

CHARGED

BY THE MARKET

Electricity deregulation is finally starting to stir up retail competition in Maryland

BY VANESSA SUMO

In Maryland, residential customers of the state's leading power supplier were recently awakened from their rate-capped slumber of six years. Beginning in July, the average household was told it could expect to pay 72 percent, or \$743 a year, more for electricity supplied by Baltimore Gas & Electric (BGE). This wasn't how deregulation of the Maryland electricity industry was supposed to work out. Residential customers had been assured that retail prices would go down as a result of competition — but prices instead leapt upward.

BGE's industrial customers likewise experienced a rate increase, of up to 39 percent for small- and medium-sized businesses. BGE no longer sells electricity to large commercial customers because alternative suppliers have taken over that market. Rate caps for all industrial customers expired two years ago, and since then they have been paying the market rates.



One of Maryland's main electricity distribution companies is Baltimore Gas & Electric (headquarters shown here), which plays an important role in advancing retail competition by connecting competitive electricity providers to homes and businesses in its area.

The electricity industry is the last major energy sector to move to competition. For a long time, electricity's traditional monopoly structure was thought to be the most efficient and inexpensive way to provide power. The long-held belief was that utilities which owned massive generating plants, combined with their transmission and distribution systems, possessed the scale needed to make average production costs much lower than smaller power plants could

achieve. Over time, however, changes in the technology of power production and transmission, dissatisfaction over rising electricity prices due to large utility construction and fuel costs, as well as new laws that facilitated the entry of smaller power producers prompted the old structure to shift to competition.

Economists and policymakers recognized that unshackling the electricity generation business from the transmission and distribution components of a vertically integrated monopoly could potentially give way to many suppliers of generation capacity and many retailers of electricity services. A competitive wholesale market for electricity would give generators the incentive to control costs, to innovate, and to shift the risks of expensive investments to stockholders and away from consumers. Retail competition would support this arrangement by giving consumers the choice to buy from the

supplier that offered the best price and quality. The hope is that in the long run, this new structure, along with reforms in the regulated distribution and transmission aspects of the business, would not only lead to lower costs and lower prices but also enhance the reliability of the whole system.

However, until recently in Maryland — six years after retail competition was opened to residential customers — consumer choice was very limited. This may have more to do with how the state implemented retail competition than with problems with deregulation itself. Maryland's experience illustrates the difficulties that most states, including some of its Fifth District neighbors, have had with moving along the path of deregulation. But things are starting to change. Maryland's current transition to market-based prices, however reluctant, seems to have finally ushered in the start of true competition.

Switching Blues

With retail competition, a customer's electricity bill is unbundled into a regulated and a competitive component. The regulated component contains the "delivery" charges for the transmission of electricity from the generation source to the local utility and its distribution through poles and wires to every home. The competitive component is the essential part of retail competition. Households are free to choose whether to buy their electricity from their incumbent local utility or from an alternative electricity provider. This gives them the opportunity to shop around for a supplier that can give them the most savings and satisfaction.

The incumbent utility is typically required to provide a standard default service until the retail market fully develops. The price that the utility charges for this default service is the "price-to-compare." While the precise rules vary across states, the price-to-compare is usually computed by taking the utility's regulated cost of generating electricity and removing the

"stranded" costs, or costs incurred by the utility while it was still a monopoly but that it can no longer recover if customers switch to an alternative provider. This residual, plus a transmission charge that all suppliers have to pay, is the price-to-compare. When shopping for an electricity supplier, customers can take this price and compare it with what alternative providers have to offer. Similarly, the price-to-compare is the alternative providers' "price-to-beat," or what they can use to determine if there is sufficient headroom for them to compete.

New entrants have access to the transmission system owned by the incumbent utilities, allowing them to supply electricity in a particular area. The incumbents charge the alternative suppliers a fee for this service, which in turn is collected from the customer. The Federal Energy Commission, which regulates the interstate transmission of electricity, sets the price that the incumbents can charge for using their lines.

An important yardstick of whether competition is proceeding smoothly is whether there is a good number of alternative providers active in the market and whether a significant proportion of customers are buying electricity from these new entrants. Customers are likely to switch if the price offered by alternatives is lower than the incumbent utility's price-to-compare. But in many states that adopted retail competition, the potential savings from moving to an alternative was either too low or did not exist at all.

The states' electricity restructuring laws did not make matters easy for new entrants. Through separate deals made with incumbent utilities, the price of residential electricity supply in Maryland was cut by 3 percent to 7.5 percent, depending on the service area, and frozen at that rate for four to eight years.

Maryland's Fifth District neighbors embarked on similar programs. When the District of Columbia opened to retail competition in January 2001, electricity prices of residential

customers served by the Potomac Electric Power Company (PEPCO) were cut by 7 percent, and generation and transmission rates were capped for four years until February 2005 and until February 2007 for low-income households. Virginia, which introduced customer choice in January 2002, capped the incumbents' electricity prices until the end of 2010 (extended from 2007), but allowed some fuel and base rate adjustments.

The idea behind the rate reductions and price caps was to protect consumers, especially households, from high unregulated rates during a transition period. What is hard to understand, however, is how the market would be expected to flourish if alternative service providers were not given sufficient headroom to compete. In many states, "the default service price had been set at a level that didn't track market prices so there was no reason to switch," says Paul Joskow, an economist at the Massachusetts Institute of Technology. Soaring prices of fuels burned to make electricity, particularly natural gas, have exacerbated this gap, moving wholesale electricity prices further away from the incumbents' standard rates. The incumbents did not incur significant losses during the rate freeze because they were able to buy long-term contracts that fixed the wholesale price of electricity over several years until the caps expired.

While Maryland is already in the process of unfreezing rates, Joskow says that the incumbents' price-to-compare was initially set below the wholesale price, giving alternative providers no incentive to enter the market. For example, BGE's price-to-compare prior to moving to market rates in July 2006 was about 4.7 cents per kilowatt hour (including a small transmission charge), while the forward wholesale price for power delivered at the region's wholesale market and grid operator was about 7.8 cents. Clearly, alternative providers will find it difficult to buy power at 7.8 cents and sell it at 4.7 cents.

The switching numbers show the consequences. As of June 2006, only 1.4 percent of all residential customers in Maryland had signed up with an alternative electricity provider, and virtually all were in PEPCO's service area where rate caps were lifted two years earlier. Elsewhere in the Fifth District, about 1.5 percent of D.C. households had switched to an alternative, down from the 6 percent share alternatives enjoyed when rates were uncapped in February 2005. Only one alternative provider serves residential customers in Virginia, and its share is virtually zero.

These experiences compare unfavorably to Texas, where 15 percent of residential customers have already switched to an alternative provider

after only three years of retail competition. One big difference is that Texas, which adopted a program similar to the United Kingdom's successful model, set the price-to-compare at or above wholesale market levels, leaving additional headroom for competitive suppliers to enter the market.

Despite these problems in the residential market, retail competition has proved a success for commercial and industrial customers. About 16.4 percent of Maryland's businesses, whose rate caps expired at the end 2004, have migrated to an alternative provider as of June 2006. This represents about 63 percent of their total electricity load. Size certainly matters. Big commercial and industrial

customers tend to be the first ones to shop since a bigger electricity bill means that they will be keener to save. And since buying a trainload rather than a truckload of a commodity can often fetch a lower price, alternative electricity providers are able to offer better discounts to bigger customers because it's more cost-effective to handle a larger load.

Following the Wholesale Market

When states across the country were debating whether to move to a competitive model, the main selling point was the promise of lower prices. But assessing whether retail competition has led to lower prices today is trickier than it seems. One reason is that rate freezes and reductions

Retail Electricity Competition in Maryland

There are six alternative electricity suppliers that are actively seeking new residential customers. The area served by Baltimore Gas & Electric, which uncapped rates in July 2006, has the most number of market players. Many of those companies are also looking to do business in other parts of the state.

Baltimore Gas & Electric Company

- Commerce Energy
- Dominion Retail
- Maryland Energy Consortium
- Ohms Energy Company
- Pepco Energy Services
- Washington Gas Energy Services

Potomac Electric Power Company

- Ohms Energy Company
- Pepco Energy Services
- Washington Gas Energy Services

Delmarva Power

- Ohms Energy Company

Allegheny Power

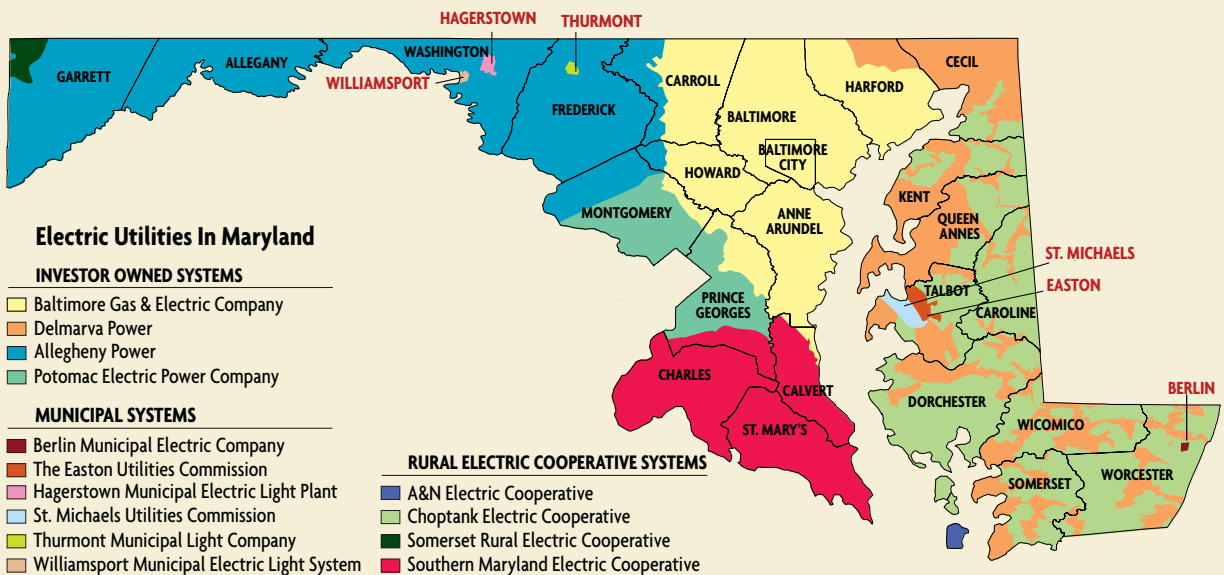
- There are no alternative providers.

Southern Maryland Electric Cooperative

- There are no alternative providers.

Choptank Electric Cooperative

- There are no alternative providers.



SOURCE: Maryland Public Service Commission Web site as of October 2006

reached through separate deals with utilities have blurred the picture, since prices indeed fell but not because of retail competition itself.

Another way to compare competitive and regulated prices would be to look at the change in prices in those states that have opened to retail competition and subsequently uncapped rates, and those that have not introduced competition. Using this measure, economist Kenneth Rose of the Institute of Public Utilities at Michigan State University finds that retail prices have risen by 15.8 percent over the period 2002 to 2005 in states which have moved to market-based rates. This is faster than the 12.3 percent increase in areas that are still regulated.

Rose attributes higher prices to the workings of wholesale electricity markets rather than to retail competition. "When Maryland [holds] their auction, the price they are going to get is largely a function of the conditions that are out there in the wholesale market, and if the wholesale market is showing any kind of problem that might lead to higher prices than that's going to be reflected in the retail," he says.

Retail suppliers take their cue from the price that clears the demand and supply for electricity in the wholesale market. The resulting price will at times be very high because under very tight conditions, the wholesale price is set by the generating plant that is called on to supply the last unit of electricity demanded. If that plant uses natural gas (as it does today), then the price retailers will pay for electricity depends solely on the price of natural gas, even if the electricity comes from other cheaper generation sources.

Under a regulated regime, the monopolist's electricity price depends on the utility's average cost of producing electricity. This is determined mainly by the variable cost of fuel expenses and the fixed cost of building plants that generate the electricity. In this case, an increase in natural gas prices affects electricity prices only in

proportion to the share of natural gas in producing that electricity. Thus, in contrast to a deregulated system, consumers will experience smaller fluctuations in electricity prices.

As far as price-conscious consumers are concerned, this might sound like an argument in favor of regulation. But Joskow argues that the upside of competition is that prices fall whenever there is excess generation capacity, while in a regulated system, prices rise because utilities are allowed to recover the fixed costs of building increased capacity, even if it turns out to be a bad investment. Thus, wholesale prices can be higher or lower than a monopolist's price, but electricity rates under competition will always track the changes in the cost of energy more closely. There is some concern today about future shortages of electricity supply due to plant retirements and inadequate investments, and the expectation is that market prices will provide the incentive to construct new generation capacity.

A New Optimism

When BGE's rates were placed under caps, the company survived the rate freeze (even as wholesale market prices were rising) by purchasing long-term fixed-price contracts for all of their residential obligations. The assumption was that the rate caps would come off July 2006, and prices from then on would closely track the market. Similarly, alternative electricity providers eager to serve the BGE's service area were gearing up to enter a new arena.

But an outcry over the very steep rate hike persuaded regulators to limit BGE's standard rate increase to a mere 15 percent, forcing the company to borrow money to make up for the difference and to collect on this debt by charging every household a few dollars every month for 10 years beginning January 2007. The promise now is that customers will pay full market rates by January 2008.

Even so, lawmakers made sure that retail competition would not be

affected. "Legislators went out of their way so as not to harm the market," says Wayne Harbaugh, BGE manager of

Status of State Retail Competition

Electricity retail competition and restructuring programs first took shape in Massachusetts, Rhode Island, and California in 1998, and then spread to about a dozen other states a few years later. But the yearlong California power crisis in the summer of 2000 as well as revelations of manipulation strategies in wholesale markets took the luster off of competitive reforms.

Although it is arguable whether these events were due to problems inherent in deregulation, it did prompt many states to rethink their plans. Since then, no other state has announced plans to deregulate, and others have simply abandoned, delayed, or significantly scaled back implementation. California and Arizona eventually suspended retail competition. Arkansas and New Mexico repealed their competition laws. Oklahoma and West Virginia both passed legislation to introduce retail competition but never implemented it.

More than half of the states are showing very little interest. North Carolina and South Carolina considered retail access several years ago but are no longer discussing the possibility of competitive reforms in the electricity sector. As wholesale market prices rose above regulated prices due to the rising costs of fuel, retail competition became less appealing, especially in states with relatively low regulated prices such as in the Carolinas. "Retail competition will not help when your prices are reasonably low," says Tom Lam, a senior engineer with the North Carolina Utilities Commission.

The sluggish pace of switching to competitive suppliers and the uncertainty of lower prices in states that have adopted retail competition is another reason why other states have shelved plans to restructure the electricity sector. For now, these states seem content to wait and see whether retail competition does indeed deliver its promised benefits. —VANESSA SUMO

pricing and regulatory services. This was accomplished by charging the full 72 percent price increase on the customer's bill and then by giving a credit on the same bill that brings this down to 15 percent. Customers can take this credit even if they move to an alternative provider, which means that they will incur a price increase of not more than 15 percent, depending on how much savings they can get with an alternative supplier.

However, outrage over the 72 percent hike has prompted calls to look

into the possibility of reverting to a regulated market. This uncertainty may have held back consumers from switching to alternative suppliers. "[Customers] were unsure as to whether some future legislative or regulatory action would ultimately prove to be a better deal than competitive supply. That uncertainty made many customers reluctant to accept cheaper competitive supply offers," says Kimberly August, director of regulatory and external affairs for Washington Gas Energy Services, an

electricity provider. Moreover, some alternative electricity providers may have hesitated to enter the market. "One thing that may have given the suppliers pause is the uncertainty that was in the legislative and regulatory arena in this past year; they just weren't quite sure what was going to come out of the legislature," says Harbaugh.

This 'pressure cooker' effect and its accompanying pop in rates will be closely watched in states preparing to shed their own price caps. Virginia's

Smart Metering

In the brave new world of electricity markets, the price that residential customers will pay for every kilowatt-hour of electricity can vary along with hourly movements in wholesale markets. Each household will be able to view real-time electricity prices, check the running total on their monthly bill every day, and choose to shift their consumption of power-guzzling appliances away from higher-priced periods or reduce their use altogether. Metering will no longer be the dull activity of manually reading a mechanical device once a month but of sending and receiving data through a wireless communication link several times a day.

It may come sooner than we think. Potomac Electric Power Company (PEPCO) together with the District of Columbia Public Service Commission and three other independent groups are planning to introduce SmartPowerDC, a program that allows residential customers to manage electricity consumption and potentially lower their bills by using a "smart meter."

Each of the 2,250 D.C. homes participating in the two-year pilot project will be fitted with a meter that can measure electricity use every 15 minutes and transmit this information to PEPCO. Half of the

participants will also receive a "smart thermostat" that can, by means of radio signals, remotely raise or lower the temperature of an air conditioner or central heating system during exceptionally hot or cold days, when the price of electricity tends to be very high. It's up to the customer to reset the temperature to a more comfortable level, but they will be warned by real-time electricity prices displayed on the thermostat that doing so will raise their bill.

The pilot program will be used to test the response of residential customers to three pricing options that make use of their smart gadgets. Hourly

Pricing charges customers based on hourly rates that are set a day before in the wholesale market. Households who choose Critical Peak Pricing pay substantially higher rates during critical peak periods, about 60 or so hours throughout the year. For instance, the critical peak rate during the summertime can be about 64 cents, but only 6.5 cents during nonpeak periods. The final option, Critical Peak Rebate, charges the standard rate, but customers are allowed to earn rebates by voluntarily reducing consumption during critical

peak periods. PEPCO expects to install the first smart meters before the end of the year.

Guided by price signals, smart meters put information and control in the hands of the consumers. Not everyone will be able to save money by using the smart meter, as some can simply choose to continue to consume the same amount of electricity even during higher-priced periods. "Those that are imposing the greatest costs on the system will be paying the highest prices," says Steve Sunderhauf, manager for program evaluations at PEPCO Holdings. But there is potential for significant savings for those who are more responsive to price changes.

Moreover, if this technology becomes widely used, a demand response to retail prices can ultimately have a moderating effect on prices in wholesale markets. "The piece of the market that is missing is the demand side," says Sunderhauf. As consumers shift electricity use from peak to off-peak periods, the prices in these two periods will also begin to narrow and create a smoother and flatter pricing schedule.

And there's the environmental impact too. Saving energy can help reduce global warming by burning less fossil fuel for generating electricity. That's three cheers for the smart meter.

—VANESSA SUMO



lawmakers and consumers will surely be watching. Alternative providers contemplating entering the market will be on guard since companies will be reluctant to make large investments if there is a possibility that regulations can suddenly change the rules of the game. What may bode well for the state, however, is that they're phasing in some fuel and base rate adjustments early on, which may make the eventual pop easier to bear.

Amid all this drama, alternative providers in Maryland seem unfazed. The evidence is in the activity currently taking place. "There are more competitors coming in which is a good sign. We're seeing prices at lower than the utility's standard offer so there's robust competition. [This is] good for the end user in the long run," says Skip Trimble, a senior consultant at BTU Energy, an electricity provider working as an agent for Commerce Energy. At the moment, there are 23 licensed providers in the BGE area and six listed as actively seeking new residential customers on the Maryland Public Service Commission's Web site. Trimble thinks that most are offering prices that average 7 percent to 11 percent below the standard offer rates.

With both the residential and commercial sectors now open to retail competition and offering market-based rates, the market has been given a much needed boost. "We are seeing quite a pickup in activity," says Harbaugh. "[Right] now we have 26 retail suppliers [residential and commercial] that are licensed and doing business in our territory so it has been a dramatic pickup in the last couple of months."

Alternative suppliers are able to offer competitive rates through their business strategies as well as a rule that binds how BGE can buy electricity from the wholesale market. As BGE moved out of the transition period, bidding rules required the utility to go to auction on three different dates from December 2005 to February 2006.

Not only did everyone know that BGE was going to go out shopping at these specific dates, but the electricity prices in the wholesale market at that

time were very high. But if the acquisition of electricity were handled like a real portfolio, as a manager would handle mutual funds, then alternative providers can beat that price, and that's where the expertise comes in. "They wouldn't buy on three days during the year, they would look each and every day if there's a bargain," says Trimble. "[But] that was not the utility's fault, that was legislative in nature," he adds.

Apart from carefully managing their electricity supply portfolio, BTU Energy's fundamental strategy, as well as that of others, is to bring together as many households and other small customers as possible into buying groups. By aggregating individual accounts and serving a larger load, competitive suppliers can get the scale they need to buy energy in bulk and offer better prices to smaller customers. Although incumbent utilities like BGE do effectively act as an aggregator for those customers who choose not to shop, Harbaugh explains that in Maryland, these utilities are very passive in the marketplace and simply act as a provider of last resort for those who have not yet chosen to switch to an alternative provider. Incumbent utilities are not allowed to actively solicit customers, nor are they permitted to pursue an aggregation strategy.

Competition Brick by Brick

Has deregulation failed? It might be easy to conclude so based on rising electricity prices in deregulated markets. But this would not be a fair assessment in many ways. With rate caps slowly coming off, it seems that deregulation may only be beginning in earnest in Maryland and other parts of the Fifth District, so that the benefits of competition could still be forthcoming. Lower prices will depend in part on how robust competition will be, and on this point we will have to wait awhile.

Prices will depend on market conditions for fuel prices as well. "People need to understand that in a competitive market prices go up and they go down and that when you have a fuel price shock, you're going to see

potentially large effects on the electricity commodity, either up or down," says Joskow. Though retail prices may not change with the same frequency, they will follow wholesale markets more closely. In the future, Joskow hopes to see retail contracts that would allow households to choose to what extent they want to track movements in the wholesale market. This feature would be important in overcoming households' natural aversion to uncertainty — many families would be willing to potentially pay a few extra dollars more in exchange for a consistently predictable power bill.

And there is a value in electricity prices reflecting market prices. Without an appropriate market signal, households are shielded from the true cost of electricity that prevents them from making intelligent consumption decisions. When the wholesale price of electricity starts rising, as it has in the past years, households will only consume less if they are asked to pay for the market price. Collectively, this makes for better use of electricity and allows more people to enjoy the benefits of this resource.

Moreover, in well-functioning retail and wholesale markets, a demand response at the retail level would reverberate back to the wholesale market, making the overall electricity demand and supply balance as well as the price more stable. Retail price caps were one factor that exacerbated the power crisis in California six years ago because it increasingly detached customers from the reality of higher costs of electricity, particularly at a time of severe scarcity. As wholesale prices rose, incumbent utilities had to operate at a loss because the caps did not permit them to charge customers prices that reflected the increasing costs. The incumbents were also discouraged from purchasing long-term contracts to lock in wholesale prices. As their financial condition worsened, the incumbents had little choice but to interrupt power service on several occasions.

But price is not the only dimension of competition. If prices are set in the

wholesale market so retailers are similarly affected, then much of the benefit may come from offering differentiated products to customers at various prices, similar to the experience in the telephone and securities industries. So far, alternative electricity providers have been offering various shades of “green,” energy produced by some combination of renewable sources from hydroelectric plants, solar panels, wind farms, and biomass fuels. Other innovations could stretch in different directions, including products which offer standard electricity but at various levels of price risk, quality and reliability, depending on what customers prefer and are willing to pay for.

One also has to take account of what the costs would have been in a regulated world with some of the problems that existed back then. People forget that an important part of why restructuring was pursued in the first place was because under a regulated regime, consumers were asked to pay for large generation construction cost overruns. With competition, investors bear the risk of these “mistakes,” not the ratepayers.

If legislators are intent on going down the road of retail competition, the first thing that needs to be done is to allow prices to rise to market levels. While the sudden hike in retail prices in the BGE service area was painful for some, the eventual increase was

inevitable. Capping rates for too long or not allowing some adjustments in the meantime would only make the eventual transition to market-based rates more painful.

Another necessary step, according to Craig Goodman, president of the National Energy Marketers Association, a nonprofit trade association representing wholesale and retail marketers of energy, is that the incumbent utilities should no longer provide competitive products and services that the market can supply at a better price. In other words, retail supply services like billing and collection (which the incumbents provide) should no longer be a monopoly function.

One could argue that it seems inappropriate for the incumbent, who is in fact a competitor of the alternative provider, to bill and collect on behalf of its competitors. But according to BGE’s Harbaugh, Maryland is one of the few states that have already opened billing and metering to competition. Even so, most alternative providers still choose the incumbents’ billing and metering services because nobody else can beat the prices they charge. For this reason, Harbaugh believes that most alternatives would not want the incumbent to get out of these businesses.

Informing households about how retail competition works is another stumbling block for new entrants.

Most customers still don’t know how retail competition works and how they can save money by switching suppliers, according to Sheirmiar White, founder of Ohms Energy, an electricity provider who operates in Maryland. White says that it costs his company about \$40 to \$50 to persuade a residential customer to switch over, a relatively small amount since it can come to as much as \$200 for other alternative providers. Goodman agrees. “One of the highest costs of competitive services is acquiring the customer away from a 100-year monopoly that’s had 100 percent of the market share,” says Goodman.

Surely there will be at least some “sticky” behavior on the part of consumers because the perceived costs associated with switching are high. However, once information barriers come down and the conditions are right, people will begin to choose the electricity service provider that best meets their needs.

But the sluggishness seems to reside among the legislators as well. Some states that have dipped their toes in restructuring the electricity sector have not had the determination to go with it all the way. The hesitation is understandable but a choice has to be made. When it comes to electricity deregulation, there is no stopping halfway. If retail competition is the goal, then the key to success is making sure the right incentives are in place. **RF**

READINGS

Borenstein, Severin. “Customer Risk from Real-Time Retail Electricity Pricing: Bill Volatility and Hedgability.” National Bureau of Economic Research Working Paper no. 12524, September 2006.

Energy Information Administration. “The Changing Structure of the Electric Power Industry 2000: An Update.” October 2000.

—. “Status of State Electric Utility Deregulation/Restructuring Activity.” February 2003.

Joskow, Paul. “Markets for Power in the United States: An Interim Assessment.” *The Energy Journal*, 2006, vol. 27, no. 1, pp. 1-36.

—. “The Difficult Transition to Competitive Electricity Markets in the United States.” In Griffin, James M., and Steven L. Puller

(eds.), *Electricity Deregulation: Choices and Challenges*. Chicago: University of Chicago Press, 2005, pp. 31-97.

—. “California’s Electricity Crisis.” *Oxford Review of Economic Policy*, 2001, vol. 17, no. 3, pp. 365-388.

Rose, Kenneth, and Karl Meeusen. “2005 Performance Review of Electric Power Markets: Update and Perspective.” Virginia State Corporation Commission, August 2005.

Rose, Kenneth. “2004 Performance Review of Electric Power Markets.” Virginia State Corporation Commission, August 2004.

Sutherland, Ronald. “Estimating the Benefits of Restructuring Electricity Markets: An Application to the PJM Region.” The Center for the Advancement of Energy Markets, September 2003.