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Monopsony behavior in the power generation market

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Keywords: Monopsony Electric utilities Power market ABSTRACT

As the sole sellers of power to customers and buyers of wholesale power, vertically integrated electric utilities operate as both monopolies and monopsonies. Regulators account for the negative effects of monopolistic behavior, but little attention is given to the impact of monopsony. As the sole (or dominant) buyer of power in a particular market, the vertically integrated utility can constrain the market, shift risks to sellers, and force generation prices below a long-term market rate. A less competitive market enhances the utility's opportunity to invest its own capital in generation, even at above-market prices, and even to the point of costly over-procurement.

1. Introduction

Vertically integrated electric utilities are regulated by state and federal commissions as *monopolies* - sole sellers of power to customers. But they are also *monopsonies* - the single buyers of wholesale power within their service territory. While regulation of monopoly behavior is the core mission of utility regulators, the interests at stake in regulating monopsony behavior in the power generation market may not yet be adequately defined (Fig. 1).

One reason that monopsony behavior has received less attention from regulators is that utilities have only been buying generation from independent developers for about four decades. Before 1978, vertically integrated utilities provided most of their own power by owning their own generation. Enactment of the Public Utility Regulatory Policies Act, and subsequent amendments, compelled utilities to purchase power from cogenerators and small power producers. Then, the Energy Policy Act of 1992 further opened up and organized regulated wholesale power markets.

Courts often define market power as the ability to control prices or to exclude competition.² The state franchise for electric utilities grants them a number of rights and responsibilities, including exclusive service territory and an obligation to serve all customers. The state franchise may not require a vertically integrated monopoly to purchase power from a competitive market, unless the state has established a competitive wholesale market subject to federal regulation. These utilities often have substantial market power over the generation market due to a monopoly on transmission services as well as the ability to exclude competitors from supplying electricity to utility customers.

2. Theory

2.1. Global and local power generation markets

Although the global market for power plants is by any measure competitive, anti-competitive conditions can produce more exclusive local or regional markets. Globally, many companies manufacture components for and develop renewable energy and gas-fueled power plants. But within any local or regional market, there may be legitimate constraints on market access, such as the supply of advantageous sites for generation.

When a utility has a state-franchised monopoly on utility sales and also controls transmission networks that are required to move power from generation and to loads in that territory, then that utility is effectively the sole buyer if a resident seller, or independent power producer (IPP), is geographically constrained. Cogenerators and independent power producers generally have a right to purchase access to the utility's transmission system to access markets outside the territory, but this is a limited right that often comes with significant costs.

An IPP may face geographic constraints for a number of reasons. First, if it is a co-generation facility associated with a customer of the

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² See United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 391 – 92 (1956). Furthermore, since the monopoly and monopsony behaviors of vertically integrated utilities are regulated, those behaviors are exempt from federal antitrust laws.



Fig. 1. Examples of Monopolistic and Monopsonistic Firms in the Power Generation Market. This figure illustrates three prototypical power market firms. Independent power producers develop and operate generation resources, and typically lack market power. Wires-only utilities operate a state franchise to sell power in a designated service territory, where they hold a monopoly on retail delivery of power. A vertically integrated utility holds the same monopoly on retail delivery of power, but also procures power and sells it to its customers, which further extends its monopoly power and adds a monopsony element as the sole buyer of power in its service territory. The authors are unaware of any generally applicable monopsony firms in the power generation market who are not also monopolies.

monopoly utility. Second, if it is an existing facility with a prior expired contract. Or third, if it has invested significantly in the development of specific sites within the service territory of that utility prior to participating in a procurement. This latter condition applies particularly to wind and solar power facilities.

As a single exclusive buyer in a restrictive geographic market for new electricity resources, monopoly utilities thus have what is called monopsony power. Compared to studies of monopolies, economists have given less attention to monopsony buyers of primary resources. Economists originally conceived of monopsony power in labor markets, where most such research remains focused (Robinson, 1969). There has also been interest in agricultural markets, and technology-based businesses have been discussed by columnist Paul Krugman, referencing Amazon's buying power (Krugman, 2014) and targeted by litigation against Google, for example (Fletcher, 2019).

There has also been some discussion of monopsony power in the context of capacity markets such as PJM's Reliability Pricing Model, where it is suggested that buyers might underprice their own existing generation resources to artificially lower prices in a capacity auction.³ Beyond those circumstances, there has been very little direct examination of the economic and legal implications of monopsony behavior by monopoly electric utilities in the context of procurement of long term contracts or ownership of generation units.

2.2. General principles of monopsony power

Most treatments of monopsony focus on the buyer's power to extract price concessions from sellers (Noll, 2004). Just as for monopoly sellers, it is illegal for buyers to collude in order to engage in monopsony pricefixing (Blair and Harrison, 2010). But on the other hand, the use of buying power to obtain lower prices is not in and of itself a violation of antitrust laws (Blair and Harrison, 2010).

Monopsony behavior violates antitrust laws when a firm uses its market power to deny access to, or raise the prices its rivals pay for critical resources. For example, in 1946 leading tobacco companies were prohibited from buying out less expensive tobacco supplies (without intending to use them) in order to eliminate low-priced competition (Blair and Harrison, 2010).

From an economist's perspective, a buyer with market power can set the price of goods or labor in its supply market (Blair and Harrison, 2010). To maximize profits, the buyer will pay less for and procure less of the goods or labor in that market than would be economically efficient. In a market with competition, it would both pay more for and procure more of those same goods or labor. Thus, monopsony behavior harms the sellers of those goods or the workers in the labor force.

The legal standards applied to determine if harm occurs revolve around the concept of predatory pricing and bidding. "The term *predation* is reserved for instances in which a firm makes itself economically worse off or acts in an economically irrational fashion and deliberately suffers losses" (Blair and Harrison, 2010).

In addition to price concessions, monopsony buyers may shift risks to IPPs. In one case, a court found that a poultry buyer forced sellers to make extensive investments, and then required those sellers to comply with the buyer's changing terms of business, without recourse for the sellers if the buyer fails to perform on its obligations. This case illustrates that to identify a monopsony without relying on market share, enforcement may focus on coercive market power (Stucke, 2012).

As discussed above, even though there may be a competitive global market, it does not follow that a constrained local market will also be competitive. Economists explain that, "A broad market definition will tend to result in relatively low market [power], whereas a narrow definition will result in comparatively high [market power]" (Blair and Harrison, 2010). Other key factors that help a single buyer force prices below a long-term market rate are differences in productivity among sellers or if sellers have sunk costs.⁴ Identifying the market, and the economic conditions that exist in that market, are the key steps to determining if a buyer may exercise monopsony power.

3. Discussion

3.1. Application of monopsony principles to power generation markets

Utility procurement of locally-generated power can easily meet the theoretical conditions for monopsony power, which depends on four conditions.

- Lower price elasticity of demand for output Utilities usually procure a fixed amount of generation resources that are driven by their own analyses of generation requirements. Utilities do not often procure additional power in response to lower prices.
- Lower input price elasticity of supply Generation suppliers, which are often national or global in scale, are generally able to build as many power plants as utilities require without running into constraints that would affect prices.
- Higher seller's market share Vertically integrated utilities are by definition monopolies, with captive customers, although they may compete for large, relatively mobile customers.
- Higher buyer's market share If there is only one monopoly utility in the region, then it will have a high share of the local market for power generation. However, if there are several utilities in close

³ The Minimum Offer Price Rule (MOPR) is authorized by FERC to address potential exercise of market power by power buyers. Arguably, this definition of buyer-side market power reaches beyond the classical definition of a monopsony as a sole buyer in a market. Some critics have noted that FERC policies have extended MOPR to apply to any state policy that incentivizes generation from resources that could have an impact on the market (Goggin and Gramlich, 2019).

⁴Below market rate pricing results in sellers eventually exiting the market because they are not rewarded for their efficiency or able to sustain investments.

proximity or competitive retail suppliers, then this factor may be mitigated (Chang and Tremblay, 1991).

Notably, monopoly utilities that procure capacity in an organized market alongside other monopoly utilities would have significantly less monopsony power. For this reason, we are not considering buyer-side market power in an organized market to be properly within the definition of a monopsony.

When vertically integrated utilities have monopsony power, how might they use it? As monopolies, vertically integrated utilities bring several financial biases to the power generation market, and these biases affect how they may use monopsony power. Generally speaking, vertically integrated utilities have a financial bias towards over-procurement of capacity, a financial bias towards self-built generation, and an organizational culture that favors gas-fueled generation (Wilson et al., 2020). At first glance, some of these biases may seem at odds with the classical economic behavior of a monopsony, which maximizes profits by driving down prices and reducing purchases.

However, if a monopoly utility uses its power to drive down prices and reduce purchases to essentially eliminate sellers, then it can buy from itself in excess quantities at gold-plated prices. Economic theory suggests that monopsony power is even more difficult to resist than monopoly power (Carstensen, 2017). This is known as predatory bidding, in which a firm pays above market price for an input because it is "able to sell its output at above-cost prices depending on its power in other input markets" (Blair and Harrison, 2010). Of course, because of its monopoly power, a vertically integrated utility is well positioned to sell its output at above-cost prices.

Thus, a monopsony utility that pursues predatory bidding practices is not necessarily attempting to extract price concessions from sellers, but rather the utility may be seeking to create conditions that drive sellers from the market. Predatory bidding has only been examined in a few antitrust cases, such as the tobacco buyers case mentioned above (Blair and Harrison, 2010). Happily for the regulator, constraining the monopsony power of the vertically integrated utility also diminishes the utility's opportunity to act on inherent financial and cultural biases that drive up costs for customers.

Regulation's focus, however, is not just with prices and financial risks. In addition to markets, regulation also establishes laws that govern behavior and recourses, norms of practice, and architecture (the constraints on what can be done and what can be understood, such as engineering standards or data systems) (Herborn, 2013). Each of these four regulatory channels directs the behavior of the utility and its suppliers, and the regulatory decisions determine the opportunities for each to benefit and the risks of harm when engaging in resource procurement.

3.1.1. Who benefits, and who is harmed, if a utility exercises monopsony power?

Why would a utility want to procure a less diverse mix of electric generation resources in order to drive the price well below its willingness to pay? As discussed above, a less diverse mix of resources means a narrower market, which is one factor that defines the market power of a buyer. The utility may benefit through capital asset growth, but harm may occur to consumers through higher electric rates, less innovation in power supply, and less improvement in environmental outcomes.

If the utility is willing to forego capital asset growth, utility customers could benefit, if below-market prices for power are passed through to lower rates. Indeed, two antitrust cases have found that consumer welfare could justify exploitation by buyers. For example, an insurer that forced lower prices on health providers in order to benefit health insurance customers (Carstensen, 2017).

But if regulators permit utilities to procure resources owned by corporate affiliates or the utility itself, then monopsony power gives utilities the capability to advantage themselves with higher levels of investment, while disadvantaging potential power developers by compelling lower prices. The higher investment levels could drive rates up for utility customers, particularly if depressed seller prices drive power developers from the market (Rogers and Sexton, 1994). And the resulting higher rates do not harm the utility's customer retention because most customers are captive to the monopoly.⁵

Utilities have often demonstrated the willingness to advance higherpriced strategies. For example, the utility may claim that future customers will benefit from lower prices after a period of rate increases. This claim has been advanced by several utilities when justifying selfbuild plans for high-investment power plants such as Georgia Power's Vogtle, Mississippi Power's Kemper, and the cancelled SCE&G VC Summer 2, to name a few. Some of these projects were quite risky, and turned out to have higher construction costs than originally anticipated (Bartelme, 2017). Similarly, after Duke Energy Carolinas' JE Rogers 6 (formerly Cliffside) was converted to gas-fueled operation, the investment value of the supercritical coal unit was essentially lost (Downey, 2016).

Even if the utility is not seeking to advantage itself financially, utilities often use monopsony power to maintain market control, reflecting biases in corporate culture. This behavior is not limited to utilities, "There is an extensive and growing literature on the tendencies of executives within firms to engage in a variety of behaviors that are not necessarily profit-maximizing, such as empire-building ..." (Fletcher, 2019). The discriminatory practices driven by corporate culture biases can result in reduced quality of purchased products and reduced innovation, for "a powerful buyer may seek the quiet life, with less incentive to innovate or become more efficient" (Stucke, 2012).

In power markets, technology innovation is, of course, a global phenomenon. But the availability of new technologies, such as flexible solar, varies by market. A solar developer faces a significant investment to develop a proposal to deploy a new technology on a specific utility system, since each system has distinct interconnection and performance standards.⁶ That investment in innovation will not occur if the utility applies discriminatory practices.

Environmental impacts are also an aspect of quality that is relevant to monopsony utilities, but perhaps not to many other monopsony industries. When a utility discriminates in favor of its own projects, the harm may not simply be higher costs to customers, it may also be greater environmental impacts. Similarly, private developers may (or may not) offer greater opportunities to address income inequality or poverty, such as through distributed energy resources or energy efficiency programs.

3.1.2. Why might regulators overlook monopsony power issues?

Utility regulators should be interested in promoting innovation and efficiency, and would not want the utility to benefit unilaterally through price suppression and risk shifting. Commission rules and practices often explicitly recognize monopoly power when creating competitive markets for new resources, but may overlook aspects of the utility's monopsony power.

One reason that economists and regulators in many markets often overlook monopsony power is because they tend to analyze it using tools designed for monopoly power (Rogers and Sexton, 1994). For example, they may apply market concentration standards derived from monopoly or antitrust regulation to evaluate monopsony claims, when

⁵ A notable exception is new large commercial or industrial customers. Often, monopoly utilities explicitly engage in rate favoritism towards these customers, implicitly acknowledging that other customers have little market power to resist excessive costs being passed through on bills (Wilson, 2018 and Wilson, 2017).

⁶ "[T]he more specialized the input, the greater the potential for buyer power because switching costs are likely to be substantial even if there are a number of potential buyers" (Carstensen, 2017).

in fact even a 20 % market share can be enough for a buyer to coerce seller behavior (Stucke, 2012).

Second, utility regulators may overlook the potential for monopsony power to result in higher rates for utility customers. Cases from energy, health insurance and agriculture demonstrate this counter-intuitive result (Stucke, 2012). As discussed above, if a utility is able to go beyond driving prices down and to force sellers out of the power procurement market, it can then proceed to select a self-build proposal which may result in higher costs and rates.

A third reason is that some of the harm caused by monopsony power is to the sellers of power generation, whose interests are not the primary concern of utility regulators. The harm might be financial, or it might be simply a loss of "economic liberty" (Stucke, 2012). Only if the regulators are obligated by a specific mandate to protect the interests of independent power producers, such as PURPA, might their interests be protected.

Fourth, self-serving bias may be difficult to detect, or may even affect the regulator directly. Studies show that even in decision-making by courts or other sophisticated bargaining settings, "assessments of fairness are distorted by [parties'] own self-interest."(Jolls et al., 1998). For example, a study showed how external benchmarks used to establish fairness can be biased in a way that affects the outcomes of negotiations or decisions. These biases may also affect the presentation of data on the probability of a hazard (or benefit), or on the salience or prominence of the hazard (or benefit).

Finally, regulators may not feel that it is within their jurisdiction to ensure that their competition policy protects the environment, reduce income inequality and poverty, or increase the well-being of businesses and consumers in their community (Stucke, 2012).

3.2. Application of monopsony power principles to monopoly utility resource procurement

The general principles of monopsony power suggest five relevant ways in which utilities might act to weaken the effectiveness of a resource procurement process in obtaining the optimal result from the market.

- Shifting power purchases from the market to self-dealing transactions, whether self-built or through an affiliate.
- Shifting power purchases from a lower cost, lower risk resource to a higher cost (or risk) resource.
- Shifting risks to suppliers, even if the suppliers do not have control over those risks.
- Delaying or discouraging deployment of innovative technologies.
- Failing to account for environmental or service quality impacts in the selection of resources.

Vertically integrated utilities do exercise monopsony power.⁷ There are a number of ways in which utilities operate to exercise their monopsony power even while they ask for bids for new generation from other firms.

3.2.1. Information control and biases

Information control and biases can affect each stage of the bidding process. The utility may determine that it needs a certain amount of power, supplied by a certain technology, even though other technologies or quantities may satisfy its needs more cost-effectively. The utility may proceed to procurement based on such biased determinations, effectively excluding alternatives prior to initiating a request for proposals (RFP).

When the RFP is released, potential bidders need to know what,

where, and when the utility really needs to acquire additional resources. Utilities can obfuscate needs and conditions for acquiring new power in planning. Confusing or incomplete bid information leaves bidders in the dark, and they cannot respond with the most optimally responsive bids.

This information control may be the result of real or purported confidentiality needs. In a competitive market solicitation, economic theory suggests that information disclosure will generally assist bidders in competing to serve the needs of the utility. Utilities express concern about detailed information being used to disadvantage the utility's procurement. This can result in decisions that favor their own projects over projects that perform well in competitive evaluations.

Utilities may use confidentiality as a weapon against their suppliers and others, even during agreement negotiations. Utilities have made sudden and unexplained changes to bid documents and draft power purchase agreements. When bidders fear this behavior, even their initial bids must be adjusted to manage the risk of uncertain procedures and outcomes.

For example, LS Power filed a complaint in November 2019 regarding Dominion Energy Virginia's RFP, alleging that its procedures unreasonably favored the utility's self-build options. And in Florida, procurement practices are considered so unfair that few independent bidders participate.

3.2.2. Arbitrary or unfair decision making

Decisions in resource procurement processes are often permitted to be arbitrary or unfair. The utility may use secret or inconsistent bid evaluation criteria and methods. Even if the criteria and methods are available to regulatory staff for review, they may be shielded from other parties and thus subject to less rigorous review. This may lead to a resource procurement that fails to meet stated objectives, such as environmental performance or cost-effectiveness.

Furthermore, utilities often retain discretion to reject bids on unclear grounds. For example, Georgia Power retained the ability to reject any bid for any reason in its capacity RFP. It is unclear if or how often utilities use such authority unfairly.

Although nominally outside the procurement process, the utility may use its monopoly control of transmission to delay, complicate or avoid granting access for other suppliers. For example, Minnesota Power applied a recent FERC ruling on transmission to exclude a number of bidders, without any opportunity for them to adjust their proposals to address the transmission issues. The utility may set excessively conservative standards, charge independent power producers excessive amounts for transmission upgrades, and delay or obfuscate interconnection requirements.

3.2.3. Imposing below-market prices or terms

During final contract negotiations, some utilities have a reputation of pressuring power suppliers to accept modified contract terms. This practice is difficult to document since utilities are often able to achieve their goals during confidential negotiations. When a power supplier acquiesces, there is little opportunity for documentation of the pressure tactics since the terms of the contract would preclude such a complaint.

Even if this practice does not occur, if the utility is widely suspected of taking advantage of its market power during final negotiations with the winner, then bidders may price increased risks into their initial bids. Utilities may be able to get away with such behavior if they are known to or suspected of threatening suppliers and supplier representatives with retaliation if they criticize utility bid manipulation tactics.

4. Conclusion: resolution of monopsony behavior in monopoly utility resource procurement

Sound regulatory practices can be used to reduce or eliminate the harm caused by the exercise of monopsony power in monopoly utility resource procurement. In a case study review of vertically integrated

⁷ Examples cited in the sections below are discussed at length in the authors' paper on case studies of generation resource procurement (Wilson et al., 2020).

utility procurement practices, the authors identified five best practices for all-source procurements (Wilson et al., 2020).

All-source procurement means that whenever a utility (and its regulators) believe that it is time to acquire new generation resources, it conducts a unified resource acquisition process. In that process, the requirements for capacity or generation resources are neutral with respect to the full range of potential resources or combinations of resources that are available in the market.

Our case study review provides anecdotal evidence in support of this paper's discussion of monopsony behavior theory: Vertically integrated utilities have market power: as sole buyers, they have control over inputs to and methods for conducting resource planning, as well as methods and assumptions used to evaluate bids received in competitive procurement processes. With acquiescence of their regulators, these utilities can:

- Control information and impose biases on procurement processes, which can discourage or disfavor otherwise competitive procurement opportunities;
- Exercise arbitrary or unfair decision making, which may result in competitive projects being rejected or saddled with unreasonable costs or delays; and
- Impose terms and conditions that may result in sellers having to accept below-market prices or onerous contract requirements in order to remain active in the market.

When these practices occur, utilities may retain or procure uneconomic resources. As both monopolies and a monopsonies, vertically integrated utilities have financial incentives to seek opportunities to invest their own capital in generation, even at above-market prices, and even to the point of costly over-procurement.

To eliminate information control and biases, the regulator should require utilities to:

- Use the resource planning process to determine the technologyneutral procurement need. Specifying the need in terms of the generation supply need, rather than using a specific, numeric capacity target and technology specification, should allow for the power generation market to meet that need more cost-effectively.
- Conduct a competitive, all-source procurement process, with robust bid evaluation. The optimum mix of resources is more effectively selected based on actual bids, rather than in a generic evaluation prior to issuing single-source RFPs.

To prevent arbitrary or unfair decision-making, the regulator should:

- Require utilities to conduct advance review and approval of procurement assumptions and terms. The procurement review should include advance review of critical assumptions and methods used in the RFP process.
- Renew procedures to ensure that utility ownership is not at odds with competitive bidding.

To ensure that below-market prices or terms are not imposed on power sellers, the regulator should revisit rules that provide for fairness, objectivity and efficiency. For example:

- Commissions generally require the use of an independent evaluator to monitor the procurement process.
- Commissions exercise varying levels of scrutiny over contract terms, use of confidentiality to preclude parties from review, and tendency to submit recommendations on tight timeframes.

The development of customs or the practice of negotiated deals is

inevitable in a regulatory body but should be checked by a process that creates reasonable alternatives for the regulator to consider, and a clear regulatory standard for selecting among those standards.

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