AG Attachment 1

Maryland versus New Jersey: Is There a "Best" Competitive Bid Process?

The two states' approaches to procurement for electric distribution companies reveal instructive differences. Yet the differences are not as striking as the similarities: in both states, the EDCs use the competitive market to transfer risks to those best suited to manage them and to get the best prices for customers.

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I. Introduction

Against the backdrop of a highly organized and well-functioning wholesale market, power sector restructuring at the state level in the United States has often given each function of the traditionally integrated utility its autonomy. Generating assets are sold or transferred to competitive entities that will buy and sell in wholesale markets. Marketing and trading operations stand alone to manage transactions at the wholesale and sometimes at the retail level. The wires part of the utility, responsible for distribution services to retail customers, becomes an electric distribution company – an EDC. Only the EDC remains squarely within the ambit of the state regulator.

Saying that an EDC is a wires-only company means that the only assets it owns are wires. However, that does not necessarily imply that its only function is to distribute electricity over its wires. In many restructured states in the U.S. an EDC also retains the obligation to provide electricity service to any retail customer not served by a

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retail electric supplier. The EDC does not fully perform the function of a retail electric supplier; it cannot market or tailor its offerings to customers' needs. It simply must stand by to supply any retail customer that has failed to choose a retail electric supplier, or that has ceased to be served by a retail electric supplier, for example as a result of a bankruptcy. This is in contrast to countries like England and Wales where the power sector has been thoroughly and successfully restructured and the distribution companies retain no obligation to supply electricity services to customers taking distribution service.

In most U.S. states whose power sectors were being restructured, the expectation was that retail electric suppliers would flock to retail customers and that few (if any) customers would remain on EDC service. This expectation has not been met. True, many larger commercial and industrial customers have arranged supply for themselves with retail electric suppliers that offer savings or cost certainty through a longer-term contract, or a service that is tailored to the customer's usage pattern. However, residential and small commercial customers by and large remain default customers, continuing to take electricity service from the EDC. Perhaps for many the cost of evaluating alternatives outweighs any economic benefit from taking service from a retail electric supplier, and perhaps competitive retail electric suppliers can market more cheaply to larger customers. The result is that the EDC provides a safety net electricity service for a majority of customers.

In many restructured states, the EDC serves its default customers by procuring full requirements supply from wholesale market participants, usually through a structured competitive solicitation process. But within the common paradigm of procuring full requirements supply for default customers rest different strategies and approaches to procuring supply for default customers. The strategies adopted by the Maryland EDCs, on the one hand, and those adopted by the New Jersey EDCs on the other, provide an instructive contrast. A review of these two strategies highlights the factors that could guide the decision on the aspects of the procurement process. However, we find that this review does not allow us to make a pronouncement on a definitive "best" procurement method. Rather, we conclude that varying methods for procurement exist to suit the varying goals, circumstances, and predispositions in different jurisdictions.

Varying methods for procurement exist to suit the varying goals, circumstances and predispositions in different jurisdictions.

II. The Choice of Full Requirements Supply

Typically, an EDC in a restructured electricity sector no longer has generating assets to support and hedge the requirement to provide electricity service to default customers. The EDC acts as agent for its customers in a transaction for power whose value is tied directly to the number of customers and the load left on default service and this value can be many times the size of the EDC's distribution revenues. Its regulator then decides whether the EDC can pass on to its default customers all of its costs of purchasing electricity services, examining the soundness of the EDC's decisions and evaluating the resulting rates to default customers.

To fulfill its obligation to default customers, the EDC could directly acquire a portfolio of products from the wholesale market and manage this portfolio in view of the risks of changing power costs and of customers leaving and returning to default service. However, the EDC typically no longer has the trading personnel necessary to

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support this portfolio management function. Further, all portfolio management decisions could be subject to review by the regulator after the fact. Alternatively, the EDC can contract with wholesale market participants so that the ultimate suppliers are responsible for the portfolio management function. Suppliers have the personnel and a variety of options to hedge price risks and any other risks associated with supplying default customers that may or may not be available to the regulated EDC. They may even have assets tailored to perform this function. Set up to trade and hedge power competitively, wholesale market participants are better placed to manage the risk of providing default supply than regulated entities, and can do so with more efficiency.

One way to structure the contract with wholesale market participants is to make each supplier responsible for supplying a share of all needs of default customers at each instant. Together, all suppliers meet 100 percent of the needs of default customers. This is a full requirements supply. It stands in contrast both to contracts for fixed quantities of energy, and to separate contracts for each service required by default customers (energy, capacity, ancillary services). The EDC can harness the competition in a well organized and well functioning wholesale market. Specifically, the EDC has an incentive to reduce its power supply costs by devising a competitive bidding process that promotes competition among the entities that will become the ultimate suppliers so as to obtain wholesale prices that the regulator is willing to allow the EDC to fully recover in rates.

An EDC that faces the situation described thus far could be one of many. In all restructured U.S. states except Texas, EDCs retain responsibility for serving default customers. In many of these, such as New Jersey, Maryland, Delaware, and Illinois, the EDC procures full requirements supply through a structured competitive solicitation process. But different EDCs implement this common procurement process through different strategies and approaches. The strategies adopted by the Maryland EDCs, on the one hand, and the strategies adopted by the New Jersey EDCs, on the other, provide an instructive contrast of the diversity of strategies in this regard. The Maryland EDCs use a request for proposal (RFP) as their competitive solicitation process, which is similar to the process commonly used to procure new capacity. The New Jersey EDCs use an auction approach that shares much with the method used to sell licenses of radio spectrum and little with other procurements in the energy sector. The Maryland EDCs retain the ultimate responsibility to supply default customers and remain the retailer in the view of the independent system operator. The New Jersey EDCs contractually pass all responsibilities on to wholesale market participants, and it is the wholesale market participants that are the retail electric suppliers in the eyes of the system operator. Maryland EDCs share risks with their wholesale suppliers by shielding them in part from the risk of customers leaving default service with the EDC for a retail electricity supplier. The New Jersey EDCs share the risks differently and transfer all risks associated with the possibility of customers leaving default service to the wholesale market participants. Maryland EDCs procure supply for different rate classes separately over several bid dates. The New Jersey EDCs conduct a single statewide solicitation for much more aggregated groups of customers.

Contract features can be specified in various ways to carve a different share of risks among the counter-parties.

These contrasts illustrate that contract features can be specified in various ways to carve a different share of risks among

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the counter-parties (namely, the EDC and the wholesale market participant that supplies default customers). There is also a multitude of ways to design a bidding process to harness the competition among wholesale market participants. The way in which bids are solicited and evaluated, the amount and type of regulatory oversight, and the timing of the bid are all features that can distinguish one bidding process from another.

When Illinois was studying how it would procure supply for its default customers, interveners often contrasted the "Maryland model" to the "New Jersey model." The differences in the procurement strategies used by the EDCs in these two states (and the differences in strategies across various states in general) have gained more notoriety and prominence than the basic similarity of competitively procuring full requirements supply. The Maryland and the New Jersey EDCs have come to different conclusions as to the "right" sharing of risks between the EDCs and the ultimate suppliers through the design of the full-requirements contract, and the "right" environment to spur competition through the design of the bidding process. Are these differences indeed more important than the basic similarity in the approach? Will differences in the design of the same basic full requirements procurement process yield a different result? These are the questions that we address below.

We begin by providing, in the context of the restructuring and deregulation of each state, additional details that further contrast the approaches to procurement in New Jersey and Maryland. We examine along the way some of the key decisions in the design of these procurement approaches. We review the pros and cons of two contrasting bid processes, of two ways to set retail rates, and of various distributions of risk among the EDCs and the wholesale market participants. This review is instructive in highlighting the factors that could guide the decision on each of these aspects of the procurement process. We do not use this review to make a pronouncement on a definitive "best" procurement method but rather conclude that varying methods for procurement exist to suit the varying goals and predilections of the regulatory bodies in different jurisdictions.

Will differences in the design of the same basic full requirements procurement yield a different result?

III. New Jersey and Maryland Procurement Approaches in Context

A. New Jersey auction

Power sector restructuring in New Jersey was undertaken in the late 1990s by the legislature, the regulatory agency – the New Jersey Board of Public Utilities ("the Board") – and the four investor-owned utilities – Atlantic City Electric, Jersey Central Power & Light, Public Service Electric and Gas, and Rockland Electric Company. The utilities either elected to sell their generation assets or to transfer them to affiliates and each became an EDC. Each EDC retained the default obligation to provide electricity service to any customer that did not specifically choose a retail electric supplier. The enabling legislation gave the name Basic Generation Service (or BGS) to the electricity service provided by the EDC.

Following the advent of retail choice in 1998, the New Jersey legislature called for a four-year transition period during which retail rates charged by the EDC were frozen. During the fourth year of this transition period (Aug. 1, 2002, through July 31, 2003), the Board called upon the EDCs to make a proposal on how to procure BGS competitively – *i.e.*, how to procure electricity service for their default customers from wholesale market participants at competitive prices. The EDCs

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jointly proposed a standard contract and an auction in which wholesale market participants would compete to provide BGS. A single auction process would procure supply to serve the load of all four EDCs in the state simultaneously. A standard statewide contract would transfer to the wholesale market participants who won at the auction all risks inherent to procuring electricity service for default customers. After the transition period, the EDCs sought for the Board to continue to auction the right to serve default customers in the same manner, except that the resulting auction prices would be directly used in setting the unbundled electricity rate. Each year since the end of the transition period, the Board has approved the continuation of the auction process and has accepted its results.

The product in the New Jersey auction is full requirements supply. A wholesale market participant that wins at the auction is responsible for serving a given percentage of an EDC's BGS load, whatever the load may be. Thus, a wholesale market participant who wins 10 percent of an EDC's BGS load is responsible for providing all of the services necessary to serve 10 percent of that EDC's load. It bears the risks associated with the load level, which can be affected by weather, by customers choosing a retail electric supplier, etc. In the first auction, wholesale market participants specified their bids in tranches, where a tranche for an EDC was a specific fraction of the EDC's total default service load in every hour of the year for all customers at a fixed price. In subsequent years, there have been two auctions: one for tranches of the load of small customers, and the other for tranches of the load of large customers.

A term-averaging approach insulates smaller customers from short-term fluctuations in the wholesale market.

The contract to supply BGS load – either for residential and smaller commercial customers, or for larger commercial and industrial customers – is between an auction winner and an EDC acting as an agent for its default customers. The contract is finalized in advance of the auction and all winners sign the exact same contract with the EDCs. The contract is pre-approved by the state regulator in a proceeding during which the regulator accepts feedback from potential suppliers and acts as mediator between the EDCs and the wholesale market participants. After the proceeding, the contract is non-negotiable. Through the contract, the auction winners will function as load-serving entities. They assume the responsibility of serving the retail customers, establishing all accounts and all guarantees with the independent system operator to be able to do so. The EDC remains responsible for distribution service.

The "large" commercial and industrial customers are covered by an auction in which energy is priced to the hourly market. The contracts are for one year and the wholesale market participants bid to supply capacity, transmission, and ancillary services at a fixed price in $/MW-day. Wholesale market participants supplying residential and smaller commercial customers bid an all-in wholesale price in $/MWh. Every year one-third of the load is at auction for a three-year term, and the remaining two-thirds are supplied by three-year contracts from previous auctions. This term-averaging approach insulates smaller customers from short-term fluctuations in the wholesale market. The remainder of this article focuses on this auction for retail supply to smaller customers – which are the majority of default customers.

Bidders submit their bids through a "simultaneous descending clock" auction. This auction is simpler than it sounds. In each round, the auction manager announces a price for the load of each EDC. A bidder bids by

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submitting the number of tranches of each EDC's load that it would be willing to serve at the announced prices. If overall the supply bid for an EDC is more than what is needed, the price for that EDC decreases (ticks down) in the next round. Bidders submit bids at the new prices in the next round. As the prices decrease from round to round, the amount of load that the bidders are willing to serve declines. Bidders can switch their bids from one EDC to another. The auction ends when suppliers are willing to supply just the right amount of load for each EDC. The auction ends for all EDCs at the same time.

The determination of winners at the auction is straightforward: bids are evaluated on a price-only basis. The winners for an EDC are those bidders that bid tranches when the auction prices tick down to the lowest prices at which wholesale market participants are still willing to supply all the tranches of that EDC's load. Prices will vary across the EDCs. Bidders may switch their bids from one EDC to another from one round to the next, an arbitrage that works to align prices with the market's perception of differences in the costs to serve the various EDCs.

The price set at the auction is a wholesale price that is then converted into the retail rates paid by customers of the EDCs. Retail rates vary for different classes of customers depending on the cost to serve the class. For example, customers in a class that is more expensive to serve than the average of the system may pay 1.2 times the auction price per megawatt-hour, while customers in another class may pay 0.8 times the auction price. The auction price, shaped to account for seasonal cost difference, determines the payment to the supplier. The supplier receives a summer price (the auction price

times a factor greater than one) during four summer months, and a winter price (the auction price times a factor less than one) during the remaining winter months. If the EDC paid all auction winners exactly the auction price and if all customers paid to the EDC exactly the auction price, the revenues and payments would naturally be aligned. However, since this is not the case, the amount that the EDC pays its suppliers may not match the revenues collected from its customers. Any difference is reconciled through a charge or credit to default customers, depending on whether the amount due to the suppliers exceeds or falls short of the amount collected based on the retail rates.

The Board is involved in all key policy decisions regarding the procurement process. It has final say on the two key documents that govern the process, the contract that is signed by the EDCs and the auction winners, and the auction rules that regulate the conduct of the bidding process. The Board also has final say on the results of the auction, including the discretion to reject them entirely. The Board, along with its staff and consultants, judges whether the auction process was conducted in accordance with the process put in place. The EDCs retain an auction manager[1] who is responsible for carrying out the auction process as approved by the Board. The auction manager manages the qualification of bidders and the bidding process, and disseminates information about the auction to potential wholesale market participants and to all stakeholders.

B. Maryland request for proposals

The Maryland context that gave rise to a full-requirements procurement process corresponds in many ways to the context in New Jersey. Like New Jersey, Maryland has four investor-owned utilities: Allegheny Power, Baltimore Gas & Electric, Delmarva Power and Light Company, and Potomac Electric Power. The power sector

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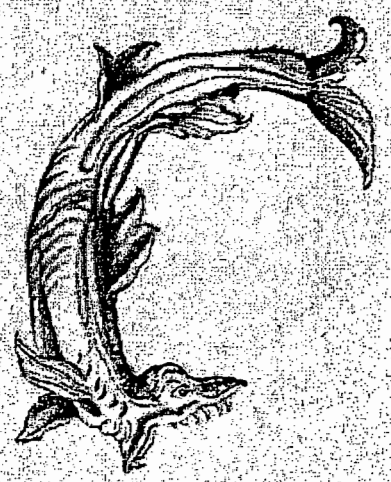
in Maryland was restructured through legislation in 1999 and multi-party settlements that were approved by the Maryland Public Service Commission in 2000. The legislation provided for a phase-in of retail customer choice beginning in July 2000 and ending in July 2002 during which the utilities sold or transferred their generation assets. Each EDC retained the obligation to serve default customers at the frozen rates that were agreed to in the restructuring settlements. During the phase-in period, the EDCs served their default customer load through supply plans that included contracts with affiliated generators or power marketers.

Upon expiration of these supply contracts, each EDC was required by the state legislation to procure supply for default service load competitively. Each put forth a plan to procure power through a series of requests for proposals. The RFPs would be held on multiple dates. This structure provides flexibility: if any portion of loads fails to be competitively procured on a given date, it can be procured again at a later date. Customers are divided into a residential class as well as three types of non-residential customers classified on basis of size. Each RFP would procure supply for at least one of these several types of customers for one or more terms.

As in New Jersey, wholesale market participants in these RFPs bid to supply full-requirements service: they bid to supply a percentage of an EDC's load for a particular customer type, whatever the load may be. However, there are differences between New Jersey and Maryland in the services that are required of wholesale market participants. In Maryland, the EDCs retain responsibility for



network transmission services and for the interface with the independent system operator as the load serving entity. Further, for non-residential customers, the EDCs provide some protection to wholesale market participants against the risk of customers migrating to a retail electric supplier from default service or of customers migrating back to default service from a retail electric supplier. For any load exceeding a given threshold, wholesale market participants are paid a variable price pegged to the market (rather than the fixed price they bid). This mechanism protects winning suppliers against customers returning to default service when market prices are rising while the price of default service is fixed. This threshold is established when the contract is signed and updated when a sufficient amount of load leaves default service to take service from a retail electric supplier.

While in New Jersey the auction determines wholesale prices and the auction prices are later used to derive the specific retail rates, in the Maryland RFP the bids themselves are in the form of a list of retail rates. The bidders directly specify the prices to be paid by customers, including their own seasonal (and in some cases, time-of-use) differentiations.

Bidding takes place through a sealed-bid submission process. Bidders are provided with a standardized bidding spreadsheet on which they enter the details of their bids. Each bidder sends its bidding spreadsheet to the EDC. The EDC converts the list of bid prices into a single present value of the projected cost stream according to a pre-determined formula that was communicated to bidders before they bid. The EDC calculates an average price and ranks the bids on the basis of this single number. The winning bidders are those whose bids yield the lowest average price. The state regulator reviews the bids and, on the advice of its consultant and staff, can decide either to accept or to reject the bids. A winner is paid the retail rates that it itself bid. Consumers

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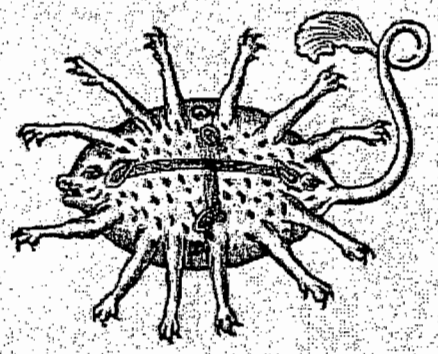
in a given rate class pay the average of the bids for that rate class.

IV. Contrasting Key Elements of the Procurement Approaches

Setting up a successful procurement process, one that will harness the competition among wholesale market participants, that will be fair to all participants, that will be transparent to stakeholders, and that will deliver results that meet or beat expectations, is both a conceptual and a managerial challenge. There is a multitude of features of the procurement process that may impact its results. For example, the intensity with which the economic opportunity is promoted to prospective wholesale market participants may influence participation, which in turn will affect the amount of competition and therefore the ultimate prices. There are many different ways to reach out to potential wholesale market participants, including releases in the trade press, ads in print media, information sessions for press or for wholesale market participants, email announcements, and direct contact. The effectiveness of each of these methods depends on many factors, such as whether the procurement process is new or well known to wholesale market participants.

The diligence with which information is disseminated can also affect whether the process is fair to all prospective suppliers. Prospective wholesale market participants' perception of the fairness of the process can in turn determine their willingness to participate in this or in future procurement processes of the same kind. The transparency of the process to all stakeholders and the ability of the state regulator to monitor the auction process can



affect both the confidence of prospective wholesale market participants (and their participation) and the confidence of the state regulator that the results obtained meet expectations and should be accepted.

It would not be surprising that EDCs in different states would take different avenues to promote the opportunity to prospective wholesale market participants or to set up a process to ensure that information is disseminated fairly and efficiently, as there are many procedures that can be established to achieve these objectives. Decisions on issues of this kind are likely to depend on the context, on the particular regulatory situation faced by the EDCs, and on the particular history of the procurement process. What makes the comparison of the procurement approaches in New Jersey and Maryland interesting is that the EDCs in the two states are in very similar situations and yet have made very different decisions on the most crucial, the most core elements of the procurement process.

When deciding on a procurement approach, the New Jersey and the Maryland EDCs were on quite similar trajectories in restructuring the power markets. The territories of the New Jersey and the Maryland EDCs are part of the same system operator – the PJM Interconnection – with the same wholesale market participants. The legislation enabling retail choice and providing for a transition period toward the new structure incorporated fundamentally the same approach in both states. The plans for procurement in the interim period were also similar. The timing of the restructuring and the timing of the first open procurement process were almost identical. Some of the utilities in both states are in fact affiliates of each other.

And yet, the EDCs adopted starkly different approaches on how bids would be submitted. The New Jersey EDCs opted for procuring all needed supply for a given year through a single statewide auction while the Maryland EDCs opted for several RFPs due at several different dates.

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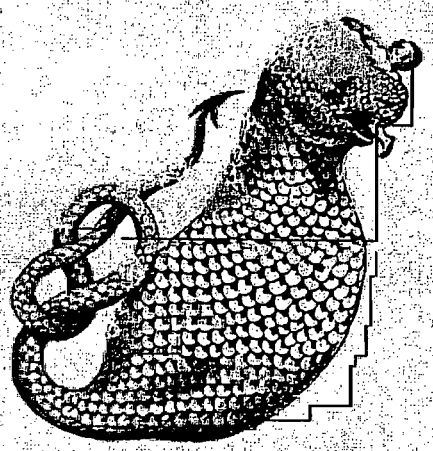
The bid product is fundamentally different. The New Jersey Auction determines a single wholesale price for each EDC while the Maryland RFP yields retail rates for different customer types. The sharing of risks between the wholesale market participants and the EDC inherent in the standard contract is also different. The New Jersey EDCs contractually pass on all risks to their suppliers while the Maryland EDCs explicitly take on some of the volumetric and transmission price risks. The bid product, the bidding process, and the contract are by any measure the fundamental elements of any procurement process, and the EDCs in these two states have taken contrasting approaches to each of these elements.

While it is easy to imagine that many different approaches to, say, promotion of the procurement process could yield results that are just as good, one would expect that different decisions on key components of the procurement process would have different expected results. Is one approach better than the other? In the next section we examine these key components and assess the factors that could lead a decision-maker to elect one approach rather than another.

A. Bidding process

The contrast between the Maryland procurement approach and the New Jersey procurement approach is most evident in the choice of the bidding process.

The Maryland EDCs use a series of RFPs, typically with each EDC holding several RFPs to procure its needed supply. Bidders qualify with each EDC separately to participate in its RFPs. In a given RFP, the EDC procures supply for a given percentage of the load of a customer type, or for several customer types (residential, or



non-residential in a given size bracket). Bidders in an RFP submit their bids to the EDC by filling out an electronic spreadsheet where the bidder fills out the number of blocks on which it is bidding and its price bids. Bidders know that their bids will be evaluated on the basis of a single quantitative measure (an expected cost stream or equivalently an average price) for each quantity block. All bidders submit their electronic forms at once on a given day.

Auction theorists call this type of bidding process a sealed bid auction. One can think of the auction as equivalent to each bidder writing down a number on a piece of paper, sealing the paper in an envelope, and the EDC opening the envelopes to pick the lowest number. There is a single round of bidding for a particular customer type on a particular date. No bidder has solid information about any of its competitors, or even how much supply it is bidding against. If supply is being procured for various customer types, the bidder has no information on which customer types other bidders are intending to supply and no information regarding other bidders' bids.

In a sealed bid auction, a bidder that formulates a bid to maximize expected returns will likely seek to form expectations about the number of bidders competing against it and about their likely bids. The bidder takes into consideration that a slightly higher price bid increases profit – but at the same time, a higher price reduces the chances that the bidder will win and realize that profit. With little to no information about the competition, doing well in such an auction – in the sense of not regretting one's bid after the fact – takes a fair amount of sophistication or luck. Winning is the sought outcome – but if winning is paired with having price bids that are well below the rest of field, the bidder has left money on the table and will regret winning so handily. Losing may be the right outcome for a bidder who is at a cost disadvantage – but if losing is paired with the realization that the bidder would have been able to match the highest accepted bid, the bidder

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will regret that greed has gotten in the way of a good profit opportunity. In both of these cases, if the bidder had been able to change its bid in response to the bids of the rest of the market, it would have done so.

In contrast, a bidder participating in a simultaneous descending clock auction does have the ability to change its bid in response to bids by the rest of the market. In New Jersey, where this auction format is used, bidders submit bids on multiple products over the course of multiple rounds. The loads for all the EDCs (each of which is a product) are put on offer through a single process. In a round, each EDC announces a price for its load, and the bidders bid at these prices. A bidder bids by stating the number of blocks or tranches that it is willing to supply at the announced prices. Once all the bids are in, the number of blocks is tabulated and compared to the number of blocks needed. If more blocks are bid than are needed for an EDC, the price for that EDC will be reduced in the next round – it "ticks down," like a descending clock. Before bidders have to bid again in the next round, bidders are told the new prices (from which they can immediately determine which EDCs have excess supply and which do not) and bidders are provided a range of excess supply for the entire auction. In the next round, bidders can bid again. A bidder is not given bid-specific information about any other bidder; however, the bidder is given dynamic feedback about what "the rest of the market" is doing. The bidder can use the information to maintain its bids, to switch bids from one EDC to another, or to decrease the number of blocks it bids altogether.[2] The mechanism is illustrated in **Table 1** below.

In round 1, the price for the load of each EDC is 10¢/kWh. A hypothetical bidder might bid 10 blocks of PSE&G, 2 blocks of JCP&L, 0 blocks of ACE, and 1 block of RECO. This bid would be submitted online through specialized auction software. When the bidding window ends and bids for all bidders are tabulated in round 1, all EDCs have more supply bid than needed, except for ACE. The prices for all EDCs except ACE will be reduced in round 2. The amount by which the price decreases is a function of the amount of excess supply. Note that bidding does not close for ACE: bidders have an opportunity to switch their bids from other EDCs to ACE in response to ACE's price being higher than the price of other EDCs in round 2. Before the bidding window for round 2 opens, bidders are told the prices for the next round, as well as the fact that excess supply for the entire auction is in the range of 56 to 60 blocks. In round 2, some bidders switch their bids toward ACE and RECO, and away from PSE&G and JCP&L. There is excess supply on all EDCs and all prices will tick down for round 3. Prices continue to tick down and bidders continue to bid until there is just enough supply for each EDC.

Auction theorists call this kind of auction structure an "open auction" to contrast it with a sealed bid or closed auction. Open auctions are multi-round bidding processes during which bidders get market information and learn something about the competitive environment, and then have the opportunity to incorporate this

Table 1: Simultaneous Descending Clock Auction Example

EDC[3]	Price (¢/kWh)	Blocks Bid	Blocks Needed	Excess Supply
Round 1				
PSE&G	10.000	75	30	45
JCP&L	10.000	27	15	12
ACE	10.000	5	5	0
RECO	10.000	2	1	1
EDC	**Price (¢/kWh)**	**Blocks Bid**	**Blocks needed**	**Excess supply**
Round 2				
PSE&G	9.500	55	30	25
JCP&L	9.762	25	15	10
ACE	10.000	20	5	15
RECO	9.985	7	1	6

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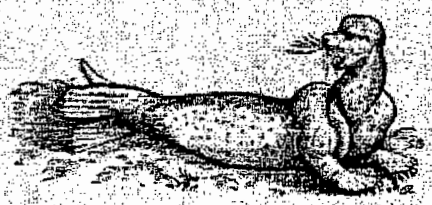
information into their bids in the next round. On a theoretical level, the rationale for open auctions is that they reduce uncertainty for bidders. Reducing bidders' uncertainty allows them to be more aggressive in their bidding and tends to result in lower prices. Also, the ability of bidders to switch across EDCs allows them to arbitrage away any price differences among EDCs not tied to differences in cost, ensuring that all EDCs are valued in accordance with the market.

However, the open auction can only work well with sufficient competition at the outset. It is the competition among bidders willing to serve load at the prices of the opening rounds that tick the prices down to their competitive levels. If there are few competitors, an open auction without additional competitive safeguards[4] could disappoint. If bidders realize that competition is weak and adjust their bidding strategy in response to this information, the auction could close at prices that would compare unfavorably to a sealed bid process. At the extreme, if there were a single bidder, at least with a sealed bid process that bidder might believe it faced competition and put in bids to beat the expected competition. With an open auction, prices would never tick down from their opening levels and the auction would end immediately.

Auction theorists and practitioners have devoted a substantial amount of research to analyzing various bidding processes to determine which yields the best prices. Not surprisingly, the answer is: it depends.[5] Both descending clock auctions and RFPs can work well, and one option may yield better results than the other in a given context. The characteristics of the competition as well as the number and characteristics of the



products are all considerations that can tip the balance in one direction or the other.[6] Comparing the procurement processes of the New Jersey and the Maryland EDCs, the most important factor to explain the different bidding processes may be the policy decision for New Jersey to have a single statewide process and for Maryland to have many different processes for the different EDCs. A single statewide process is a single chance for all wholesale market participants to come and compete, generating the type of competition that can best harness the advantages of an open auction. In contrast, various smaller procurements held at different times can yield varying degrees of competition against which a sealed bid process reduces the potential downside risks. It may also be that New Jersey policymakers were more willing to trust a novel bidding process and the strength of the competitive market while those in Maryland preferred a bidding process more familiar from asset divestiture and other past procurements in the energy sector. Neither opinion implies a judgment on what the "best" process is – rather, they are different risk assessments of the bidding process, and with each assessment comes a tailored procurement approach.

B. Bid price

The bidding processes in New Jersey and in Maryland are different not only because the way bids are submitted and processed is different, but also because the form of the bid(s) is different. In New Jersey, bidders bid amounts of load they are willing to serve at all-in ¢/kWh *wholesale* prices. In Maryland, bidders submit a list of *retail rates* for energy blocks they are bidding on. Ultimately, in both states, the results of the competitive process determine the rates that customers will pay. In New Jersey, the single wholesale price resulting from the auction is put through a prism that yields a retail rate that is different for each customer class and that varies by season and sometimes by time of day. This prism is a series of ratios

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of the cost of the class to the cost of the entire system: multiplying the auction price (standing in for the cost of the system) by this ratio then yields a retail rate scaled to the auction results. In Maryland, no translation is needed as bidders bid at retail directly. The average of all winning bid retail rates for a given customer class, season (and sometimes time of day) directly determines the retail rate paid by that customers class for that season (and time of day).

At first glance the prism may seem like a clumsy mechanism. Even if based on ratemaking principles and carefully executed with appropriate data, why use this translation mechanism when bidders could bid market retail rates directly? It would seem appealing to have the market determine retail rates rather than have to construct them after the fact from a wholesale price. However, this view implicitly assumes that bidders have all the proper incentives to bid a price for each rate component that reflects the relative costs of various customer classes or seasons. But this is not necessarily the case and the bidder's strategy may be something else entirely. The bid rates are never individually considered in the evaluation of the bid; instead, they are converted into a single number, the present value of the predicted cost stream from the rates specified by the bidder. The calculation of the present value requires assumptions about usage and the bidder's strategy may rest on its perception of the validity of those usage assumptions. If a bidder believes that these assumptions are wrong, the bidder can bid high on classes for which it believes usage has been underestimated, and low on classes for which it believes usage has been overestimated, to maintain or lower the present value for the purposes of its ranking. If its usage forecast is more accurate than the

formula, this strategy can be used to improve its chances of winning, while also increasing its likely revenue, should it win. Such a strategy would mean that bid prices would have little to do with the relative costs to serve the various classes or seasons.

Another consideration is the information that bidders have regarding retail rates as they are bidding. The levels of the retail rates matter to bidders as they will determine the customer's economic incentive to leave default service to find a retail electric supplier, and thus they will factor directly in the bidders' assessment of the amount of load they will have to serve. In the New Jersey bidding process, bidders are provided with the translation mechanism from wholesale auction price to retail rates in advance. If it wishes, at each round a bidder could calculate the retail rates for this round's wholesale prices and readjust its projections of load as a result. Bidders probably do not do that, but they can dynamically adapt any assumptions about customer migration as the auction unfolds. In the Maryland bidding process, a bidder bids retail rates and it can make predictions on the amount of load to be served based on its own bids. However, a bidder lacks any information about the other potential winning bids that will be included in the average to determine the actual retail rates. Bidders must form expectations about the prices of competing bids or proceed with incomplete expectations; either way, the process increases uncertainty for bidders.

Both methods strive to obtain market retail rates but both methods have shortcomings. Whether one is better than another for yielding retail rates that are consistent with the market and with market fundamentals is in the end an empirical question. But comparing past solicitations does not necessarily inform judgment given the many design differences.

C. Sharing of risks

The Maryland EDCs shoulder a certain amount of risk that the

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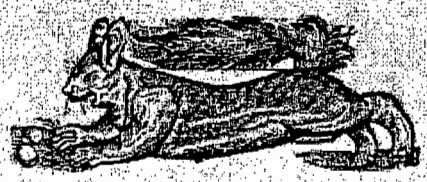
New Jersey EDCs contractually pass on to the wholesale market participants that win at the auction. Although we will not review all contract differences here, we have already mentioned that the Maryland EDCs take responsibility for network transmission and remain the load-serving entities in the eyes of the independent system operator. Being the load-serving entity includes a responsibility to establish a certain relationship with the system operator that requires, among other things, meeting certain creditworthiness requirements. Finally, the Maryland EDCs rather than wholesale market participants bear some of the risks associated with non-residential customers migrating on and off default service.

In New Jersey, wholesale market participants bear the entirety of the risks, including migration risk, in keeping with the principle of allowing the competitive market to shoulder as much risk as it can efficiently handle. All else equal, the Maryland EDCs' approach to reduce some of the risks faced by wholesale market participants should make these market participants willing to bid lower, yielding better prices. However, the Maryland EDCs do not shoulder this portion of the risk for free: they are compensated for this risk from their customers. In principle, the Maryland approach would yield better prices than the New Jersey approach only if the Maryland EDCs were better at managing the risks than wholesale market participants, or if the information regarding customer migration was so poor that sheltering the wholesale market participants from that risk had great value. This could apply, for example, in the case of a very first procurement process in a jurisdiction, when very little data would be available on customer behavior and their propensity to choose a retail electric supplier.



Are Maryland's electric customers better off paying their EDCs to bear migration risk? While this is an empirical question, it is likely that in some regulatory contexts, the decision would also be heavily influenced by politics and corporate culture. EDCs passing on responsibilities to wholesale market participants could be perceived as abandoning their historical role as providers for their customers and shirking their duties under the spirit (if not the letter) of the pre-competition regulatory framework. Again, this discussion does not imply a judgment on what the "best" sharing of risk is – rather, it illustrates that the procurement approach can be tailored to the various considerations that may be important to state regulator and to all stakeholders.

V. Conclusion

In some U.S. states, the regulated EDCs must enter into large transactions to procure supply for their default customers. These EDCs have an incentive to set up a competitive procurement process for full requirements supply to minimize the risks of a transaction that can be very large indeed compared to its distribution revenues. EDCs in this situation have developed interestingly different strategies for setting up a competitive bidding process and defining the product upon which wholesale market participants bid. The strategies adopted by the Maryland EDCs on the one hand, and the strategies adopted by the New Jersey EDCs on the other, provide an instructive contrast. We have used this contrast not to make a pronouncement on a definitive "best" procurement method – such a method is too dependent on the context for such a pronouncement to be made – but instead to highlight certain key decisions that can be

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made in the procurement process and to discuss the factors that go into the design of these elements. We have reviewed the pros and cons of two contrasting bid processes, of two ways to set retail rates, and of various distributions of risk among the EDCs and the wholesale market participants.

Because of the differences in the procurement method – the differences in terms, in the customer classes being bid, in the elements being included in the bid – simply comparing the final prices does not yield an apples-to-apples comparison. In the end, the regulatory bodies in different jurisdictions have chosen varying methods for procurement to suit their specific circumstances, goals and predilections. Yet, the differences between the procurement processes themselves are not so striking as the similarities; in both of the cases studied here, the EDCs use the competitive market to transfer risks to those best suited to manage them and to get the best prices for customers. Differences among the distributions of risk and the solicitation methods employed pale in comparison to the underlying concept of the use of a competitive procurement process. At the heart of this process lies the principle that head-to-head price competition among suppliers will determine prices for customers. The definition of full requirements will vary, different regulatory bodies will come to differing conclusions as to what the optimal distribution is, and the bidding process may be different, but the tools used to procure supply for customers at competitive prices all come from the same set of economic principles.■

Endnotes:

1. NERA has served as the auction manager in New Jersey since its inception.

2. For a complete explanation of this process, please see New Jersey's Auction Rules, located at http://bgs-auction.com/bgs.bidinfo.ar.asp.

3. ACE stands for Atlantic City Electric, JCP&L for Jersey Central Power & Light, PSE&G for Public Service Electric and Gas, and RECO for Rockland Electric Company.

4. The New Jersey process in fact does incorporate a number of additional competitive safeguards.

5. See, for instance, Paul Milgrom and Robert J. Weber, *A Theory of Auctions and Competitive Bidding*, ECONOMETRICA, Vol. 50, No. 5 (1982), at 1089–1122; John McMillan, *Selling Spectrum Rights*, J. ECON. PERSPECTIVES, Summer 1994, at 145–162; R.G. Riley and W.F. Samuelson, *Optimal Auctions*, AM. ECON. REV., June 1981, at 381–392.

6. In any case it is not possible for an outside observer to compare the results of the Maryland and New Jersey approaches. The winning bids in Maryland are not publicly released; only the averaged rates that customers in each class will pay are made public.

Reducing bidders' uncertainty allows them to be more aggressive in their bidding and tends to result in lower prices.

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