produce lower prices and greater nonprice benefits than monopoly regulation. This occurs because of both static and dynamic efficiencies. When regulation holds prices below market-clearing levels, however, deregulation could lead to price increases that are nevertheless efficient. Such price increases actually enhance consumer welfare in both the short run and the long run, by allocating scarce resources to their most highly-valued uses and providing effective signals that additional capacity is needed. Competitive and deregulated retail markets also tend to produce efficient price structures that induce customers to shift usage from peak to non-peak times, reducing costs by reducing expensive investments in peak-load capacity.

### **A. Static and dynamic efficiencies**

#### **1. Price effects**

Proponents and opponents of deregulation often debate whether it will produce higher or lower prices than monopoly regulation. Experience shows that deregulation usually produces lower prices, for two reasons: competition constrains market power, and deregulation produces incentives for cost reduction that lead to lower cost levels than under regulation.<sup>2</sup> In other words, deregulation promotes both "static" and "dynamic" efficiency.

It is important to keep both effects in mind when analyzing the impact of deregulation. Because deregulation creates incentives for cost reduction, the long-run effect on prices is likely to be larger than predicted if one simply assumes that competition will drive prices down to reflect cost levels that currently exist under regulation. In addition, the potential for cost reduction implies that deregulation can produce lower price levels even in the presence of market power. Thus, deregulation can make consumers better off even if the resulting competition is "imperfect" by the standards of either textbook economics or antitrust practice.

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<sup>2</sup> See section III below.

## 2. Nonprice effects

As important and substantial as the price reductions attributable to competition are, the nonprice effects are just as, if not more, important. Deregulation in network industries has unleashed waves of entrepreneurial creativity that cut costs, improved service quality, and led to the introduction of new products and services. Such improvements, though harder to predict accurately in advance, were nevertheless substantial.

Economic projections prior to deregulation typically under-estimated the size of the price reductions and failed to account for new products and services that create substantial value for consumers.<sup>3</sup> If past experience in other industries is any guide, the total value of benefits to consumers from electricity competition could easily be two or three times the projected value of price reductions.<sup>4</sup>

### **B. Efficient price levels**

Although deregulation usually produces lower prices than under regulation, this need not always occur. Price increases, however, do not necessarily mean that deregulation has not “worked.” If regulation holds prices below the level sufficient to evoke new supply, then regulation creates inefficiencies even though it appears to produce prices lower than those that would occur in a deregulated market.

The most prominent historical example of such inefficiency was federal regulation of wellhead natural gas prices. Under regulation, interstate purchasers of gas effectively received less secure services as the reserves dedicated to serving them shrank in response to price controls. During the cold winters of 1971-1972 and 1976-1977, factories and schools in the East and Midwest closed because there was simply not enough gas available at regulated prices to serve all customers. One study estimated that the costs associated with reduced service quality actually outweighed any benefits consumers received because regulation held down the price of gas that had already been discovered.<sup>5</sup> In the face of scarce supply, price ceilings created shortages and impaired reliability.

Something similar could happen in the electric industry. The simplest scenario to imagine would occur in states like California, where dissatisfaction with electric restructuring could lead to the imposition of more binding price caps in the wholesale electric market.

Another type of price regulation threatens to create inefficient signals in states that are very different from California. In some states with moderate electric rates and low-cost utilities, regulators and legislators have expressed reluctance to eliminate cost-of-service regulation because they believe free-market price of electricity would actually exceed the price under

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<sup>3</sup> See Clifford Winston, “U.S. Industry Adjustment to Economic Deregulation,” *Journal of Economic Perspectives* 12:3 (Summer 1998): 89-110; “Economic Deregulation: Day of Reckoning for Microeconomists,” *Journal of Economic Literature* 31 (September 1993), pp. 1263-1289.

<sup>4</sup> See Section III below.

<sup>5</sup> Appendix, pp. 13-14.

traditional cost-of-service regulation. When such states engage in retail restructuring, they often seek to retain cost-of-service regulation for the utility's "standard offer" or "default" service.<sup>6</sup> Like wellhead price regulation for natural gas, continued cost-of-service regulation in electricity is an attempt to redistribute "rents" from the owners of the supply to the customers. Over time, this approach could create the same types of problems created by wellhead price regulation. Construction of new capacity would be discouraged, because new capacity must compete against below-market prices established by cost-of-service regulation. In this way, policymakers' initial skepticism of deregulation creates a self-fulfilling prophecy: the cost-of-service regulation that was retained in case competition fails to develop actually prevents competition from developing.

### **C. Efficient price structures**

In addition to the level of prices, deregulation and competition also affect the structure of prices. Regulated monopolies tend to charge average-cost prices that do not vary much by time of day or season of the year. Deregulated, competitive firms tend to give their customers the option of either paying prices that vary with supply and demand, or paying a risk premium sufficient to cover the cost of retaining sufficient peak capacity to meet customer demand at a fixed price. This is an especially important issue in the electric industry, because electricity is not storable, and so production and consumption must occur virtually simultaneously.

If customers do not see prices that reflect the relative scarcity of electricity at particular times, then they will do little to conserve during times of peak demand. Such behavior leads to two possible results: either brownouts and blackouts will occur at times of peak demand, or large investments in excess capacity will occur to ensure that there is always sufficient supply available to meet demand. Regulated monopoly has produced both types of results (though regulators and regulated firms alike tend to favor the latter whenever possible).

A significant benefit of retail competition is that creates more efficient price structures that reward customers for shifting their use of the service from peak to non-peak times. Cheap airfares to Europe in winter, free long-distance phone service on weekends, and lower transportation rates for backhauls are a few common examples. Similarly in electricity, retail competition could make some investments in new generation and transmission capacity unnecessary by shaving peak demand. Experimental evidence shows that required peak capacity is lower – and price spikes are much less severe—when buyers can make bids that reveal their willingness to reduce consumption in response to price increases. The investments in technology allowing customers to track and adjust electricity usage in real time may be much less costly than construction of new generation or transmission capacity.<sup>7</sup>

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<sup>6</sup> This has been an issue in Virginia, where the author is involved in a study of the State Corporation Commission's electric and gas restructuring initiatives. It has also been an issue in other states, as the RED Index surveys (described in Section IV.A. below) documents.

<sup>7</sup> Stephen J. Rassenti, Vernon L. Smith, and Bart J. Wilson, "Demand-Side Bidding Will Control Market Power, and Decrease the Level and Volatility of Prices," Working Paper, Economic Science Laboratory, University of Arizona (February 2001).

### III. LESSONS FROM OTHER INDUSTRIES

The Commission asks whether deregulation in other industries carries implications for electricity restructuring. In the late 1970s and early 1980s, five major U.S. industries with significant economic similarities to electricity experienced either full or partial deregulation: natural gas, long-distance telecommunications, airlines, railroads, and trucking. In all five industries, deregulation led to substantial price and non-price benefits for customers.

#### A. Price Effects

A Mercatus Center study revealed that, in each of these industries, within the first two years of deregulation, average inflation-adjusted prices had fallen by 4-15 percent, and sometimes more for some groups of customers.<sup>8</sup> Within 10 years, prices were at least 25 percent lower, and sometimes close to 50 percent lower. (See Table 1.)

**Table 1: Price Trends in the Years Following Deregulation**

	<b>2-year price reduction</b>	<b>5-year price reduction</b>	<b>10-year price reduction</b>
<b>Gas (interstate)</b>	10-38% (1984-86)	23-45% (1984-89)	27-57% (1984-94)
<b>Gas (retail, Georgia)</b>	7-12% (1998-99)	N.A.	N.A.
<b>Long-Distance Telecom</b>	5-16% (1984-86)	23-41% (1984-89)	40-47% (1984-94)
<b>Airlines</b>	13% (1977-79)	12% (1977-82)	29% (1977-87)
<b>Trucking</b>	N.A.	3-17% (1980-85)	28-56% (1977-87)
<b>Rail</b>	4% (1980-82)	20% (1980-85)	44% (1980-90)

Note: The first year in parentheses is the year before deregulatory legislation or regulatory reform took effect.

Most customer classes paid lower prices in the years following deregulation—even residential or other small customers commonly thought to have less of an advantage in a competitive market. Highlights from the study include:

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<sup>8</sup> Robert Crandall and Jerry Ellig, *Economic Deregulation and Customer Choice: Lessons for the Electric Industry* (Mercatus Center, George Mason University, 1996). The study, attached as an appendix to this comment, describes these changes in greater detail.

**Natural Gas.** Adjusted for inflation, wellhead natural gas prices fell by 60 percent between 1984 and 1995. Prices paid by local utilities for gas at the “city gate” dropped by 52 percent. Residential and commercial customers saw their prices fall by 32 percent and 38 percent respectively. Industrial and electric utility customers both saw their gas costs fall by about 60 percent.<sup>9</sup>

Similar trends have occurred in response to more recent initiatives implementing retail competition in gas supply and marketing. For example, the state of Georgia moved to retail competition for all customers in 1998. Residential customers who switched received prices 7-12 percent lower than the regulated rates offered by Atlanta Gas Light Company, the state’s dominant gas utility.<sup>10</sup>

**Telecommunications.** In the 10 years following the AT&T breakup, real interstate long-distance rates fell by an average of 6 percent annually. Real intrastate long-distance rates fell less rapidly—by 5.3 percent annually—largely because states removed barriers to competition in this market less rapidly than the federal government opened up competition in interstate calling.<sup>11</sup> Residential as well as business customers received lower long-distance rates. Even the poorest Americans benefited, since long-distance service accounts for more than 40 percent of the average phone bill, even of households with incomes below \$10,000.<sup>12</sup> Consumer equipment prices also fell; the real price of standard corded telephones fell by 65 percent in the 10 years following the AT&T breakup, and the real price of answering machines fell by 34 percent.<sup>13</sup> The AT&T breakup did nothing to introduce competition into local telephone service, and real local rates averaged about the same in 1994 as in 1984.<sup>14</sup>

**Airlines.** Ten years after deregulation, average real air fares were lower or unchanged even on routes served by a single carrier, low-density routes, and routes from hub airports served by a single carrier. Individuals tended to get larger fare reductions than businesses, since the biggest price cuts went to travelers who could be more flexible about their departure and arrival dates and times.<sup>15</sup>

**Trucking.** During the first 10 years of trucking deregulation, real rates for truckload shipments fell by 58 percent. Real rates for less-than-truckload shipments, which are more costly to handle, fell by 28 percent.<sup>16</sup>

**Rail.** Data from the Surface Transportation Board show that real rail rates for the five largest groups of commodities—coal, chemicals, intermodal, transportation equipment, and farm products—were all 17-44 percent lower ten years after deregulation. Shippers of coal and farm

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<sup>9</sup> Appendix, pp. 10-11.

<sup>10</sup> George R. Hall, “Consumer Benefits from Deregulation of Retail Natural Gas Markets: Lessons from the Georgia Experience,” study prepared for AGL Resources, Inc., by PHB Hagler Bailly, Inc. (March 10, 2000).

<sup>11</sup> Appendix, pp. 23-24.

<sup>12</sup> Robert W. Crandall and Leonard Waverman, *Who Pays for Universal Service?* (Washington: Brookings Institution, 2000), p. 48.

<sup>13</sup> Appendix, p. 26.

<sup>14</sup> Appendix, p. 25.

<sup>15</sup> Appendix, pp. 34-39.

<sup>16</sup> Appendix, p. 49.

products are more likely to be served by only one railroad and have few other good transportation alternatives. Nevertheless, real coal rates fell by at least 25 percent over ten years, and real rates for farm products fell by at least 38 percent.<sup>17</sup>

The fact that lower prices followed deregulation does not necessarily mean that deregulation caused the price reductions. To assess the effect of competition more accurately, one must control for other factors that could have influenced prices. Studies controlling for other factors reveal that billions of dollars worth of price reductions can be directly attributed to deregulation.

Table 2 summarizes the effect of deregulation on prices over various time periods. Deregulation reduced prices by between 3 percent and 50 percent, depending on the industry and time period studied. Most estimates are in the 10-25 percent range.

**Table 2: Price Reductions Occurring as a Result of Deregulation**

<b>Industry</b>	<b>Time Period Studied</b>	<b>Real Price Reduction Due to Deregulation</b>
Gas, retail (Georgia)	1998-99	7-12 percent
Long-distance telephone	1985-86 1985-87 1985-93	26 percent 42 percent 7.6 percent annual average
Airlines	1977-79 1977-82 1977-93	8-25 percent 28 percent 19 percent
Trucking	1980-85	3 percent (LTL) 17 percent (TL)
Rail	1980-84 1980-85 1980-87 1980-88	5 percent 3 percent 16-19 percent 30 percent

Sources: Hall, "Consumer Benefits from Deregulation;" Ellig, "Railroad Deregulation and Consumer Welfare," *Journal of Regulatory Economics*, forthcoming; Crandall & Ellig (Appendix).

### **B. Nonprice Effects**

As important and substantial as the price reductions attributable to competition are, the non-price effects are just as, if not more, important. As noted above, deregulation in network industries has unleashed waves of entrepreneurial creativity that cut costs, improved service quality, and led to

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<sup>17</sup> Calculated from data in Surface Transportation Board, Office of Economics, Environmental Analysis, and Administration, "Rail Rates Continue Multi-Year Decline" (February 1998).

the introduction of new products and services. Such improvements, though harder to predict accurately in advance, were nevertheless substantial.

In summary, the more substantial non-price effects in the five deregulated industries include:

**Natural gas.** In the interstate natural gas industry, deregulated pricing and open access brought major innovations on both the physical and financial sides. Gas pipelines have interconnected at a series of “market hubs” that allow individual shippers to receive gas from a much larger number of suppliers and effectively increase competition faced by individual pipelines. The industry has also seen a huge increase in the use of financial transactions that allow suppliers, shippers, and customers to hedge price risks. Free-market prices convey accurate signals about the value of gas, and a free market in hedging transactions lets parties understand the costs and benefits of insuring against adverse price swings.<sup>18</sup>

In Georgia’s competitive retail gas market, individual customers can choose from many different price plans to fit their own risk tolerances, including variable price and multi-year fixed price options. Marketers offered a variety of new payment options, including electronic drafts, credit card payment, or payment at local supermarkets. One placed kiosks in supermarkets to educate consumers about retail competition and publicly renounced telemarketing. Many gas marketers plan to expand their offerings to include telephone service, Internet access, home security, energy management, and appliance sales and service.<sup>19</sup>

**Telecommunications.** The introduction of competition in long-distance and telephone equipment accelerated the deployment of fiber optic cable and digital switching.<sup>20</sup> It is also highly likely that competition in customer equipment hastened the introduction of innovations like answering machines, fax machines, cordless phones, and other types of equipment found in many homes. As an equipment monopolist, AT&T strenuously fought the introduction of any customer premises equipment not produced by Western Electric, AT&T’s manufacturing division.<sup>21</sup> Opening the equipment market to competition allowed many different competitors to offer different types of equipment and pursue different marketing strategies.

**Airlines.** Deregulation facilitated at least three major innovations that cut costs and increased flight frequency: (1) the hub-and-spoke routing systems adopted by most major airlines, (2) low-cost airlines (such as Southwest, Spirit, and others), and (3) short-distance commuter airlines. One study pegged the value to passengers of increased flight frequency at \$10.3 billion annually (in 1993 dollars). Passengers strongly prefer to remain on the same airline when they change planes, and the creation of national route networks facilitated by the hub-and spoke system means that the percentage of passengers changing airlines has fallen from 14 percent in 1978 to 1 percent today.<sup>22</sup>

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<sup>18</sup> Appendix, pp. 15-16.

<sup>19</sup> Hall, “Consumer Benefits from Deregulation,” pp. 16-22.

<sup>20</sup> Appendix, p. 29.

<sup>21</sup> Robert W. Crandall, *After the Breakup: U.S. Telecommunications in a More Competitive Era* (Washington: Brookings Institution, 1991), pp. 33-34.

<sup>22</sup> Appendix, pp. 40-44.

**Trucking.** Increased competition created incentives to improve service quality and invest in sophisticated shipment tracking and monitoring technology. By 1985, shippers saved nearly \$1 billion annually in reduced costs due to more reliable service. The combination of rail and trucking deregulation also permitted an expansion of intermodal service, which cuts costs and, in some cases, improves delivery times.<sup>23</sup>

**Rail.** Deregulation facilitated service quality improvements, largely by making it attractive for railroads to invest in maintaining worn-out track and equipment. Service improvements have made shippers better off by between \$5 billion and \$10 billion annually.<sup>24</sup>

Where analysts estimate a monetary value for new or improved services, the figures are surprisingly large. For airlines and railroads, the value of new and improved service is almost as large as the value of the price reductions! The figure for trucking is more modest, but still substantial. Clearly, competition generates important benefits in addition to price reductions. Given this experience, it would not be surprising if retail electric competition created nonprice benefits worth at least as much to customers as the price benefits.

#### **IV. RETAIL ELECTRIC COMPETITION IN PRACTICE**

As the Commission notes, the various states are in different stages of retail electric restructuring. Although it is too early to identify definitive results in most states, we would like to bring to the Commission's attention a useful data source that facilitates nationwide comparison of states' electric restructuring plans. In addition, we believe it is instructive to compare the restructuring experiences in California and Pennsylvania, two early leaders that have had quite different levels of success in promoting effective competition.

##### **A. Nationwide comparison—the RED Index**

The Commission has solicited highly detailed information on the various states' electricity restructuring programs. Fortunately, a comprehensive source of such information already exists and is updated annually. The Center for the Advancement of Energy Markets (CAEM) has developed the Retail Energy Deregulation Index, a list of 22 attributes that measure the extent to which each state has put in place policies that will lead to a workably competitive retail electricity market. CAEM surveys state public utility commissions to ascertain their progress on each attribute and synthesizes the results into a ranking that allows each state to see where it compares nationally. Scholars affiliated with the Mercatus Center and George Mason University have found CAEM's data extremely helpful, and we recommend that the Commission make use of this unique information source to answer many of the questions posed in the announcement of the Commission's study of retail electricity competition.<sup>25</sup>

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<sup>23</sup> Appendix, p. 52.

<sup>24</sup> Appendix, p. 49.

<sup>25</sup> CAEM's RED Index report is available free of charge to the public sector at [www.caem.org](http://www.caem.org).

## B. California vs. Pennsylvania

California has, of course, received enormous publicity as an alleged example of the “failure” of electric restructuring. Pennsylvania has received much less attention—which is unfortunate, because Pennsylvania is electric restructuring’s shining success story.

### 1. California

California has a reputation for being the first state to deregulate its electric market, but California’s plan suffered from several significant flaws. Until late 2000, utilities had to purchase all of their power through a state-mandated, centralized Power Exchange. They could not make bilateral deals with individual generators, which would let them avoid inefficiencies or “gaming” made possible by poorly-designed Power Exchange rules. They could sign long-term contracts for power with individual generators, which might help mitigate price fluctuations. On the retail level, competition is distorted by mandated rate cuts, mandated rate freezes, and an accelerated stranded cost recovery schedule. These three factors have essentially prevented the development of competition in the retail market for residential and small business customers.

California ranks surprisingly low in an independent assessment of the openness of state electricity markets. The state ranks only 13<sup>th</sup> on the Center for the Advancement of Energy Markets RED Index, despite the fact that California was the first state to enact restructuring legislation. Many of the other states that restructured relatively early rank near the top, including (1) Pennsylvania, (2) New York, and (3) Maine. Even jurisdictions that acted more recently, such as Arizona (1998), Maryland (1999), New Jersey (1999), and the District of Columbia (2000) outrank California. Given this ranking, it should come as no surprise that California’s deregulation effort has been plagued by problems and has resulted in relatively little customer switching in the residential market.<sup>26</sup>

California’s much-publicized power crisis has actually occurred due to forces largely separate from electric restructuring. Electricity demand in California has risen by 25 percent during the past eight years, but generating capacity has increased by only 6 percent.<sup>27</sup> No new power plants have been built in California for 12 years. After California’s restructuring legislation was enacted in 1996, several companies applied for permission to build new power plants, but not one had been approved by the summer of 2000.<sup>28</sup> The state’s permitting process for power plants takes three times as long as in Texas. California’s largest independent power producer plans to build a plant on an Indian reservation so it will only have to deal with federal regulations.<sup>29</sup>

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<sup>26</sup> Of course, lack of customer switching does not necessarily indicate that the market is uncompetitive. Even in a fully competitive system, the vast majority of customers might choose to take service from their familiar old utility, or its marketing affiliate, if they perceive the utility to offer the best deal. But the structural analysis underlying the RED Index suggests that the lack of switching in California is due to a poorly-designed market.

<sup>27</sup> William P. Kucewicz, “Too Much Regulation Keeps California in the Dark,” *Wall Street Journal* (August 7, 2000).

<sup>28</sup> Adrian Moore, “San Diego’s Politically Driven Deregulation,” *San Diego Union* (August 24, 2000).

<sup>29</sup> Chris Kraul and Nancy Rivera Brooks, “Officials Go from Cold to Hot on Power Projects,” *Los Angeles Times* (Sept. 4, 2000), p. A-1.

Investors who purchased the utilities' divested power plants at a premium foresaw this imbalance, which is why they were willing to pay such high prices for power plants that some people speculated would lose a lot of their value once competition arrived. The market price of power clearly indicates that additional capacity is needed, but no significant new power plants or transmission facilities have been built in California for more than a decade. In the meantime, the state's economy has boomed, boosting demand. Since the price spikes occurred after California claimed to deregulate the retail market, deregulation gets blamed for the price increases.

It is instructive to consider how California's utilities would have dealt with the supply-demand imbalance in the absence of restructuring. Instead of paying market prices for power to the owners of divested power plants, the utilities would still own the plants. But under old-fashioned monopoly regulation, neither the utilities' plants nor the independently-owned power plants would be capable of generating any more power than they currently generate under a less regulated system. At peak periods, the supply-demand imbalance would still exist. Regulators and utilities would face the same choice they face under today's system: allow retail prices to increase to cut back demand, or ration electricity through blackouts, brownouts, and mandatory consumption curtailments for large users. As Robert Michaels, an economist at California State University, Fullerton, noted, "This is reality, and markets force people to face it in ways that politicians live to help them avoid. Things are tight all over the West, there isn't much demand flexibility, new plants are taking forever to arrive, and the simple choice is between high prices and shortages."<sup>30</sup>

## 2. Pennsylvania

Pennsylvania probably provides the best example of successful electric restructuring. Since its retail competition program was enacted, more than 500,000 Pennsylvania customers have switched electricity suppliers. More than 444,000 of these are residential customers.<sup>31</sup> In addition, Pennsylvania ranks first in the RED Index, which suggests that it has done a good job of creating an environment conducive to competition.

More residential customers have switched suppliers in Pennsylvania than in all other states combined. Approximately 20 percent of Pennsylvania's customers have switched, compared to 2 percent for California.

Entry of new supply is also easier in Pennsylvania than in California. In the Pennsylvania-New Jersey-Maryland Power Pool, 1,000 mw of new generation were built in 2000, and the power pool expects an additional 15,000 mw to come on-line by 2005.<sup>32</sup>

The Pennsylvania Department of Revenue projects that average electricity prices in Pennsylvania will be 16.9 percent lower in 2004 than they would be if regulation had continued. Prices will be 14.6 percent lower for residential customers, 18.8 percent lower for commercial customers, and

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<sup>30</sup> Michaels, "Give Peace a Chance," p. 5.

<sup>31</sup> Statistics available from Web site of the Pennsylvania Office of Consumer Advocate.

<sup>32</sup> John Hanger, "On the Watch for Icebergs: Navigating the Commonwealth's Electricity Future," Citizens for Pennsylvania's Future (August 29, 2000), p. 2.

17.9 percent lower for industrial customers. The Pennsylvania Public Utility Commission estimates that competition saved electricity customers \$750 million in 1999.<sup>33</sup>

### 3. California vs. Pennsylvania

A key factor affecting the success of competition is the extent to which state policies distort price relationships from those that would exist in a truly competitive market. A comparison of retail competition in California vs. Pennsylvania illustrates how price distortions can undermine competition.

In California, the state's "deregulation" legislation ordered utilities to give residential and small commercial customers a 10 percent rate cut. As a result, residential customers received a rate cut even if they made no effort to learn about competitive offers or switch to a new power supplier. The value of this "gift" becomes even greater when one considers that as long as the rate cut is in effect, residential customers who stick with their utility are also protected from increases in the market price of power.<sup>34</sup> The recovery period for utilities' stranded costs was also accelerated, so that utilities received the opportunity to recover these costs over four years. Customers who switch suppliers must still pay these costs—a fact that further diminishes their incentive to shop around.

Pennsylvania, on the other hand, adopted smaller rate cuts whose size and length were negotiated on a utility-by-utility basis. Customers who choose alternative suppliers receive a "shopping credit" representing the amount per kwh that they no longer have to pay for electricity they are no longer purchasing from the utility.<sup>35</sup> The shopping credit is always less than the utility's unbundled generation rate, so customers who switch still make a contribution to cover stranded costs. The recovery period for these investments will be approximately 10 years, which regulators believe is closer to the useful life of the assets.<sup>36</sup> These policies effectively mean that the price paid by Pennsylvania customers who switch suppliers is closer to the true, free-market price than the price paid by customers who switch in California.

Residential customers in Pennsylvania can achieve savings of 13-29 percent by opting for competitive suppliers. Before the current power crisis, California customers could save 5-6 percent at most. (See Table 3.) Almost all of the alternative suppliers available to California residential customers sell various forms of renewable energy that are sometimes more expensive than power offered by the utilities. Such suppliers are competitive only because renewable

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<sup>33</sup> Pennsylvania Department of Revenue, *Electricity Generation, Customer Choice, and Competition: A Report to Governor Ridge and the General Assembly* (August 1, 2000), pp. E-5 and 2.

<sup>34</sup> As a result, the only California residential customers who initially paid higher prices because of the price spikes were those served by San Diego Gas & Electric, which was not subject to rate caps in the summer of 2000 because it had recovered all of its stranded costs.

<sup>35</sup> "Shopping credit" is an unfortunate term, because it implies that customers who switch suppliers are receiving some type of subsidy. In reality, the shopping credit simply means that consumers do not have to pay the utility for electricity if they decide to buy their electricity from someone else.

<sup>36</sup> 10-year figure is from Comment of the Staff of the Bureau of Economic Policy of the Federal Trade Commission before the Arkansas Public Service Commission in Docket No. 00-148-R (July 6, 2000), p. 2. Regulators' assessment of the useful life of the assets is from author's conversation with former Pennsylvania PUC Commissioner John Hanger.

power is heavily subsidized in California and because some customers are willing to pay a premium for “green” power.

California’s policies significantly distort price relationships in ways that reduce the customer’s benefit from switching power suppliers, and thus they discourage alternative suppliers from competing in the residential market. Pennsylvania’s policies involve much less distortion. California’s mandated price cuts are larger, and so are the charges for stranded costs that customers cannot escape when they switch suppliers.

**Table 3: Competitive Options in California vs. Pennsylvania (Pre-CA Power Crisis)**

*(Utilities are italicized.)*

CALIFORNIA			PENNSYLVANIA		
	Sample bill, 500 kwh	Maximum % Savings		Sample bill, 500 kwh	Maximum % Savings
<i>PG&amp;E</i>	<i>\$54.89</i>		<i>Allegheny Power</i>	<i>\$16.22</i>	
Competitors, standard	\$54.66-57.14	0.4	Competitors, standard	\$12.97	20
Competitors, Renewable	\$51.89-66.89	5.5	Competitors, renewable	\$29.95-36.40	No savings
<i>SCE</i>	<i>\$59.32</i>		<i>Duquesne</i>	<i>\$24.00</i>	
Competitors, standard	\$61.57	No savings	Competitors, standard	\$19.20-\$23.00	20
Competitors, Renewable	\$56.32-\$71.32	5.0	Competitors, renewable	\$30.45-36.40	No savings
<i>SDG&amp;E</i>	<i>\$49.10</i>		<i>GPU Energy – Met Ed</i>	<i>\$22.63</i>	
Competitors, standard	\$51.35	No savings	Competitors, standard	\$18.10-\$26.75	20
Competitors, renewable	\$46.10-\$61.10	6.1	Competitors, renewable	\$31.45-39.40	No savings
			<i>GPU Energy – Penelec</i>	<i>\$22.64</i>	

			Competitors, standard	\$18.11- 26.75	20
			Competitors, renewable	\$31.45- 39.40	No savings
			<b><i>PECO Energy</i></b>	<b><i>\$27.75</i></b>	
			Competitors, standard	\$22.60- \$27.90	18.6
			Competitors, renewable	\$24.00- 39.40	13.5
			<b><i>Penn Power</i></b>	<b><i>\$27.42</i></b>	
			Competitors, standard	\$19.36- \$30.50	29
			Competitors, renewable	\$29.95- \$36.40	No savings
			<b><i>PPL Utilities</i></b>	<b><i>\$24.28</i></b>	
			Competitors, standard	\$18.52- \$25.65	24
			Competitors, renewable	\$31.35- \$39.40	No savings
			<b><i>UGI</i></b>	<b><i>\$21.58</i></b>	
			Competitors, standard	\$17.27- \$23.25	20
			Competitors, renewable	\$31.45- \$39.40	No savings

Sources: California Office of Ratepayer Advocates Shopper's Guide for Residential and Small Commercial Customers (March 1, 2000); Pennsylvania Office of Consumer Advocate Price Comparison Charts (July 31, 2000).

## V. CONCLUSION

The Commission's study of the effects of retail competition in the electric industry is timely and appropriate. We offer the following observations in the hope of maximizing the study's relevance and effectiveness:

1. Deregulation often generates price reductions both by curbing market power and by improving incentives for innovation. The potential for innovation implies that a deregulated market may experience lower prices even if substantial market power remains.
2. If regulation holds prices below competitive market levels, then deregulation can simultaneously raise prices and increase consumer welfare.
3. For most of this century, our society has been wedded to the idea that everyone (except big businesses) should have the right to buy as much electricity as he or she wants at a fixed, regulated retail price. Inelastic retail demand—which exacerbates wholesale price spikes—may simply be an artifact of regulation. A sound restructuring plan would allow customers to face retail prices that more closely reflect the varying cost of producing it at different times of the day.
4. Experience in other industries shows that deregulation typically produces large price reductions, as well as nonprice benefits whose magnitude can exceed that of the price benefits.
5. The Retail Energy Deregulation Index produced by the Center for Advancement of Energy Markets provides useful data on the details of electric restructuring programs in all states.
6. A comparison of California's and Pennsylvania's experiences with electricity restructuring suggests that competition can indeed produce substantial benefits, but a poorly-designed restructuring plan can prevent competition from emerging.