Is There a Rational Path to Salvaging Competition?

A number of mechanisms are available to regulators that will harness the benefits of competitive markets. However, more focused common-sense experiments should be undertaken to test the viability of these alternative policies, products, and services.

Karl A. McDermott and Carl R. Peterson

I. Introduction

A little over 5 years ago one of the authors presented in the pages of this journal an argument for adopting a rational path to competition in the electric industry. At that time, two general conditions characterized the electric power market: wholesale prices were lower than retail prices and retail prices differed between regions of the country. The root causes of these conditions were in part the result of high-cost, nuclear generation and long-term Public Utilities Regulatory Policies Act (PURPA) contracts. The relatively simple problem of price disparity could have been addressed in a common sense manner through the realignment of incentives structures to emphasize performance, which would have complemented the development of wholesale markets that the Federal Energy Regulatory Commission (FERC) has been encouraging. Both performance-based regulation and the formation of independent regional transmission organizations (RTOs) providing non-discriminatory transmission service would have gone a long way toward solving the problem. Yet, the solution proposed in many states was a total restructuring of the industry and the introduction of customer choice, instead of concentrating on wholesale market development and proper pricing.
structures for the retail market. As was warned at the time “[T]he pell-mell rush to restructure will cause many more problems than it solves.”

The events in California and other jurisdictions over the past two years and the less than stellar performance of retail competition in other restructured markets have borne out this prediction and resulted in a pregnant pause in the headlong rush to restructuring. The question facing state regulators seems to be: Has competition failed? The Darwinian theme of the earlier article suggests that the evolution of electricity markets depends on the “fitness” of the institutions constructed to implement market-based reforms. The ability of these institutions to function in the current environment and adapt to changing circumstances determines whether the reforms will ultimately meet the goals set for them. The failure of a particular “species” of market process to thrive does not imply that no “species” of market will survive in the current industrial “ecosystem.” In effect, the market “failures” witnessed so far are failures of the particular experiments and not necessarily the failure of competition per se. Taking the time to design a set of institutions and incentives that harness the private profit motive in the public goods is a worthy undertaking. However, expectations must be tempered with the economic realities of the system as it currently stands.

This article will review and analyze the salient features of some of the now well-known failures of policy that have taken place since 1996. In addition, the article will address the important policy questions that remain in order to avoid rejecting competition for all the wrong reasons. In reviewing these policy questions, our working assumption is that the goal of reform is a model of end-state competition that would incorporate workably competitive wholesale markets and where

---

The market “failures” witnessed so far are failures of the particular experiments, not necessarily of competition.

---

requires a review of the recent history of regulatory reform. There are a number of observations that can be drawn from the past five years of reform in the U.S. electric industry that identify issues which hampered the reform effort.

A. Regulatory/institutional issues

1. Transitions are just that, transitions. There has been a tendency to forget that restructuring is about transitioning a closely regulated network industry toward one that relies on competitive forces for resource allocation. In our rush to implement reforms, we often forget that the end state will not be instantaneously achieved; otherwise we would not have implemented a transition period. Finally, and perhaps more importantly for designing policies, there is no reason to suspect that a certain transition period will be the correct length. It may be that the transition needs to be extended and plans revised because the institutions to support full competition may simply take longer to develop than expected. In this context then the following observations are offered.

2. Politics squeezed out economics. Politics took precedence over economics in the design of the reforms. While political compromise is at the heart of any legislative action, the design of many electric restructuring plans has generally resembled a Rube Goldberg

II. How Did We Get to Where We Are?

Placing the current electric restructuring situation in context
machine—far more complex than necessary while expending the maximum effort to achieve the minimum result. Simultaneous goals of lower fixed prices, lower costs, stranded cost recovery, and rate freezes created a set of constraints that were unlikely to allow expectations to be met. Electric markets are unlikely to allow prices to stay constant over time. Costs can change dramatically from season to season, day to day, and hour to hour. Furthermore, due to the non-storability characteristic of electricity, the short-term commodity markets are likely to be somewhat volatile even if these markets were designed perfectly and no market power existed. Utilizing competitive markets, while at the same time stripping those markets of the allocation mechanism—price—created a recipe for failure.

3. Reform is, after all, an experiment. Reform was in some ways a grand experiment. However, the results of experiments are only as valid as the validity of the experimental design. Political compromises are part of the re-regulation/deregulation game. However, the simultaneous demands to give consumers price reductions and price stability while expecting the market to allocate resources efficiently have created incentives that are working at cross purposes.

4. Restructuring cannot guarantee lower prices. The idea that entry, and in turn competition, always lowers costs and therefore, prices is not an argument that can be supported by theoretical economics. In fact, there is surprisingly little economic theory on the actual mechanism of cost reduction through entry. The idea that entry will lower costs is often associated with international trade, where firms with different comparative advantage compete to provide lower-cost services and, in fact, there does seem to be some anecdotal evidence for such cost reductions in the context of international trade. However, in markets where fixed costs are important and entry restrictions are subsequently relaxed, the impact of entry is far less clear. In such markets, there may be an incentive for the "marginal" firm to enter and take business from infra-marginal firms, even when entry reduces the scale of all firms and increases per-unit costs, thereby reducing social welfare. The true hope for electric restructuring is that, in the long run, competitive entry will provide the correct incentives for efficient investment and that prices will reflect the true resource costs of providing service. In the short-run, price reductions are unlikely to be a direct result of restructuring per se; rather, any price decreases are much more likely to result from legislative mandate as opposed to market forces.

B. Market issues

1. Markets adapt over time. Markets and competition are mechanisms to manage change—changes that often take time. The adaptations that occur in response to changes manifest themselves in multiple ways ranging from organizing production through the market to organizing through firms. This is a critical feature of the competitive process. Price signals must be allowed to impact consumer and producer behavior. A change in price should elicit entry and exit from the industry and provide the impetus for consumers to alter behavior on the demand side. On a more fundamental level, the short-run characteristics of electricity—inelastic supply and demand along with high fixed cost characteristics of production—place these markets on a "knife's edge." As a result, small changes in demand, which can be difficult to forecast even over a short time period, can cause significant changes in prices over periods of minutes or hours. These short-run problems are only compounded in the long run by the public's unwillingness to recognize the connection between sitting new
generation plants (and transmission lines) and the shortages in the electric supply market.

Pricing in the retail market is also critical. Although one would expect restructuring to bring about more flexible pricing, such as hourly pricing for large customers, price freezes and price reductions have reduced the demand side of the market to a near nonexistent component of the market process. Under the majority of existing restructuring plans, the market has been stripped of its essential tool—the price mechanism—to accomplish its task. Therefore, it is difficult to be amazed, as some seem to be, that the market is “failing” to operate effectively. It is not the market that is failing; rather it is the failure of our collective understanding of market operations and adaptation that is in question.

2. Spot markets are only part of the game. Spot markets alone cannot provide the discipline that competitive markets need to operate efficiently. For markets to work effectively they need be complete. This means that a market exists for all future delivery periods, all possible characteristics of the product, and all states of nature. In practice, there are centralized mediated markets such as futures markets and decentralized search markets such as bilateral forward contracting in addition to the real-time delivery markets (i.e., spot markets). That is, spot markets represent but one contracting timeframe (i.e., delivery), whereas other markets represent promises for future delivery. The importance of markets for future delivery is that these contracts can be negotiated or purchased prior to the time when delivery occurs. This mitigates the risk that at the time of delivery conditions in the spot market will cause prices to rise considerably. In the case of electricity, spot markets are necessary if truly competitive markets are to evolve. However, spot markets cannot be the sole, or even primary, governance mechanism in a market such as electricity where investment may be partially irreversible.

3. Physical hedging is important. In the rush to implement retail competition, there was little recognition of the role that physical assets play in a nascent retail electricity market. While both physical and financial assets can provide hedges against price volatility, in an incomplete market physical assets can play a more important role and command a premium. This can be particularly problematic in markets that rapidly move from a state of excess to a shortfall in capacity where the obligation to supply remains with an entity that is restricted from owning physical assets. For example, suppliers without physical hedges that face retail prices that are set artificially low will find it difficult to survive the initial price volatility that accompanies the nascent market. Physical hedges are all the more important in nascent markets that may not have sufficiently developed financial hedging tools. Policymakers need to realize that for a complete set of well-functioning financial markets to develop, in order to provide insurance functions, the focus should be on developing the correct incentives for physical investment.

4. Restructuring does not provide market players with a crystal ball. Decentralized market players seem to be just as likely to misforecast future market conditions as the centralized firms (i.e., utilities) operating under traditional regulation. This should not surprise anyone, as the tools for forecasting have not changed much with the advent of retail competition. The real difference is that under the traditional system customers bore the brunt of the cost for excess or shortfalls in capacity. In the new market framework, it is the generation investor who bears the risk of excess capacity and reaps the reward during shortages. For example, in the early 1990s, most observers could not have forecast the growth of the California
economy, and consequently the growth in peak demand over the decade. It has been reported that the average time for placing generation units into service in California was seven years in the 1990s. The private sector would have had to convince investors in 1993 that demand, by 2000, would be sufficient to make new power plants extremely profitable. It seems unlikely that investors would have taken that risk. Moreover, regulators would also have been skeptical regarding the appropriateness of any construction program by utilities under the conditions that existed in the early 1990s.

C. Forced integration of small-volume customers into retail access programs does not necessarily promote competition

1. Customer switching does not equal more competition. The concern over customer switching seems to have taken precedence over the concern for implementing reforms that are meaningful. The metric most often associated with judging competitive electric markets is the idea that consumers should be switching in mass. This concern has so hamstrung some policymakers that they are willing to provide outright subsidies for customers to switch suppliers; a policy that runs counter to promoting true competition.

2. High transactions costs in the small-volume retail market. While competitive forces in the wholesale market could be harnessed to benefit small-volume customers, the level of back office support and the resources needed to acquire customers create costs that are difficult to recover in retail markets. Consumers are extremely sophisticated in their consumption behavior and will weigh the costs and benefits of the choices they make. The transactions costs of serving small-volume customers include obtaining information about the suppliers, signing contracts and communicating with the supplier, monitoring the supplier’s behavior over time, and aggregating small-use customers into effective buying units. One example is marketing to small-use customers. Some estimates of customer cost for marketers are as high as $100 per customer per year for obtaining the customer and maintaining the customer’s account. The cost of obtaining customers and maintaining their accounts can be as much as $8 per customer per month. A typical residential customer pays about $70 per month for electric service, including delivery service charges. Given these numbers, it may be more likely that total costs to society will increase. This logic is not lost on market players; marketers have not gone after small-use customers for this very reason.

3. Low-priced standard offer contracts. Another factor affecting the failure of the integration of small-volume customers in retail access programs were the uneconomic standard or default contracts that many states implemented. When standard offer contracts are not based on the opportunity cost of providing electric service, volatile wholesale prices create a serious problem for would-be suppliers. The incremental benefits to a particular small-use customer of switching suppliers can be wiped out in a rather short time if wholesale prices greatly exceed the standard offer price. Again, this is not necessarily indication of the failure of markets, but rather the failure of the design of open access programs.

4. Transmission is more than just a theory. The transmission system in the U.S. was not designed to accommodate large bulk transfers of energy in order to arbitrage regional price differences. No matter how compelling open access seems, the system must be technically capable of transferring power such that the arbitrage function can play its role. Until RTO/ISO pricing and planning functions have an opportunity to play their
proper role, such as expanding and upgrading the transmission grid, the arbitrage function will be hampered and inefficient levels of congestion will remain. In addition, the coordination that transmission and generation has traditionally enjoyed has been dismantled and in its place a hodge-podge of different institutions with differing rules and incentives was allowed to evolve in different parts of the country.

5. Lessons learned. The preceding review provides a set of lessons that can be summarized as follows:

- Expectations of the benefits of reforms were out of proportion with the economic realities of the electric industry.
- The locus of competitive choice matters in the transition to end-state competition. This is a result of both high transactions costs in the small-volume retail market and the incomplete nature of the reform in the wholesale market.
- Design of retail access programs failed to allow the market mechanisms to effectively allocate resources. Problems such as fixed retail prices and inelastic supply responses combined to limit the ability of the market to adapt.
- Well-functioning markets require a combination of spot, forward and futures markets, as well as the flexibility of suppliers to self-supply.
- Proper transmission investment is critical to support a fully functioning supply market.

What insight do these lessons provide for the second generation of reforms that is currently being discussed? The lessons above suggest that we may have been initially focusing on the wrong locus of choice. Rather than focusing on full retail competition, reforms should be focused on putting in place the necessary institutions that will enable the demand side of the retail market to respond to wholesale prices while providing the appropriate incentives for investment on the supply side. The natural gas market reforms placed the focus on wholesale markets as opposed to retail markets and may serve as a model for thinking about electric market reform. We will review some of the features of gas market reforms before examining some common-sense policy options that could be implemented in the electric industry.

III. Successes in Restructuring the Natural Gas Market

By almost any metric one would like to use, competition in the natural gas industry has a *reasonably* good track record. Even with the recent price increases in 2000, the previous years of relatively stable and low prices, and the reduction of prices from their 2000 highs, is testimony that under the right conditions market processes can benefit customers. Figure 1 shows the real and nominal wellhead price of gas from 1973 to 2001 (in 1996 dollars) as well as the number of wells developed and drilled in the same period. The real price of gas increased dramatically in the post-embargo era until the early 1980s and has been trending downward until 1999. Along with the changes in price, there has been an increase in the number of wells developed and drilled.

While it is not clear that these indicators will spell the end of the high prices that were seen in the last year, it does provide some evidence that price signals are waking up the production side of the market.  

Why has gas market restructuring been relatively successful? The reasons closely align with the observations of the failures of electric reform noted above. First, the reforms focused on appropriate goals, including supply portfolio restructuring, the formation of a complete set of markets, and creation of a stronger link between retail commodity prices and wholesale commodity prices which allows the demand side of the market to function more effectively. In addition, customer choice was phased in over
time with those customers that could cost-effectively procure gas given the first opportunity to shop. Finally, gas industry fundamentals supported the transformation of the industry in a relatively short time-frame.\textsuperscript{27} While the lack of vertical integration, the ability to store gas, and non-instantaneous balancing differentiate gas from electric markets, the process of open access went relatively smoothly in retrospect. However, these very differences make the applications of the relatively simple\textsuperscript{28} trading, metering, and settlement processes that evolved in the gas markets less directly applicable to electric markets. In short, the gas industry adopted a fairly incremental approach to implementing competition. While at the time it seemed revolutionary, the process was actually more evolutionary and as a result it has been rather effective.

**IV. Re-Restructuring and Common-sense Solutions**

While the purpose this article is to focus on the retail regulatory model that captures the benefits of competitive wholesale markets, we recognize that further market design issues need to be addressed as the wholesale market evolves. First, transparent spot prices are necessary for the long-run stability of all markets, including the long-term supply markets. FERC must take a stand on the sufficiency of the trading arrangements for regional markets and provide guidance.\textsuperscript{29} These trading arrangements should be designed to allow for ease of interregional trading and minimize the transactions costs of utilizing competitive markets. Second, regional transmission organizations need to be organized along regional markets and provided the incentives for investing in making these markets work.\textsuperscript{30} Adopting a for-profit transco structure would allow the use of performance-based regulation to correctly align the incentives of the transmission company with the creation of a robust wholesale market. While FERC encouraged such proposals in Order 2000, there are currently

---

**Figure 1: Supply-Side Responses to Natural Gas Prices (1973–2001)**

Source: Energy Information Administration
no incentive regulation regimes for transmission entities. Transco regulation must be incentive-compatible with the new decentralized generation market in order to facilitate the necessary investment in the transmission grid. However, whatever the regulatory structure, it is critical that transcos operate in an environment free of the conflict of interest that arises with the direct ownership of generation. The transmission company should have profit, transmission reliability, and the minimization of impediments to the promotion of competitive generation markets as its goals, without blurring these goals with incentives that may be at cross-purposes with well-functioning competitive markets. Third, generation market power, where it exists, needs to be addressed through a combination of improvements to the transmission grid (to increase the size of relevant markets) and divestiture where necessary.

In the remaining sections, we will address policies that can be implemented at the state level that address the design of retail market institutions and employ a variety of governance structures necessary for minimizing the transactions costs of wholesale market interaction.

A. Institutional issues

1. Where should the choice decision reside such that economic forces are most likely to succeed in providing the benefits of competition to all users? The location of the choice decision is controversial for several reasons, chief among them the apparent discriminatory treatment of small-volume customers if they do not receive choices similar to those of larger-use customers. However, in the first-generation restructuring plans the nexus between the retail demand and the wholesale supply of electric markets has not been fully functional. Many factors, including poor pricing signals, high transactions costs, and low standard offer contracts, have contributed to the muting of the demand component of the market. In order to revitalize the demand component of the market, regulators could adopt policies that are designed to avoid the problems encountered with first-generation restructuring plans while bringing the retail demand component back into the wholesale market place.

Figure 2 illustrates the possible choice nodes in a restructured electric market. Choice node A indicates a single buyer. The competitive choice at node A must be governed by a regulatory mechanism that does two things: maintain incentives for a competitive wholesale market, while remaining consistent with a transition to full retail competition. Node B suggests complete retail access with competitive choices made by individual consumers. The dashed line around the DistCo indicates that the supply function can exist either as a part of the DistCo or as a separate entity. Wherever the supply function resides, it will be critical that the supplier have the ability to own generation and

![Figure 2: Regulatory Policy Choices: Where Should Choice Reside?](image-url)
enter into long-term supply contracts. Figure 2 assumes that the transmission entity will be independent from the supplier, with choice node A suggesting a single buyer for the mass markets.\textsuperscript{35}

2. Choice of regulatory institutions. Incentives are the key to providing customers with reasonably priced service in an efficient manner.\textsuperscript{36} For any market structure to work, consumers and suppliers must receive signals to modify their behavior in response to changes in resource costs. The regulatory choices reviewed below recognize that many restructuring plans distorted the relationship between retail and wholesale markets. The options we explore help reestablish the nexus between retail demand and wholesale investment decisions.

In many states the frenzy to restructure has not taken off. Most of these states have relatively low power costs and feel that they can isolate themselves from the problems facing many other parts of the country. This may not be possible in the long run as either federal legislation or internal political pressure may eventually force the issue.\textsuperscript{37} While rate of return regulation may have appeared to work reasonably well in the past, as energy companies face competition for capital to begin to fund the next round of capacity, especially baseload capacity, investors will be looking for competitive market returns.\textsuperscript{38} Shareholders of traditionally regulated firms may be unwilling to fund these projects inside of a regulated utility, especially if (1) the rules for reform are not clearly articulated, or (2) companies are unable to obtain market-based returns.\textsuperscript{39}

In order to balance the need for better incentives in the industry with the reticence toward radical change that some policymakers currently feel, four options to traditional rate of return regulation (RORR) are addressed below.\textsuperscript{40} Alternatives to RORR all provide various types of incentives.\textsuperscript{41} Any option must be incentive-compatible with wholesale competition in the sense that they can be implemented under structures that are designed to promote competition in the wholesale market, even if full retail access is not implemented. In theory, these options can be designed to provide the correct build-versus-buy incentives and, to varying degrees, provide incentives for new supply to enter the market.

- Performance-based regulation (PBR), when designed correctly, has the potential to provide companies with the incentive to become more efficient.\textsuperscript{32} PBR is the least radical change from traditional RORR and maintains the choice node with the integrated utility. PBR can take many forms from a simple sliding scale to more elaborate price cap plans. PBR should be designed to utilize the wholesale market as the benchmark, thereby linking retail demand with the wholesale market.

- Competitive bidding utilizes some form of wholesale contracts, generally through a request for proposals (RFPs) process, to procure incremental peaking and cycling capacity. The local utility, or its generation affiliate, may be a producer, but the utility would no longer be required to build all new generation. By employing the wholesale market as the means of acquiring incremental supply, the connection between retail and wholesale is established.

- Portfolio restructuring allows the supply function to be separated from the generation function. The supply function would utilize long- and short-term contracts procured through the wholesale market, thereby establishing the link between retail and wholesale. The choice node would remain with the supply function for, at least, the mass markets.\textsuperscript{43}

- Virtual access is closer to the gas model of a single buyer, with “market” prices passed directly through to customers, on a real-time or some other time-differentiated basis. The choice node lies with the supplier, but
Table 1: Incentives Under Different Retail Market Regimes

<table>
<thead>
<tr>
<th></th>
<th>Production Efficiency</th>
<th>Supply Entry Incentives</th>
<th>Consumption Efficiency</th>
<th>Customer Options</th>
<th>Transition Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional RORR</td>
<td>Weak</td>
<td>Weak</td>
<td>Weak</td>
<td>Little/none</td>
<td>Stranded cost, POLR</td>
</tr>
<tr>
<td>PBR</td>
<td>Moderate</td>
<td>Weak to moderate</td>
<td>Moderate to strong</td>
<td>Menu</td>
<td>POLR, contracting</td>
</tr>
<tr>
<td>Competitive bidding</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate to strong</td>
<td>Menu</td>
<td>Long-term contracting</td>
</tr>
<tr>
<td>Portfolio restructuring</td>
<td>Moderate to strong</td>
<td>Moderate to strong</td>
<td>Moderate to strong</td>
<td>Menu</td>
<td>Long-term contracting</td>
</tr>
<tr>
<td>Virtual access</td>
<td>Strong</td>
<td>Very strong</td>
<td>Very strong</td>
<td>Menu</td>
<td>POLR</td>
</tr>
<tr>
<td>End-state retail competition</td>
<td>Very strong</td>
<td>Very strong</td>
<td>Very strong</td>
<td>Market driven</td>
<td>–</td>
</tr>
</tbody>
</table>

because the wholesale market price is transparent to retail customers, they take on more responsibility through their demand responsiveness.44

Table 1 summarizes the options that state regulators could employ that are incentive-compatible with adopting a competitive wholesale market. The set of relevant attributes of each mechanism— incentives for production efficiency, entry and efficient consumption, customer options under each plan, and transition issues—are listed across the top of the table. The transitional issues listed in Table 1 relate to the ease of moving to full retail access. For example, contract rigidities in the portfolio restructuring and competitive bidding approaches may present greater transitional difficulties similar to the PURPA contract problems experienced in New York, Maine, California, and elsewhere. Under PBR, issues that are similar to RORR may arise in the transition to full retail access.

In order to augment the four policy options outlined above to bring retail customers into closer contact with the wholesale market, pricing and service options will need to be addressed. For example, menus that provide real-time pricing, green pricing, flat billing, price volatility insurance options, etc., need to be implemented to capture the value of the price signaling characteristics and mimic competitive options that should be provided in a fully liberalized marketplace. Therefore, the choice of regulatory institutions in the transition period must reflect the tradeoff between speed of transition, which often reflects the preferences of the policymakers to make radical changes, and the efficiency attributes of the various programs. Some policymakers are likely to want slower transitions, especially after the experience with the first-generation restructuring plans. It is critical that in making these decisions restructuring plans not inhibit future market evolution by employing an overly restrictive or not sufficiently liberalized plan. At the same time, policies should be implemented that will move toward more efficient outcomes. 3. Conclusions on institutional issues. In making decisions about reform, it is critical that the demand side of the market be fully addressed. The demand side is far more important than many advocates of flash-cut competition had imagined. Joskow notes:

It has become clear from the experience in California, New England, and other areas of the country that the performance of wholesale markets is undermined by the absence of an active demand side (zero demand elasticity) and robust forward contracting activity. The absence of any short-run demand elasticity and limited forward contracting affects the incentives generators have to withhold supplies to drive up prices during tight supply situations.45

Zero demand elasticity in the short-run has implications for the ability of generators to charge high prices. To counter such tendencies, the demand side of the market cannot be ignored. Interruptible rates, time-of-use pricing as noted above, cost-effective local generation, energy efficiency, and a host of other innovative technologies and pricing strategies must be utilized to their fullest extent.
Furthermore, there remain issues on the supply side. The supply side of the market is, in many states, more an issue of local politics and initial supply conditions than of fundamental flaws in the wholesale market. However, introducing the proper regulatory institutions, as noted elsewhere in this article, will have an effect on investment in both the transmission grid and generation. Illinois, California, New York, Indiana, and Kentucky are but a few of the states that have recently addressed issues of electric generation siting. While it would seem that in a competitive generation market, statewide siting of generation is unnecessary, local opposition to siting power plants can delay or postponed indefinitely needed power plants. One solution to this potentially paralyzing problem is to provide for an open and transparent statewide proceeding to determine the appropriateness of the various plant sites. However, there are problems with such an approach, including potentially longer delays as well as the fact that some generation siting will not have statewide implications. A second approach would be to allow developers the option of appealing to a state board if the local jurisdiction denies the certificate. However, in such an appeal the developer would have to show that a legitimate state interest is involved in the certificate that is strong enough to overcome the local interest (or dis-interest). Whatever approach is taken, all competitors should have access to the same certification procedures.

Many of these same issues can also be problematic for transmission expansion. Other transmission issues are more directly related to the institutional framework, such as regulatory regime, ownership structure, size of the transmission operator, and the congestion management regime. However, the planning function is also a critical aspect as markets become less centralized. Prior to restructuring, the planning of transmission and generation was closely coordinated by an integrated utility. Proper congestion pricing and management is a good first step. However, appropriate planning along with better incentives must be introduced so that an RTO will “optimally” expand the grid.

**B. How should the effectiveness of reform be measured?**

One must have a reasonable metric by which to judge reform. The simplest measure is often the best. In judging reform, one needs to ask a Reaganesque question: Are we better off than we were before reform? There are multiple perspectives to this question, including those of consumers, suppliers and, in some sense, government.

Levels of customer switching is always a touchy subject when deciding whether a reform has been successful. However, customer switching appears to be directly related to the size of the shopping credit given to consumers and not necessarily to improvements in consumer welfare.

Determining the success of a program by the number of customers switching cannot be the whole story, as the argument about shopping credits is an unwinnable one.

What makes a successful program? This question must be answered in the context of what we should expect from decentralized markets. For example, it is unlikely that prices will be based strictly on cost and therefore, applying the standard of a perfectly competitive market on retail electric markets will not provide the correct framework for evaluation. Rather, the concept of workable competition may be a better tool for framing our evaluation of a successful restructuring program. While workable competition is a concept that is well known, it would be useful to outline some key attributes.

1. At least as many firms as the scale economies will allow should be in the industry.
2. Artificial barriers to entry should be removed.
3. There should be moderate and price-sensitive quality differentials in the products offered.
4. Uncertainty concerning the pricing strategies of rival firms should exist.
5. Anti-competitive behavior should be minimized.
6. Persistent and harmful price discrimination should be absent.\textsuperscript{52}
7. Production should not be wasteful.
8. Output levels and quality should be responsive to customer demand.
9. Profits should be only at a level that allows continued investment, efficiency, and innovation. This could mean that above-normal profits persist, but society should see the tangible rewards of that above-normal profit.
10. Innovation should be exploited in a timely manner.
11. Success should accrue to those sellers who best serve the needs and desires of customers at the best prices.

The above attributes of a workably competitive market provide some guidance on how restructuring could be judged. It is not necessary that each of these characteristics be present at all times, but we should see many of these characteristics emerging. For example, markets should provide some variety of products and services such as innovative rate options (flat, fixed, variable, etc.) or new services such as price insurance, energy management tools, etc. As supply portfolios are reformulated, we would expect that a larger percentage of supply would be obtained on the market. However, where the supply asset characteristics warrant, self-supply is likely to remain a viable option for many suppliers.\textsuperscript{53}

It is difficult to judge reforms undertaken with limited evidence. The U.S. electric industry had a reasonably good track record on short-term production efficiency prior to reform. Most of the complaints about the system were not leveled at the operations of individual plants, with some notable exceptions, but rather at the investment stream created by the incentives under traditional regulation. Claims of favoritism toward utilities, incentive-biased or incompetent forecasting, and capital bias à la Averch–Johnson were leveled at the traditional system of regulation. Restructuring is aimed at doing a better job of constraining these alleged biases by putting the risk back on the investor.\textsuperscript{54} However, to the extent that these biases exist, they are long-term in nature. In fact, the lack of a clear regulatory policy can have similar effects, as was seen in California, where investors refused to commit capital because of the uncertainty about the future rules of the game. To address both of these problems, state regulators can put in place reforms that stabilize the rules of game and provide the proper incentives for long-term investment.

V. Conclusions

The recent upheavals in deregulated electricity markets seemed to have brought the needed dose of reality back to the argument. But will we learn from our experiences? First, transitions are difficult because of the historic allocation of property rights.\textsuperscript{55} Second, the fundamental model for the restructured market must be re-thought. Full retail access should not be the initial focus of reforms. The models of retail provision of electric service that have been reviewed in this article begin to inject the right incentives in the mass retail markets. These approaches are not inconsistent with the evolution toward full retail competition. The gas-type, single-buyer model may be a useful transition tool while the realities of the marketplace work themselves out. However, this model alone will not solve the problems found in California without more flexible and rational approaches to regulation. Regulators need to be open to providing the buyer with the market.
tools necessary to address both the financial and the physical aspects of electricity supply. This is clearly a more difficult time to be a regulator than under the previous regime. Last, while somewhat perplexing, these problems are not insurmountable. Competitive supply of electricity is possible, although it is somewhat more complicated to implement than most advocates first imagined. Bringing the benefits of competitive markets to society should be the overriding goal of reform. A number of mechanisms are available to regulators that will harness some of these benefits. However, more focused common-sense experiments should be undertaken to test the viability of these alternative policies, products, and services. Any rejection of the market process should be based on the results of a test that has the reasonable expectation of success. Most of the experiments conducted since 1996 do not live up to this standard. However, by abandoning the reform process and returning to various forms of command and control regulation, the long-run gains that could still be tapped for customers will fade away and what will be left is a less effective system simply because of the failure to conduct common-sense experiments.

Endnotes:


2. Id., at 60.

3. For a discussion of various aspects of the move to retail competition in the different jurisdictions in the U.S., see, e.g., Paul L. Joskow, Why Do We Need Electricity Retailers? Or Can You Get It Cheaper Wholesale, working paper, Department of Economics, Massachusetts Institute of Technology, Cambridge, MA, 2000; Paul L. Joskow, California’s Electricity Crisis, working paper, Department of Economics, MIT, Sept. 28, 2001; Energy Resources Center, Community-Based Energy Program: A Study of Load Aggregation and Peak Demand Reduction, University of Illinois at Chicago, report prepared for the Illinois Department of Commerce and Community Affairs and Illinois Commerce Commission, Springfield, IL, 2001; and Kenneth Rose, Electric Restructuring Issues for Residential and Small Business Customers, National Regulatory Research Institute, Report NRRI 00-10, Ohio State University, Columbus, OH, 2000.

4. Sally Hunt, Making Competition Work in Electricity analyzes the necessary actions that need to be undertaken to implement end-state competition in electricity (New York: Wiley Finance, 2002).


6. Alfred Kahn, in a forthcoming piece entitled The Deregulatory Tar Baby, points to the apparently conflicting goals of simultaneously “conferring on consumers the anticipated benefits of deregulation while also protecting them from . . . the vicissitudes of competitive markets.”


been no comparative study of the removal of entry restrictions as opposed to performance-based regulation.


12. The implication here is that, in the short-run, generation of successively higher marginal cost is called upon to meet demand.

13. Generally, prices are not allowed to fluctuate throughout a “transition” period in a restructuring plan. The length of transition periods has varied from a few years to nearly a decade. In addition, it is unclear what will happen in states that have not, to date, been hit with a “California problem.” In at least one state, there is a proposal by a utility to fix prices for up to seven years. While this may be an effective, maybe even appropriate, method of shielding customers from price fluctuations, what does this say about the effectiveness of retail competition?

14. This cannot be brought to light more clearly than in the case where retail prices are frozen while public policy is aimed at promoting the use of wholesale markets to supply those very same customers. The results of this strategy in California and potentially in Illinois and Connecticut, among others, should be proof enough of our misunderstanding. California was particularly problematic because of its insistence on not using long-term contracting. Other states may face similar problems as California, but probably not to the same extent, unless physical supply is constrained because of NIMBY or other like problems.

15. Policymakers in California have recently recognized this concept. McDermott and Peterson, *supra* note 11, discuss these issues in greater detail.

16. The nascent retail electric market is often characterized by excessive price volatility, poor quality, and/or asymmetric information; new firms lacking economies of scale (in both production and advertising), scope and learning-by-doing economies; and thin buyer markets characterized by customer inertia.

17. While the search for the perfect hedge will always continue, the financial and over-the-counter markets that help fill the void of physical assets still need to evolve in the electric industry.

18. The California “Yellow Book,” published in 1993, notes the anemic nature of the California economy and the likelihood that the state’s economy would grow less than it did in the 1980s. California Public Utilities Commission Staff, *California’s Electric Services Industry: Perspectives on the Past, Strategies for the Future*, Division of Strategic Planning, San Francisco, 1993, at 118. To the extent that others did predict the stellar economic performance of California in the 1990s, this seems to have had little effect on policymakers.

19. Although private investors may have been willing to take on these risks if the rules of the game were known with some level of certainty. Such was not the case for much of the 1990s.

20. However, the potential for a capacity deficiency was identified by the CPUC staff in the Yellow Book—not as a result of peak demand growth, but in response to the potential closing of nuclear plants.

21. Whether or not some of these costs are borne by the suppliers is irrelevant in the long run, as alternative suppliers will need to recover the cost of doing business through the prices they charge.


23. Assuming a residential price of 8.4 cents/kWh.

24. For a more detailed review of the supply side of the North American gas market, see John Herbert, *The Gas-Fired Future: Boom or Bust*, PUB. UTIL. FORTNIGHTLY, Apr. 1, 2001, at 20–33. McDermott and Peterson, *supra* note 11, discuss these issues as well as issues related to the most recent price decreases.

25. McDermott and Peterson, note 11, provide a more detailed review of gas industry competition.


27. However, it took some time for the gas market institutions, such as trading hubs, futures markets, and mediated markets, to obtain the kind of liquidity that the gas market generally enjoys today.

28. One example of the consequences of a poorly executed small-use customer choice program is the well-known issues faced in Georgia in the Atlanta Gas and Light program.

29. It may further be necessary for federal legislation to address any gaps in federal authority.
30. Many of the problems in transmission can be traced to the fact that the transmission system was not designed to facilitate competitive markets, but rather designed to provide sufficient transmission capacity for generation stations that were added to the grid. With restructuring, this coordinated planning function was dismantled with a hodge-podge of different institutions with differing rules and incentives was allowed to evolve in different parts of the country, even in the same regional markets such as the Northeast and the Midwest.


32. However, we need to differentiate the exercise of market power in an antitrust sense, from the poor performance of markets that are incorrectly designed.

33. The mechanisms are discussed below.

34. In any full retail access program, point A is likely to remain as choice point. This is the provider of last resort (POLR) function in a full retail access environment.

35. In general, we will assume that large-volume customers should be provided open access such that the model becomes similar to the local distribution company (LDC) model in the gas industry.


37. How the pressures will build for restructuring deserves a closer review that is beyond the scope of this article.

38. For discussion of the need to move to alternative forms of regulation, even in “low-cost” states, see Karl A. McDermott, Prepared Direct Testimony, before the North Dakota Public Service Commission, In the Matter of the Application of Northern States Power Company dba Xcel Energy for Authority to Operate Under Performance-Based Regulation in North Dakota, Case No. PU-400-00-195 (2000); and In the Matter of the Application of Otter Tail Power Company for Authority to Operate Under Performance-Based Regulation in North Dakota, Case No. PU-401-00-36, Bismarck, ND.

39. Some state legislatures (including Iowa and Wisconsin) have recognized that building generation inside of a traditional utility is less likely to occur in the current state of electricity markets and have provided legislative options to offset the additional risk of building within a utility.

40. Note that the distinctions we are making between models attempts to focus on the choice node but is nonetheless somewhat arbitrary as these models are not all mutually exclusive.

41. Although there is a tradeoff between maintaining “low” prices and maintaining “sure” prices. The insurance function of maintaining “sure” prices must be figured in to any procurement PBR that addresses price volatility.

42. There is some evidence that PBR has been successful in reducing both direct and indirect costs of regulation. For telecommunications see, e.g., David E. M. Sappington and Dennis L. Weisman, *Designing Incentive Regulation for the Telecommunications Industry* (Cambridge, MA: MIT Press, 1996). For the energy industry see, e.g., Bruce Biewald, Tim Woolf, Peter Bradford, Paul Chernick, Susan Geller and Jerrold Oppenheim, *Performance-Based Regulation in a Restructured Electric Industry*, prepared for the National Association of Regulatory Utility Commissioners, Washington, DC, 1997, or McDermott and Peterson, supra note 9.

43. This option could be phased in over time as well.

44. Retail choice for large customers can be implemented most easily under the portfolio restructuring and virtual access models, but is not precluded under the other models.


46. This assumes that the issue has statewide or region-wide implications and not simply local implications, i.e., it is in the interest of all citizens to have a competitive wholesale market. If certain local jurisdictions are preventing supply from responding in an appropriate fashion, then the state could legitimately argue it has an interest in protecting competition in the wholesale market. In Illinois, the Pollution Control Board recently issued an order addressing some of these issues but stopped short of recommending a statewide process. See *Informational Order of the Board, In the Matter of: Natural Gas-Fired*,

47. For a detailed discussion of the need for compatibility of statewide planning rules with the new industry structure. See, e.g., Karl A. McDermott, Prepared Direct Testimony, before the Indiana Utility Regulatory Commission, In the Matter of the Petition by Sugar Creek Energy, L.L.C. for Certain Determinations by the Commission with Respect to its Jurisdiction Over Petitioner’s Activities as an Exempt Wholesale Generator under Federal Law, Cause No. 41753, Indianapolis, IN, 2000.

48. The incentives should induce transmission investment until the added benefit of reducing the cost of congestion is equal to the added cost of the transmission upgrades, while always maintaining the reliability of the system.

49. See, e.g., Rose, supra note 3, for an example from Pennsylvania.

50. That is not to say that there is no right answer. However, since this argument soon becomes a question of “religion,” it will be sidestepped here.


52. As a rule of thumb, price discrimination is harmful if total output decreases.

53. See McDermott and Peterson, supra note 11, for more discussion on asset characteristics and self supply.

54. It should be noted that performance-based regulation can alleviate these alleged biases without the risk of falling into the California trap.

55. This problem is not limited to the U.S., where most utilities are privately owned. Even in some countries where publicly owned utilities were privatized, the issue of restructuring has been difficult as “property rights” were being reallocated.

Innovation should be exploited in a timely manner.