



**PWP-066**

**Pricing Electricity for Default Customers:  
Pass Through or Performance-Based Rates?**

**Carl Blumstein**

August 1999

This paper is part of the working papers series of the Program on Workable Energy Regulation (POWER). POWER is a program of the University of California Energy Institute, a multicampus research unit of the University of California, located on the Berkeley campus.

University of California Energy Institute  
2539 Channing Way  
Berkeley, California 94720-5180  
[www.ucei.berkeley.edu/ucei](http://www.ucei.berkeley.edu/ucei)

# **Pricing Electricity for Default Customers: Pass Through or Performance-Based Rates?**

Carl Blumstein<sup>1</sup>

August 1999

## **Abstract**

California electricity consumers can choose a retail electricity service provider, but most have not done so. These consumers remain, by default, customers of the utility distribution companies (UDCs). Pricing electricity for these default customers is now an issue before the California Public Utilities Commission. In California this issue is framed largely in terms of two alternatives: pass through of the wholesale electricity price or a performance-based rate (PBR). Under the first alternative, purchase from the California Power Exchange (PX) would be mandatory; under the second, each UDC would determine where to purchase supply and each UDC's performance would be gauged by comparing its costs to the PX price. This paper identifies issues that should be addressed in choosing between the two alternatives. First the paper examines the effects of the two alternatives on electricity prices. The analysis suggests that, at least in the near term, the choice will not have much effect on prices. Next the paper looks at possible perverse incentives. A central concern here is that, if providing default service becomes profitable, UDCs might use their distribution assets to stifle competition in the retail market. Finally, the paper examines regulatory costs associated with the alternatives and concludes that regulatory costs are likely to be higher under a PBR.

---

<sup>1</sup> University of California Energy Institute. Blumstein is also a member of the Board of Governors of the California Power Exchange.

## Introduction

Since March 31, 1998 most California consumers have had the right to choose a retail electricity service provider. However, most consumers have not yet made any choice and, by default, remain as customers of the utility distribution companies (UDCs). The UDCs are required to supply these default customers by purchasing electricity for them from the California Power Exchange (PX). Costs of these purchases are simply passed through to the default customers. In February of 1999 the San Diego Gas and Electric Company (SDG&E) filed an application with the California Public Utilities Commission (CPUC) proposing that this arrangement be changed. SDG&E's application moved default customer issues to center stage in California's electricity restructuring process.

When the new electricity market opened in California, the UDCs still owned most of the generating capacity. Regulators were concerned that self dealing by the UDCs might inhibit the development of a competitive market.<sup>2</sup> Because of this concern, a requirement that all electricity purchases by UDCs be made through the PX was combined with a requirement that all electricity sales by UDCs also be made through the PX. These two requirements are commonly known as "mandatory buy/sell." The mandatory buy/sell was instituted as a temporary measure, to be kept in place while the UDCs divested generating assets and recovered the costs of their "stranded assets" under a rate freeze.<sup>3</sup> However, no decision was made concerning what regulations should govern UDC electricity purchases for default customers after the costs of stranded assets had been recovered and the rate freeze ended.

SDG&E's application was triggered by completion of the divestiture of all of SDG&E's fossil-fuel-fired generation and by SDG&E's expectation that all of the costs of its stranded assets would be recovered by the beginning of July 1999. SDG&E proposed that mandatory buy/sell end with the completion of stranded-asset recovery. In its place SDG&E proposed that it be permitted to buy electricity where it chose and recover a performance-based rate (PBR) from default customers. SDG&E's rate freeze has ended but the CPUC is still considering whether to accept SDG&E's proposal to institute a PBR.

---

<sup>2</sup> See California Public Utilities Commission, *Policy Decision D. 95-12-023*, (the Commission's restructuring policy decision), pp. 51-61, CPUC docket R.94-04-031 (December 23, 1995) for a discussion of these concerns.

<sup>3</sup> Under California's restructuring legislation each UDC's rates have been frozen at levels that are substantially above going forward costs to give the UDC's an opportunity to recover the costs their stranded assets. Each UDC's rate freeze must end either when the cost of its stranded assets has been recovered or on March 31, 2002, whichever is sooner.

In SDG&E's proposed PBR, SDG&E's performance would be determined by comparing the price that SDG&E actually paid for electricity with the price of electricity in the PX's day-ahead market. Most of SDG&E's cost of electricity procurement would be passed through to default customers. However, if SDG&E's cost of electricity procurement were lower than the PX price, then SDG&E would get a share of the savings. If SDG&E's cost of electricity procurement were higher than the PX price, then SDG&E would bear some of the extra cost.

In the proceedings that followed SDG&E's application, a number of parties argued that mandatory buy/sell should not end—at least not before careful consideration of the issues involved. While there are many possible ways of handling default customers, the SDG&E application and subsequent proceedings have had the effect of framing the problem largely in terms of two alternatives: the continuation of mandatory buy/sell with costs passed through or UDC procurement under a PBR.

This paper examines these two alternatives with an eye to identifying issues that should be addressed in choosing between them. First the paper examines the effects of the two alternatives on electricity prices. The analysis suggests that, at least in the near term, the choice between alternatives will not have much effect on prices. Next the paper looks at the extent to which the alternatives create perverse incentives for the UDCs that could encourage anti-competitive behavior. A central concern here is that, if providing default service becomes profitable, UDCs might use their distribution assets to stifle competition in the retail market. Finally, the paper examines regulatory costs associated with the alternatives and concludes that regulatory costs are likely to be higher under a PBR.

### **Electricity Costs and Prices**

The stated purpose of electricity restructuring in California was to reduce electricity prices to consumers. The strategy of the regulators was not to intervene directly in the setting of prices but rather to change the industry structure in ways that created incentives to reduce costs and prices. The primary structural change was to introduce competition in those parts of the industry where it was thought to be practical. Thus, the natural first question to ask about any change in the regulation of the industry is, how will it affect electricity prices?

Elimination of the rate freeze, which will occur in any event, will have a strong effect on UDC incentives. While the rate freeze continues, low prices in the PX benefit the UDCs.

Since the payment received by UDCs for stranded costs is the difference between the frozen rate and all other costs, low PX prices mean faster and, potentially, more complete recovery of stranded costs before the freeze ends. This incentive probably would not be very important if the electricity market were perfectly competitive. However, there is good evidence that this is not the case and that the exercise of market power by suppliers is raising prices above competitive levels.<sup>4</sup> Part of resisting the exercise of market power is political--persuading regulators and legislators to use governmental power to restrain market power. The UDCs have the resources (lawyers, advocates, etc.) to pursue this strategy and are, in fact, using these political resources to resist supplier market power. However, the incentives for the UDCs to hold PX prices down are growing weaker because it is becoming increasingly likely that all of the costs of stranded assets will be recovered before March 31, 2002.

Neither of the two alternatives does much to replace the incentive to hold down electricity prices that was created by the rate freeze. Under mandatory buy/sell without a rate freeze one would expect the UDCs to be more or less indifferent to the PX price since the price is just passed through to the final consumers. Under the proposed PBR UDCs would profit when the PX price minus the price of UDC purchases outside the PX was positive. UDCs would lose when this difference was negative. The incentive for UDCs is to increase the PX price *relative to* the outside-the-PX price.

In examining how these incentives might be reflected in the final price of electricity to consumers, it is useful to distinguish between a UDC's "electricity costs" and its "transaction costs." UDC electricity costs are the wholesale prices paid to producers for electricity and the related ancillary services. UDC transaction costs are the costs (other than purchase costs) involved in such activities as submitting bids, scheduling delivery and settling accounts. When power is purchased through the PX, most of the transaction costs are included in the PX's administrative charge. Although electricity costs are about two orders of magnitude larger than transaction costs (roughly \$30/MWh compared to \$0.3/MWh), transaction costs may still have quite important effects on market structure.

Electricity costs. An attraction of a PBR is that it would give the UDCs an incentive to shop around for the lowest prices. But it is hard to tell a convincing story that UDCs could purchase electricity at a price that is consistently lower than the PX price in a competitive market. Suppliers in a competitive market would not be expected to sell to a

---

<sup>4</sup> Borenstein, Severin, James Bushnell and Frank Wolak, *Diagnosing Market Power in California's Deregulated Wholesale Electricity Market*, POWER Working Paper PWP-066, University of California Energy Institute. Available at [www.ucei.berkeley.edu/ucei](http://www.ucei.berkeley.edu/ucei) (1999).

UDC for less than the price they could expect to obtain by selling in the PX. Even if the market were not fully competitive, suppliers would be expected to sell into the PX if that were where the highest price could be obtained.

The situation is roughly the same when long-term contracts are used. If a UDC purchases supply on long-term contracts at a fixed price, in a competitive market the contract price would be closely related to the expected price in the PX day-ahead market. Sellers might be willing to give up a small “risk premium” (*i.e.*, accept price that is slightly lower than the expected PX price) in order to obtain a guaranteed future price. This would create an opportunity for firms that are less risk averse than the suppliers to make money by betting that they would be on the right side of the spread between the price in the forward market and the PX day-ahead price. However, this seems an unlikely strategy for UDCs since these firms are, at least according to the common wisdom, quite risk averse.

Since the UDCs still purchase more than 80% of the supply, they may have considerable buyer market power. A drawback of a PBR is that it would give UDCs an incentive to use this market power to increase the PX day-ahead price relative to the price for purchases outside the PX. For example, if a UDC bought forward contracts at a fixed price, it would then have an incentive to act in ways that would increase the PX day-ahead price. But, even though the UDCs have a dominant share of wholesale demand, it is not easy to see how the UDCs could exercise market power to increase the PX price relative to the outside-the-PX price in a sustained way. This is because the UDCs cannot change the total amount that they buy, they can only shift their purchases among markets. We know, for example, that on a given day shifting demand from the ISO’s real-time market to the PX day-ahead market can increase the day-ahead price (and reduce the real-time price). But such an increase cannot be sustained over time since, if the price is higher in the PX than in the real-time market, supply will move from the real-time market to the PX.

A subtler market-power story would be for the UDCs to simply stop resisting supplier market power. Supplier market power has been meeting active resistance from the UDCs both in the political arena and in the UDC’s bidding strategies. If this resistance ended, prices in the PX might rise. But this strategy is also self-limiting since, if there were a sustained increase in the PX day-ahead price, prices would rise in the long-term contract market. Of course, markets may take time to adjust and a UDC that used its market power to move the PX price in the short run might take some profits while the adjustment was occurring.

The central point here is that moving the PX price is not, by itself, sufficient to increase profits under a PBR. Profit (or loss) is determined by the *difference* between the PX price and the outside-the-PX price. A positive difference (*i.e.*, PX price greater than outside-the-PX price) means profit. To increase profits it is necessary to increase this positive difference. But, when a difference opens up, market forces (acting through opportunities to arbitrage the price difference) will tend to close the difference down again.

This tendency for market forces reduce price differences provides a restraint on the use of market power to profit under a PBR. The efficacy of this restraint depends on the robustness of the PX market. It must be easy for suppliers to bring their power to the PX when the PX price is attractive. Indeed, since the PX provides the reference price, the success of a PBR like that proposed by SDG&E is inextricably linked to the health of the PX market. Ironically, as discussed below, SDG&E's proposed PBR also poses a consequential threat to the PX market.

Transaction costs. There is a more convincing story that the UDCs can beat the PX transaction costs for some transactions. Transaction costs for large transactions are probably below the PX administrative charge. The cost to do a 1000 MW supply transaction is not 100 times the cost to do a 10 MW supply transaction. However, because the PX charge is levied only on buyers, the PX charge does not reflect this difference in transaction costs. Since the sellers do not pay anything, their transaction costs must be borne by the buyers. There is no way to distinguish what part of a buyer's supply comes from large transactions and what part comes from small transactions. As a result, the PX charge to buyers reflects the *average* transaction cost for supply.

Under a PBR this price structure could create risk-free opportunities for UDCs to make profitable deals with suppliers that had below average transaction costs. For example, a UDC could contract for power from a large base-load plant, pay the plant the same as the plant would have received from the PX, and still make a small profit equal to the difference between the UDC's transaction costs and the PX's administrative charge. This strategy might be called "cherry picking" because it involves picking off the low-cost transactions. The PX, which by law must handle transactions from all comers, is left to deal with the higher-cost transactions.

This story is something of a nightmare for the PX. While UDC profits from cherry picking will be relatively small, the revenue losses for the PX could be quite significant. Since cherry picking does not reduce the PX's fixed costs, the PX's average costs will

rise. For the PX to remain solvent, the increase in average costs will have to be recovered from the PX's remaining customers through an increased transaction charge. Increased transaction charges may cause more cherry picking—there is a potential for a downward spiral.

An attraction of a PBR is that it puts pressure on the PX to control costs and to keep its price structure aligned with its cost structure. The PX's best defense against cherry picking is to adjust the PX transaction charges so that prices for doing low-cost transactions in the PX more closely match the actual transaction costs. However, the PX may have a hard time adjusting its transaction charges since they are regulated by the FERC. A rather substantial overhaul of the pricing structure would be needed since supply transactions would have to be individually priced. Parties who are adversely affected by the changes could intervene, delaying or preventing changes.

FERC regulation and the PX's quasi-public character also constrain the PX's ability to reduce overall costs. The PX is the market of last resort with an obligation to serve all comers. It has obligations, both implicit and explicit, to assure the integrity of the market and to take actions in support of system reliability. In addition to the costs of dealing with FERC, the PX must bear the costs of operation of the Market Monitoring Committee and the costs of maintaining back-up facilities.

In the end, consumers as a class pay all of the transaction costs (*i.e.*, the sum of the PX administrative charge for purchases in the PX plus any UDC transaction costs for procurement outside the PX).<sup>5</sup> For policy makers concerned with social welfare, one of the considerations in choosing between mandatory buy/sell and a PBR is, which alternative has the lower total transaction costs? That is, are total transaction costs lower when the UDCs buy power both through bilateral contracts and through the PX or are total transaction costs lower when all procurement is done through the PX? If there are economies of scale in the procurement of electricity, procurement through a single channel may well be cheaper.<sup>6</sup> It is possible for cherry picking to be profitable for UDCs even though the result is increased total costs for consumers.

---

<sup>5</sup> This does not include the possibility of no UDC purchases in the PX. If UDCs did not trade in the PX, the PX market would almost certainly be too thin to provide the reference price for a PBR.

<sup>6</sup> The right comparison here is PX marginal transaction costs v. UDC average transaction costs for outside-the-PX procurement. That is, if PX marginal transaction costs are lower than UDC average transaction costs then total transaction costs will be lower under mandatory buy/sell. The reason for this is that, since a viable PX is necessary for either alternative, PX going-forward costs must be covered under either alternative. On the other hand, under mandatory buy/sell UDCs will not have going-forward costs for outside-the-PX procurement. In practice this is likely to be a difficult comparison to make because the

Considering all of the factors discussed above related to electricity costs and transaction costs, it is reasonable to conclude that the choice between the alternatives will not have a big effect on electricity prices in the near term. For the longer term, some other factors also must be considered to evaluate the alternatives. These include effects of the alternatives on competition and on the cost of regulation. For the most part, these effects are associated with incentives that the alternatives create for the UDCs to engage in anti-competitive behavior.

### **Perverse Incentives**

The term “perverse incentives” is used here to describe incentives to do things that adversely affect market efficiency (especially, various kinds of anti-competitive behavior). The job in market design is to align the incentives with good behavior, minimizing perverse incentives and making violations of the rules easily detectable and sanctionable. Market design for the California electricity market must deal with some special features that make the market vulnerable to anti-competitive behavior. The UDCs have a monopoly in the distribution business and a dominant position in retail supply. There will be opportunities for UDCs to use their monopolies in distribution to defend their dominance in retail supply. Also, the UDCs are affiliated, through holding companies, with other firms that are engaged in the energy business. These affiliated firms include businesses engaged in retail electricity supply, electricity generation, and natural gas sales and transportation. Regulators have directed the parent corporations to build administrative “firewalls” between their regulated and unregulated businesses. But it is hard to make such firewalls completely impermeable. If the incentives are strong, there will be opportunities for self dealing among the affiliated companies that shifts costs from competitive businesses to regulated businesses.

A PBR gives UDCs an opportunity to earn profits in the retail market if they can beat the PX price. If the result of a PBR is that supplying default customers is profitable, then the UDCs will have an incentive to retain the default customers. This incentive is potentially perverse because the UDCs are well positioned to engage in unfair competition to retain customers. A particular concern is the potential for using the resources of the distribution business to retain customers for the supply business. There are a number of ways that this can be done. In many of these it would be difficult to prove that the practices

---

going forward costs of outside-the-PX procurement are liable to be confounded with costs from other UDC activities.

involved were the result of deliberate policy. For example, a UDC could assign insufficient personnel to the administrative tasks associated with switching from UDC supply to other supply. This could produce delays, billing errors and other problems that would make customers reluctant to switch. Another strategy that might be employed is to make it easy for customers who call the UDC for a new distribution hookup to also obtain UDC supply (one-stop shopping). A little reflection will suggest to the reader that there are many other possibilities for using distribution assets to support the supply business. Some industry observers believe that complete separation of distribution and supply may be necessary if retail supply is to be truly competitive.<sup>7</sup>

Mandatory buy/sell stops well short of complete separation between distribution and retail supply but it does reduce the incentive for customer retention. Whether any incentive for customer retention remains will depend on whether the UDCs are allowed to earn a return on assets that may be used for retail supply. Such a return could be part of a retail markup over the wholesale price. Whether there should be any retail markup in the default electricity rate (there is currently none) is now an issue in the regulatory proceedings. Retailers who want to compete for the default customers are arguing that the retail markup in the default rate should be large. They point to the pricing structure in Pennsylvania, which has large retail markups, as an example of what needs to be done to establish retail competition.<sup>8</sup>

A PBR may also increase incentives for self dealing between the UDC and other affiliates of the parent corporation. If the UDC and its customers share the extra cost of purchases above the PX price under a PBR, then the UDC might have an incentive to make above-market purchases from a generation affiliate. For example, if above-market costs were split 60/40 between the UDC and its customers and the UDC made a purchase from an affiliate that was \$10 above market, then the UDC would lose \$6, the affiliate would gain \$10, and the parent corporation would net \$4. If a prohibition against direct transactions were enforced, self dealing might be done indirectly. For example, the UDC could buy above market from a broker who reciprocated by buying above market from the generation affiliate. Absent fairly heavy-handed regulation, these kinds of dodges might be difficult to detect.

---

<sup>7</sup> For example, comments by Stephen Littlechild during a seminar at Haas School of Business, University of California at Berkeley (May 6, 1999).

<sup>8</sup> See, for example, Regulatory Assistance Project, *Issueletters: Setting Rates for Default Service*, <http://www.rapmaine.org/defaultsvc.html> (January 1999) and Jonathon M. Jacobs, "Setting a Retail Generation Credit," *Elec. J.*, 12:4, p. 80 (May 1999). For an opposing view see, Alfred E. Kahn, "Bribing Customers to Leave and Calling It 'Competition'," *Elec. J.*, 12:4, p. 88 (May 1999).

Mandatory buy/sell is not entirely free of incentive problems related to affiliated businesses. Although mandatory buy/sell makes UDCs indifferent to the PX price, the UDCs' parent companies may not be indifferent. Parent companies that operate generation businesses will probably benefit from high PX prices. As discussed above, if the UDCs relax their resistance to supplier market power, the PX price may rise. It is also possible that UDCs could increase parent company profits by coordinating bidding strategies with affiliated companies. For example, a UDC might share information with a supply affiliate about how much of its demand the UDC was planning to bid into the PX and how much it was planning to meet with purchases in the real-time market.

### **Regulatory Costs**

It appears that a PBR would require considerably more regulatory oversight than mandatory buy/sell. There are several reasons for this. First, there is no ambiguity, *ex post*, about the PX price. UDC costs of procurement outside the PX may be more difficult to pin down since these costs will be determined by numerous private transactions. Since, under a PBR, UDC profits will be tied to their outside-the-PX procurement costs, there will be a need for regulatory oversight and verification. Moreover, if the costs are above the PX price (thus increasing consumer costs), regulators may feel compelled to review the prudence of UDC purchases. Second, UDC incentives to exercise their buyer market power in the wholesale market are greater under a PBR. This will necessitate more explicit rules against anti-competitive practices and closer supervision of UDC conduct in the market. Third, the other perverse incentives appear to be more numerous and more severe under a PBR. The most serious of these is the increased incentive to use the resources of the distribution monopoly to maintain dominance in retail supply. Again, the rules will need to be made more explicit and closer supervision will be needed. In addition, if there are problems with switching from UDCs to other suppliers, there will be numerous complaints from competing retailers. Investigation and resolution of these complaints could consume a lot of regulatory resources.

### **Conclusion**

As usual in matters of this type, the choice between mandatory buy/sell and a PBR involves trade offs. The advantages of a PBR are that it puts pressure on the PX to control costs and align prices with costs and gives UDCs an incentive to develop lower-cost alternatives to the PX. The advantages of mandatory buy/sell are that it avoids a number of perverse incentives associated with a PBR. The most important of these

perverse incentives are incentives for the UDCs to exercise buyer market power in the wholesale market and to compete unfairly in the retail market. Making the trade offs involves a judgment about whether the benefits of the good incentives of a PBR (*i.e.*, for cost reductions) will outweigh the costs (anti-competitive behavior, increased regulation) of the perverse incentives.

### **Acknowledgements**

Insightful comments from Severin Borenstein, John Flory, Alvin Klevorick, Chris Knittel, Bart McGuire, Mary McDonald, and Catherine Wolfram are gratefully acknowledged.