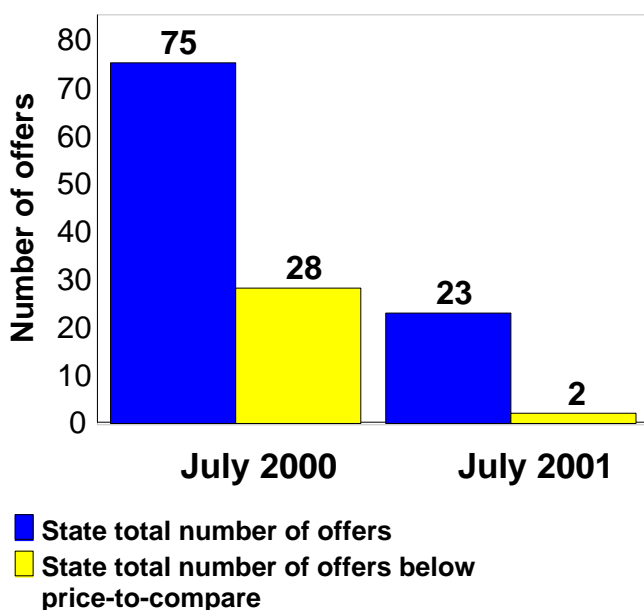


## Part II: Performance Review of Electric Power Markets EXECUTIVE SUMMARY

Fifteen states and the District of Columbia allow retail access at this time and three more states, Michigan, Texas, and Virginia, plan to begin January 2002. While no state has had the magnitude of problems that California has had, the move to competition in retail electric markets has been slowed considerably. Six states that passed electric restructuring legislation have decided to postpone the move to allow retail access,<sup>1</sup> and at least 14 states that have not passed restructuring legislation have decided to discontinue considering the issue at this time.<sup>2</sup> No state has passed restructuring legislation since the California meltdown began last summer and no state appears to be ready to do so soon.

**Fig. ES 1. Pennsylvania statewide residential offers**



Higher prices and volatility in wholesale markets across the country have taken their toll on state retail markets. At this time, no western state has an active retail market and in the east, states that appeared to be working well initially have shown signs of stress. Pennsylvania, which is often regarded as the most successful restructuring state, has seen both the number of competitive residential offers and customer load (for all customer classes) served by alternative suppliers plummet to new lows (Figures ES 1 and ES 2). New Jersey, which used a similar approach to restructuring as Pennsylvania, has seen its retail markets also

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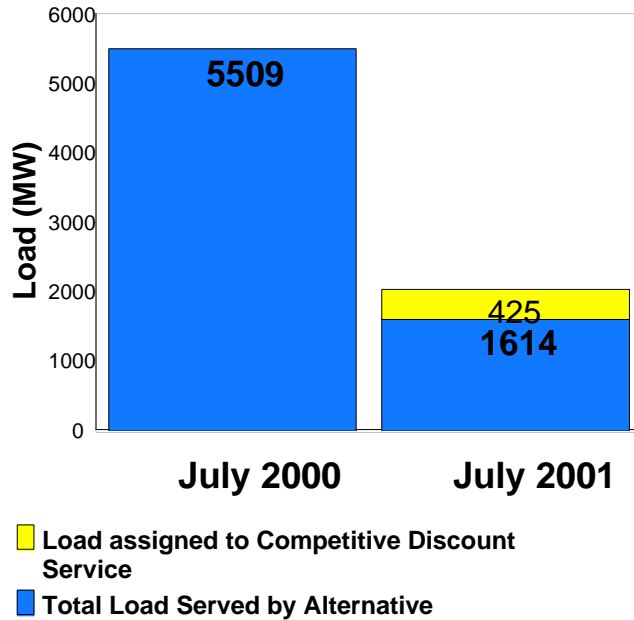
<sup>1</sup>Specifically, Arkansas, Nevada, New Mexico, Oklahoma, Oregon, and West Virginia have all decided to delay, to either a newly specified date or indefinitely.

<sup>2</sup>The 14 states that are not considering or are no longer considering electric restructuring at this time are Alabama, Alaska, Colorado, Hawaii, Idaho, Indiana, Iowa, Kansas, Mississippi, South Carolina, South Dakota, Utah, Wisconsin, and Wyoming.

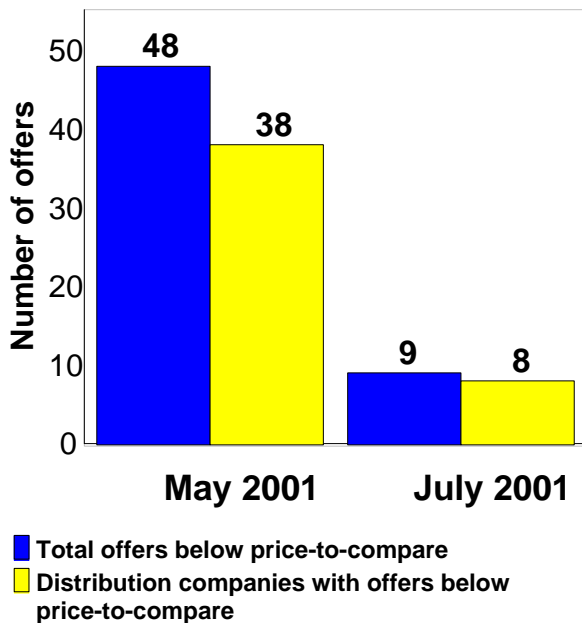
dwindle considerably. Nationwide, from a survey of 13 of the states and the District of Columbia, in which retail access is now allowed, it was found that in May of this year, there were 38 distribution companies with at least one competitive residential offer priced below what a customer would pay if they stayed with their utility (Figure ES 3). By July, however, that number had shrunk to just eight distribution companies whose customers had such offers.

There is clearly a very strong link between retail market performance, and the problems these markets have been experiencing, and the wholesale

**Fig. ES 2. Pennsylvania total load served by alternative suppliers**



**Fig. ES 3. Residential offers nationwide**



market. This is because most retail markets have overall price constraints and seldom fluctuate concurrently with changing conditions in the wholesale market. The retail standard offer, or the “price to compare,” is the price for generation service paid by a retail customer who does not select a competitive supplier. The price to compare is a benchmark that not only informs customers to allow them to make a selection, but is also an indicator for use by competitive suppliers that are considering entry into or whether to remain in a retail market.

The effect of the retail price constraints depends on the amount of the available “headroom,” the

difference between the generation price to compare (the price for continued distribution company service) and the cost to competitive suppliers to procure (by purchase in the wholesale market or from their own generation source) and market the power to serve retail customers. If there is sufficient headroom, suppliers are able to offer customers an opportunity to save and can entice customers away from the standard offer or price to compare. However, the headroom may be too small to cover all the costs of supplying the retail customers or even negative—that is, where the cost of securing power and delivering power to the retail customer exceeds the constrained retail price. The degree to which rising wholesale prices have occupied any available headroom is the primary reason that retail markets, after a period of initial success in some states, have recently begun to decline and why some other markets have seen very little activity to date.

As noted, most retail prices are not designed, nor intended to, perfectly track wholesale market price fluctuations. The price to compare is usually a component of an overall fixed or “bundled” price made available during a transition period that will, among other things, provide protection to retail customers from unexpected price increases, allow the incumbent generator to collect any costs that may be uneconomic (or “stranded”) in a competitive market, and allow time for a competitive wholesale market to develop. The price-to-compare is generally fixed, with periodic adjustments based on prior agreements, automatically adjusted for changes in fuel costs, or is changed through an administrative process. Some areas with relatively high prices also built in discounts that generally ranged from 5 percent to 15 percent of the overall retail price customers were paying before restructuring.

Residential retail market performance is measured in terms of the number of offers being made to residential customers, the potential savings opportunities these offers present, the number of suppliers in the area, the type of offers being made, and the percent of customers that selected an alternative supplier, among other factors. Since these performance measures are highly dependant on prices in the wholesale market, retail market performance cannot be viewed in isolation, but should be considered alongside an analysis of wholesale market performance as well.

Higher wholesale prices alone, while perhaps causing a problem in retail markets, would not necessarily indicate a poorly functioning market. Rather, wholesale market performance should be analyzed in terms of how closely actual prices have been tracking what would occur in a fully competitive market. Wholesale prices may increase because of higher input costs (such as from higher natural gas prices), a scarcity of supply capacity (from increased demand or loss of existing capacity for example), or because suppliers are able to raise and maintain the price above a competitive level. If the high prices are due to input costs or scarcity, then, over time as new capacity is added, for example, it may correct itself and may not require any policy adjustments. If it is the suppliers’ ability to exercise a degree of price control, however, then there is a problem in the wholesale market and corrective action may be necessary.

This ability to control the price, rather than it being determined by the competitive process, is referred to as market power. If supplier market power is relatively modest or is not expected to persist for an appreciable amount of time, then no intervention may be warranted (and may even be harmful). A relatively small degree of market power is not unusual, even in markets most would regard as competitive. Unfortunately, the evidence suggests that wholesale electricity markets are having problems with suppliers being able to control, to some significant degree, the market price. The degree of market power that a supplier can exercise is a function of the characteristics of electricity and its delivery system to customers. These characteristics also suggest that market power can be considerable in electricity markets and may persist for a long time.

These characteristics include that (1) demand for electricity is very inelastic (a percentage change in price results in a relatively smaller percentage change in the quantity demanded), particularly in the short-run since customers have few practical alternatives and the long life of major electrical appliances makes it difficult to respond to price changes quickly for most customers; (2) markets are very concentrated for most geographic regions, even for multi-state wholesale regions; and (3) market entry from other firms requires time to build new generation and is limited from outside the area by transmission constraints, which also require time to relieve. Since these factors are inherent in the characteristics of electric generation and delivery, they are generally difficult to remedy and, in large measure, beyond the control of policy makers.

In general, suppliers can exercise market power using two primary strategies. First, they can physically withhold capacity from the market. This causes higher marginal cost units to be dispatched and the market price to rise correspondingly. This results in more revenue for the plants that are dispatched than they would have received without the withholding of capacity and more than makes up for the lost revenue from the plants withheld. Second, suppliers can economically withhold capacity. In this case, the supplier bids a very high price for the plant or unit, causing the plant to be dispatched at a price much higher than its marginal cost or it not being dispatched at all (resulting in a supplier benefit similar to physical withholding). In a perfectly competitive market, these methods would be counterproductive since with many suppliers, relatively easy entry into the market by new suppliers, and suitable and readily available alternatives for customers for the product, supplier attempts to withhold would be undercut by competitors or customers seeking alternatives. For this reason market power is negligible or nonexistent in a fully competitive market. The source of the market power in electric markets stems directly from the three characteristics noted above. For these strategies to be successful, it is *not* necessary for clearly illegal activity such as collusion or price fixing to occur.

Since growing demand in California could not be readily matched with additional supply, there is little doubt that scarcity played a role in the California crisis. What would be expected is that the price would be driven up to the marginal cost of the highest cost marginal unit needed to satisfy demand—a higher marginal cost than would obtain than

during times of relatively plentiful supply. However, the actual price exceeded, often greatly exceeded, the expected higher marginal cost.

There is evidence that suggests that even before the summer of 2000, market power was significant in California, particularly during peak hours. There are several analyses of the California market that present evidence of substantial market power during the recent crisis. An analysis by the Chairman of the California Independent System Operator's (ISO) Market Surveillance Committee estimated that, for the period of June 2000 through January of 2001, the average markup (as a percentage of price) was 45 percent and peaked during this period at 64 percent of the price in August. In dollar terms, the largest markup occurred in January of 2001 at \$130/MWh above the expected competitive price—when the average monthly price was \$305/MWh.

For the PJM ISO region, one independent analysis found that market imperfections in the PJM spot energy market (which account for 10 percent to 15 percent of the market) for the period April through August of 1999 totaled \$224 million. This study estimated that about 30 percent of the price in the spot energy market was a markup above what would have occurred with perfect competition. When bilateral contracts are added (an additional 30 percent of the market) the sum of the spot market and bilateral contract costs is \$827 million above the perfect competition level, or 32 percent of the price being markup over competitive prices. This considerably exceeds estimates made by PJM's Market Monitoring Unit, which estimated an average markup of about 2 percent for April through December of 1999 and a yearly maximum markup in July of 8 percent. One explanation for this difference may be different calculation methods and data access.

Similar analyses have not been conducted of the New York and New England ISO regions. However, there is evidence that suggests suppliers in these markets may also have considerable market power, based on supplier behavior. For other regions of the country that do not have organized spot markets or access to thorough information, it is much more difficult to determine how well markets are developing. Some limited price information may be available through price indices and futures markets. However, these may not present a complete picture of market transactions or provide enough data for a reliable estimate of market power. Both economic theory and common sense suggests that a lack of reliable information may simply invite mischief and delay needed changes to reduce market power and thereby improve the health of the market. Considerable consumer harm may be the consequence.

Since an attempt is being made to develop competitive markets to replace decades of state and federal regulation, it is generally assumed that these markets will require both time to develop and frequent adjustments when problems are encountered. It is unlikely that idealized, perfectly competitive markets will develop immediately. Since these markets began relatively recently, and the transition period continues for most areas, markets are still evolving. Over time, as new generating capacity across the country comes on line wholesale prices may moderate and retail markets may be able to

get back on track. However, given the characteristics of electricity demand, supply, and the concentrated nature of power markets, supplier market power may be both significant and persist for years to come.