

# **The Deregulation Path in Wholesale Electricity Markets: Comments on Adamson and Wellenius**

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## **1. Introduction**

I have been asked to comment on the paper presented by Seabron Adamson and Kevin Wellenius, "Determination of Horizontal Market Power Abuses in Wholesale Electricity Markets: Economic and Legal Analysis of Tacit Collusion."

The paper covers three areas that are dear to my heart: (1) the application of game theory to study market competition, in which I have dabbled from time to time; (2) the role of antitrust, and specifically the boundary between antitrust and regulation as methods of controlling market power, which was a regular issue before me when I was at the Justice Department; and (3) the deregulation of electricity markets and restructuring of the electricity industry, in which I have taken a keen interest, especially since joining the Market Surveillance Committee (MSC) of the California Independent System Operator (CAISO).

Consequently, I had hoped I might learn from this paper about (1) the use of game theory to better understand bidding strategies by companies owning electricity generating capacity; (2) the interaction of antitrust and regulation in an industry with a history of heavy regulation now experiencing a major restructuring; and (3) how we in California should best proceed to rely increasingly on markets rather than regulations without permitting the undue exercise of market power.

I must report, however, that I was disappointed by what the Adamson and Wellenius (AW) paper had to say on these topics. To the contrary, I have concerns that the AW paper is not only flawed as a matter of economics and misguided as a matter of public policy, but potentially dangerous to the extent that it receives attention or is used by those who seek to weaken controls on the exercise of market power in electricity markets. We

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have serious work to do in California to get our wholesale electricity markets working properly, and this paper does not advance those efforts.

## **2. Deregulation and the Role of Antitrust**

I believe we should move prudently to redesign and deregulate wholesale power markets with a keen awareness that our new market rules and institutions may permit gaming, market manipulation, or the exercise of market power. Over time, we are learning which rules work well, and which need fixing. The CAISO, for example, gradually learns which software limitations are costly, which procurement practices are inefficient, which rules open up gaming opportunities, and which market institutions stand in the way of an efficient market. At the MSC, we observe the strategies of market participants, try to determine where we are seeing market manipulation or the exercise of market power, and what can be done to reduce the frequency or severity of these episodes. This is the natural process by which complex new market institutions emerge and markets are deregulated. Yes, it is awkward, frustrating, and highly imperfect. How could such a major structural change in a highly complex economic, institutional, and political environment be otherwise?

Yet AW have little patience for this process, urging us to quickly stop regulating the market and let antitrust standards prevail. They brand as “unworkable” what they call the “strict no market power standard.” Casting the question as a choice between “antitrust” and “regulation,” they vote for antitrust. By this they mean that generators should be free to adopt whatever bidding strategies they choose, and we should be willing to live with the resulting prices for energy and ancillary services, however high they may be, so long as there is no collusion among generators.

These are the battle lines. In my view, AW stake out an extreme position that lacks merit.

Before delving into the specific arguments in the paper, I must emphasize that the very notion that we must choose between “antitrust” and “regulation” is simply mistaken. The fact is, antitrust, by design, consists of a set of general rules that apply across the entire economy. Antitrust law has never been a substitute for detailed regulations in those markets that warrant such rules. To the contrary, antitrust practitioners are eager to point out that many problems of market power are beyond the reach of the antitrust laws and must be controlled by regulations, if at all. The primary example, quite relevant here, is the basic exercise of monopoly power by setting prices at monopoly levels. It is well established that merely pricing “too high” is not an antitrust violation. Nor is the mere possession of monopoly power, absent some specific conduct apart from competition on the merits that led to the monopoly. So, I ask, if our newly redesigned electricity markets permit the exercise of significant market power, why in the world would we want to allow the unchecked unilateral exercise of that power? Surely that would be an irresponsible way to deregulate any industry. Rather, we should be working to design rules that limit the exercise of market power, with the hope that some of those rules can be eased once we are confident that such power can no longer be exercised.

The need for detailed regulations in a number of industries is clear enough, yet AW write as though any self-respecting industry can count on antitrust alone. Would they favor abolition of the Securities and Exchange Commission and leave financial market participants to act as they please so long as there is no collusion? (When I was at the Justice Department, we found evidence of collusion among NASDAQ market makers; our antitrust enforcement action was complementary to SEC enforcement actions and rulemakings.) Would AW favor scrapping the rules by which local telephone companies are required to make their facilities available to competitive local exchange carriers?

The notion that we can count on antitrust alone to guide us becomes patently absurd when one considers the serious policy issues on the table right now, just in California. I looked back over this year's policy calendar of the Market Surveillance Committee, asking how AW think general antitrust principles can help us do our work. Clearly, we need detailed rules to manage congestion in California's electricity markets. Clearly, we need RMR contracts, or some other means of dealing with local market power, and we need to design those contracts so they do not create incentives for generators to withhold their capacity from the market. Clearly we need to work with the CPUC to bring demand-responsiveness to the market. (Indeed, given the current state of *retail* regulation in California, the notion that a free-market approach to wholesale markets in California must be best is ideology, not economics. Get back to me when the retail market is unfettered, and when users of electricity have the incentive and ability to reduce load in response to price signals.) Clearly we need rules that send the right signals for the location and interconnection of new generators. Clearly, given California's zonal approach, we need rules for the creation of new zones. Clearly, we need rules regarding FTRs. So sorry, but simply invoking antitrust principles and policing collusion is not enough.

In the end, we do not need to choose "antitrust" *or* regulation. How about both, each in its place?

### **3. Specific Arguments in Adamson and Wellenius**

#### ***A. Peak Load Pricing and Investment***

AW argue that we will not see sufficient investment in electricity generation under a system whereby generators bid in their marginal cost and receive the market clearing price (MCP) for their power. This is an extraordinary claim, and a faulty one.

The fact is, economists have understood for many years that investment incentives are optimal in a fully competitive market. Of course, this ideal cannot be achieved in markets where the economies of scale are large relative to the size of the market; in that case we must live with an oligopoly or even a monopoly. But there is no respectable argument that investment incentives will be too low in a competitive market where no firm can exercise significant market power. Ricardo proved this nearly 200 years ago, and his proof remains valid today: a competitive electricity market will in fact send the right signals for investments in new peaking generators. In contrast, I read AW to be saying

that market power is required to induce such investments. This is simply not right as a matter of basic economics and should be given no credence.

A new generation facility worth building will recover its fixed costs in the form of the margins between the market clearing price and that generator's marginal cost at all hours when that generator is on. This is no different than the principle that governs investment in other commodity industries, from the creation or expansion of farms to the drilling of oil wells. Fixed costs are recovered in the form of *scarcity rents*, which are greatest during periods of high demand. No market power is required to earn scarcity rents. The corn farmer earns scarcity rents any season during which the price of corn exceeds the marginal cost of production that season. These rents ultimately pay for the fixed costs of farming. The oil company owning a particular oil well earns scarcity rents when the price of crude oil exceeds the marginal cost of extracting that oil. With all due respect to those in the electricity industry, the same basic principles apply to electricity generation.

The real issue, then, is how we distinguish scarcity rents from market power. Naturally we expect to see high prices during period of peak demand. Indeed, those prices are ultimately necessary to send signals to the demand side of the market to reduce load. So it would be wrong to infer market power merely from the fact that prices are higher during periods of peak demand. And indeed other papers at this conference do some of the hard work required to tell apart scarcity rents and market power. The better we are able to observe the true marginal cost of serving load at various times for various generators, the more accurately we can measure the exercise of market power. But AW offer no help with this effort.

### ***B. Strategic Behavior by Generators***

AW correctly identify the basic unilateral withholding strategies that generators can engage in if they enjoy some market power. Indeed, these strategies are a perfect example of the principle discussed in all microeconomics textbooks, namely that marginal revenue is less than price for a firm with market power. AW also make the important point that pre-existing contractual commitments can greatly alter generators' bidding incentives and strategies.

Beyond these points, however, the game theory employed in the paper is either elementary or incorrect. Some readers may find the treatment of tacit collusion and supergames helpful; certainly it is true that companies competing repeatedly can engage in various dynamic strategies that facilitate collusion, e.g., by punishing those who deviate from a tacitly collusive price by increasing their output or engaging in discounting. These points are well understood in the industrial organization and antitrust community; those studying electricity are well advised to study them as well. But the discussion of mixed strategies in AW is flawed. Mixed strategies are randomized strategies, which make sense when there is benefit in being unpredictable. The strategy of "taking turns" at withholding capacity that AW discuss is not a mixed strategy, since it involves no randomization. (To the contrary, it is important to be predictable and not go out of turn, as doing so can disrupt the collusive scheme.)

### *C. Tacit Collusion*

I do not take great issue with AW's characterization of the antitrust treatment of tacit collusion. As someone who has been involved in a number of price-fixing cases, both for the government and for private parties, I would only like to emphasize how difficult it is for plaintiffs in such cases to *prove* that collusion has taken place. The courts require plaintiffs to establish that defendants have a "conscious commitment to a common scheme designed to achieve an unlawful objective." The evidence must "tend to exclude the possibility of independent action." These are fairly tough standards for plaintiffs to meet: parallel conduct is not enough, and plaintiffs must establish certain "plus factors" in order to prevail in the absence of direct evidence of collusion.

The tough legal standard for finding tacit collusion is quite appropriate as a general antitrust rule: it is not workable to have the courts looking over every company's shoulder and inferring collusion from the fact that their prices are the same as their rivals' prices. But let us be clear: for precisely the same reason, relying solely on antitrust to prevent the exercise of market power, and stepping in only if collusion has been found under antitrust legal standards, would do very little indeed to check the exercise of market power in electricity markets, and nothing at all to check the unilateral exercise of such power.

### **4. Bid Caps and Price Caps**

Although AW speak generally about relying on general antitrust principles rather than regulations, I read them to be addressing most specifically the policy question of whether "bid caps" or "price caps" should apply to the sale of electricity or ancillary services by generators. The hands-off approach favored by AW would permit arbitrarily high prices for energy so long as these prices do not result from collusion.

The economics behind the concern that generators can unilaterally exercise considerable market power under high-load conditions is clear and unequivocal. Essentially, with extremely inelastic demand, and moderate concentration of generation capacity, any owner of generation capacity whose capacity is needed (either with certainty or with high likelihood) to meet demand enjoys significant market power. Although I can easily see why generators would like the ability to exercise their market power without the annoyance of price caps, I simply see no basis for concluding that the permitting such an exercise of market power during the early stages of deregulation is in the public interest.

As a Member of the CAISO's Market Surveillance Committee, I have had occasion recently to give some serious thought to the effects of a price cap in the CAISO's markets.<sup>1</sup> After concluding that the CAISO's markets had not been "workably

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<sup>1</sup> The MSC provided to the CAISO Board our assessment of whether the CAISO's markets have been "workably competitive" in past summers, and are likely to be so during the summer of 2000, along with our views on the effect of price caps on the ISO's markets. See our opinion, "The Competitiveness of the California Energy and Ancillary Services Markets," available on the CAISO web site at <http://www.caiso.com/docs/09003a6080/04/26/09003a6080042615.pdf>.

competitive” during the past two summers, we could not conclude that these markets *will* be “workably competitive” during the summer of 2000, and we offered our views on price caps. While one can engage in a thoughtful debate about whether a price cap of \$750/MWH or \$500/MWH this summer would better serve the public interest, I do not believe that a respectable argument can be made for simply *removing* price caps altogether at this stage in the market’s development.

I find it ironic that AW offer a broad laissez-faire justification for removing price caps. The fact is, we do not yet have a proper “free market” for electricity in California (and I am not referring to the remaining price caps when I say this). In a proper “free market,” users would face genuine price signals, so we would have real demand elasticity reflected at the wholesale level. In a proper “free market,” buyers of electricity and ancillary services would have greater freedom to make long-term arrangements for their needs rather than be subject to the exercise of market power in the spot market. (Indeed, I continue to be amazed at those who seem to think that the “market” only means the *spot* market. In all other parts of the economy, users of non-storable products who have inelastic demand are careful to arrange in advance to meet their needs, knowing that relying on the spot market is likely to leave them in a very weak position when negotiating with suppliers, or simply high and dry if supplies are short.) Surely, given the other significant “distortions” still present in California’s electricity markets, there can be no general argument (“just let the market work”) for removing price caps until markets are proven to be workably competitive. We are squarely in a world of second-best, not an idealized world of smoothly functioning markets.

During the next year, I am confident that we will grapple long and hard with the question of whether to relax or eliminate price caps in California or put in place some new system to make sure that the market-based rates earned by generators are “fair and reasonable.” I regret to say that AW add little to that debate. We need to improve our methods for evaluating when electricity markets are “workably competitive.” We need further study of how price caps or other policies influence investment and entry decisions by generators. We need further study of how wholesale prices affect the efficacy of demand-responsiveness programs. And we need to understand the pros and cons of different forms of regulation, e.g., price caps or bid caps vs. circuit-breaker systems that limit price *movements* rather than price *levels*.

We all look forward to the day when we can let wholesale electricity markets operate without specific pricing controls, but real work is needed to reach that day. In my view, the AW paper does not contribute constructively to that effort.