On the Role of the Single Buyer – Acquirente Unico (AU)

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ABSTRACT

Italy needs to organize the procurement process to secure the energy needs of non-eligible or captive customers at economically efficient and competitive terms. An organization to coordinate purchases, such as the Acquirente Unico (AU or Single Buyer), can play an essential role in assuring that non-eligible customers and others subscribing to default service pay competitive rates. Periodic energy procurement auctions organized by the Acquirente Unico should improve prices for *both* the captive customers and the producers. Moreover, longer-term contracts will provide producers with the commitments that will allow them to more easily obtain financing to build new plants.

Periodic auctions for contracts of intermediate durations will be essential to limit the exposure of the captive customers and all default service customers to the risks associated with price volatility as well as market power. Had there been no legislation chartering the AU, the stakeholders would have needed to organize their own purchasing agency instead. Although all customers become "eligible" as of 2007, international experience suggests that the pool of customers remaining on default service is unlikely to evaporate. Even though the Acquirente Unico's role is likely to change as competition develops and the pool of eligible customers increase, experience strongly suggests that its role will remain essential for the foreseeable future.

1. Introduction

The Italian Parliament is now considering legislation intended to reshape the rules governing the energy industry in Italy. One part of the current debate concerns the future role of the Acquirente Unico (AU) or the Single Buyer, and in particular, the role of the AU after 2007, by which date it is possible that all customers will become *eligible* to choose a competitive electricity supplier. The AU was chartered to secure the energy to meet the load requirements of the non-eligible or captive customers. Significant developments in auction theory, market design, and the application of that theory indicate that an organization such as the Single Buyer is needed to fill an important role both in the short term and the longer term in ensuring the economic provision of the energy needs of captive customers and others not served by competitive energy producers. [1]

Both consumers and producers stand to benefit from the activities of a central coordinating organization, such as the AU, in the form of lower and less volatile prices for consumers, and longer-term contracts for producers. The latter can be very important in helping firms secure financing for new plants. A well-designed market will simultaneously achieve better prices for *both* producers and consumers than a market design which leaves in place strong incentives for strategic bidding, as has occurred elsewhere. When participants have strong incentives to bid in ways that may not fully reflect costs and demand, significant market failures are possible. Therefore sound bidding procedures are needed to ensure optimal allocation of generation and transmission resources for each region. Recent experience, especially in the US, provides the Acquirente Unico with a sound and tested market model to apply to long-term contracts that meet the needs of Italian captive customers and other default service customers.

[1] See Salant (2000) and Salant (2002) for a discussion of developments of the application of auction theory to regulatory sectors and to electricity. For discussions of electricity auctions, see Cramton, Peter, Andrew Parese, and Robert Wilson, (1997) and Loxley and Salant (2003). Also, see Cramton (1997) and Milgrom (1997) and Milgrom (2003).

To question the need for a Single Buyer implicitly questions whether the Italian Distribution Utilities, or their retail affiliates, will continue to offer a default service and whether there will be any customers continuing to subscribe to that service. In essentially all other jurisdictions in which competitive electric service has been introduced, eligible customers have had the option but were not required to choose a competitive supplier. This means that the distribution utility has continued to offer some sort of ***default service*** for customers who are eligible but do not choose a competitive supplier, as well as those who are not eligible to make a choice. The pool of default service customers will only evaporate completely if that service is discontinued or if the rates charged for it are so high as to become unattractive. Neither scenario is very likely.

There should be no question of the potential importance of some single organization, such as the AU, in securing longer-term electricity contracts at the best possible terms to meet the needs of default service customers. Rather, the main questions are organizational, such as who should be responsible for buying on behalf of the default service customers, who should take ownership (take title) of the electricity, and what type of auction model should be used?

As to the particular structure of the organization managing the purchasing, there are a few possibilities: a government chartered entity; the distributors, or their retail arms, perhaps through an entity formed by the distributors (as is occurring in the US); or a private party. Initially a large part of this organization's role is to procure electricity to meet load from customers being served under a regulated tariff, which suggests some need for regulatory involvement. Leaving this role with the AU is perhaps the most practical answer in the short-term, as the AU already has an organization in place to deal with short-term purchasing requirements on behalf of captive and default customers. The AU may well also

provide a very good long-term solution to the problem of default service when all customers become eligible to choose retailer but decide not to exercise their right to choose.

Three types of models have been applied in other jurisdictions. In New Jersey, which has conducted probably the most successful procurement auctions, the distribution companies created their own single buyer with the approval of the local regulatory authority. [2,3] In almost all instances in which the utilities have organized auctions, the local regulatory agency has appointed an independent monitor. Auctions for utility procurement of default service electricity requirements have never been run without continued regulatory oversight. In one case, the regulatory commission essentially told the utilities how they needed to coordinate and run the auction, and left it up to the utilities to work out the details.

The main alternative to the utilities or service providers running the auction is that a governmental or quasi-governmental regulatory agency manages the process. The most notable case was the Power Purchase Arrangement (PPA) and the Market Achievement Plan (MAP) auctions in Alberta, Canada. There, the Alberta Department of Resource Development and the Alberta Balancing Pool conducted a series of auctions for energy contracts. Such an approach is fairly common for day ahead and real time markets, and for transmission rights. In such markets, system reliability can depend crucially on certain demands being met. Thus, the system operators often manage these markets.

The third form of auction management, by a private party, has been unusual except where that private party is created by either a government charter, as was the CAISO, or is affiliated with one or more of the other parties, as was Captrades in the Texas entitlements

[2] This was essentially NERA, but did include individuals from the distribution companies in key roles.
[3] In other electricity auctions for energy involving multiple utilities, a central auction administration has been the chosen approach. In Texas, for selling capacity entitlements, the three utilities agreed to a significant extent

auction, in which Captrades was affiliated with two of the three main distribution companies.

An other significant issue that needs to be decided is who should assume ownership of the contracts and be responsible for payments. The credit-worthiness of this entity is important. If contracts are essentially financial (contracts for differences), the sellers want to have strong assurances that they will get paid. In New Jersey, the utilities took title of the electricity and were responsible for payment. Their credit ratings were sufficient to provide adequate assurances. One contributing factor to the California energy crisis was that the sellers did not have strong assurances that they would receive payment. In Italy, the AU can be the counter-party on the supply agreements; that is, the AU can accept the title for the contracts. This does leave the AU with some exposure if for whatever reason the distribution companies are unable to pay the AU for the electricity consumed at the contracted price. These are unlikely to be large risks unless the distribution companies rely primarily on short-term purchases, such as through a volatile day-ahead market, for a large share of their energy needs. However, the only likely practical alternative to the AU becoming the counter-party is for the distribution companies to do so. This solution will only be practical if all the distribution companies have adequate financial resources.

Periodic bids or auctions will allow competition among potential suppliers to ensure that the default service customers (whether captive or those not choosing to migrate) receive energy services in the most cost effective manner. Without periodic procurements of intermediate to long term supply contracts, the AU and/or the distribution companies would need to purchase energy on behalf of captive customers by means of bilateral contracts or in the day ahead market. Bilateral contracting is almost certain to result in variations in price that give the appearance that non-objective criteria, or criteria that do not necessarily meet the public

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on common management of the auction. Now, Arizona is contemplating procurement auctions for a portion of their needs, and the utilities may jointly organize the process.

interest, are being used to decide the terms and conditions of the contract. Reliance on short-term purchases is no better than bilateral contracts. Such short-term purchases will expose captive customers (or the wholesale purchasing agency) to significant price volatility.

The Government may choose to smooth final tariffs, using estimated wholesale prices and adjusting them periodically to reflect significant deviations. However, significant reliance on short-term (e.g., day ahead) purchases on behalf of default or captive customers will expose the wholesale buyer of power to potential serious risks. California is an example of what can happen if tariffs do not reflect cost. Even in Spain, the Government recently had to acknowledge that a major tariff "deficit" had developed for this reason and had to take extraordinary measures to provide for the recovery of this deficit over the coming years. By providing for longer-term contracts, an organization like the AU should be able to limit its exposure to these types of problems.

The need to centrally administer auctions for long and intermediate duration contracts is unlikely to disappear in the next few years. The supply of electricity to what are now captive customers is likely to become increasingly competitive providing more choices over time. Experience suggests that migration to competitive suppliers is likely to be slow. The factors that limit how much the Regulatory Authority and other policy makers want to expose captive customers to market volatility are unlikely to change significantly.

The Regulatory Authority and other policy makers may want to maintain a low cost default service offering under a regulated tariff, even if all customers are eligible for liberalization.[4] The amount that an average customer can save from switching can also limit migration. Therefore, as long as there is a significant pool of customers who are captive or who have no

[4] One possible solution, being adopted in New Jersey, is for the distribution companies to run periodic auctions for contracts with durations running as short as 10 months and as longs as 34 months. The resulting wholesale energy prices are to be passed through in setting default service rates. In this fashion, prices are set by

clear preference for any competitive alternatives to a default service, an organization such as the AU will almost certainly continue to have a role. A default service may continue to be offered under a regulated tariff if only to provide protection to customers from the potential for severe market price volatility.

Had a legislative charter not created the AU, the stakeholders would likely have wanted to create a functionally equivalent entity. However allowing each individual distribution company to conduct its own separate procurement processes would benefit neither them nor the suppliers. No distribution company should expect to pay higher prices in an efficient national procurement process than it would on its own. This is because with separate tenders or auctions, it is possible, if not likely, for different sets of suppliers to make offers in each region, making competition very uneven across the regions.

This paper explains the role for a central organization, such as the Acquirente Unico, in meeting the goals of its charter. Competition is likely to develop gradually, and as it does, the role of the AU is likely to change. A major component of the AU's role should include the organization of the electricity procurement into reverse auctions for contracts of intermediate durations, anywhere from one month to several years. Italy should benefit enormously from recent experience, both in retail competition for what have traditionally been captive customers, and in the design and management of auctions for procuring electricity to serve the needs of the remaining captive customers.

2. The Role of the Acquirente Unico, Now and in the Future

competitive biddingcompetitive bidding sets prices, but the regulatory agency has an opportunity to defer rate increases and pass throughs should prices spike in the short term.

This Section explains the AU's near term and longer-term role in ensuring competitive procurement of the electricity needed to serve the default service load.

2.1 Competitive Restructuring Does Not Automatically Eliminate Default Service and Provider of Last Resort Obligations

Thus, default service is likely to continue to remain available long after all customers become eligible, and due to the significant efficiency gains from coordinated procurement, a central organization, such as the AU, will have an important ongoing role in ensuring economical provision of energy services for a large segment of Italian consumers.[5]

I am aware of no jurisdiction with electricity retail competition where customers are now forced to choose a competitive third party supplier. For customers who fail to choose a new supplier, which can be virtually everyone, the existing local utilities, and retailing affiliates, or former affiliates continue to provide a default service offering. The service for those consumers who fail to choose a competitive supplier has somewhat different terms and labels in different jurisdictions and is called Default Service, Standard Offer Service, Standard Service Offering, Initial Service Offering, or Basic Generation Services. The details of the default service vary from one jurisdiction to the next. For instance, in some jurisdictions, default service rates allow pass through of variations in electricity prices, but not in others. I am grouping all such services heading. Below, I discuss, in more detail experience in other countries, most notably the US. [6]

There is a great deal of experience with introducing customer choice. Legislation or regulatory fiat can require all customers to choose a competitive electricity supplier. Experience suggests that forcing customers to choose competitive suppliers is unlikely to be very popular. Forcing choice has been tried in earnest in the U.S. state of Georgia, and

[5] I am grouping Provider/Supplier of Last Resort (POLR/SOLR) service under this heading. This is a simplification in that POLR service is mainly supplied by distribution utilities in order to ensure uninterrupted service in the event of a failure of one or more energy suppliers to meet demands.

[6] In a number of jurisdictions, the responsibility to maintain system reliability rests with a separate system operator, such as PJMISO, NYISO, CAISO, etc. In most such cases, the utilities retain financial responsibility

resulted in so many consumer complaints that it had to be abandoned.[7] Consumers objected to receiving bills from firms they never agreed should provide them with service.

Experience also indicates that a significant fraction of consumers are likely to remain subscribed to a service offered directly by the local distribution companies or their marketing arms under a default service or regulated tariff for many more years, or for as long as such a tariffed service is offered. This fraction will include both captive customers and some customers who may have an option of choosing an alternative competitive service but who do not exercise that option.

2.2 The Pool of Captive Customers is Unlikely to Evaporate Quickly

As long as there remains a significant pool of captive customers and eligible customers who continue to receive default service, an organization like the AU will have a role in managing the procurement process, and in particular in conducting periodic auctions.

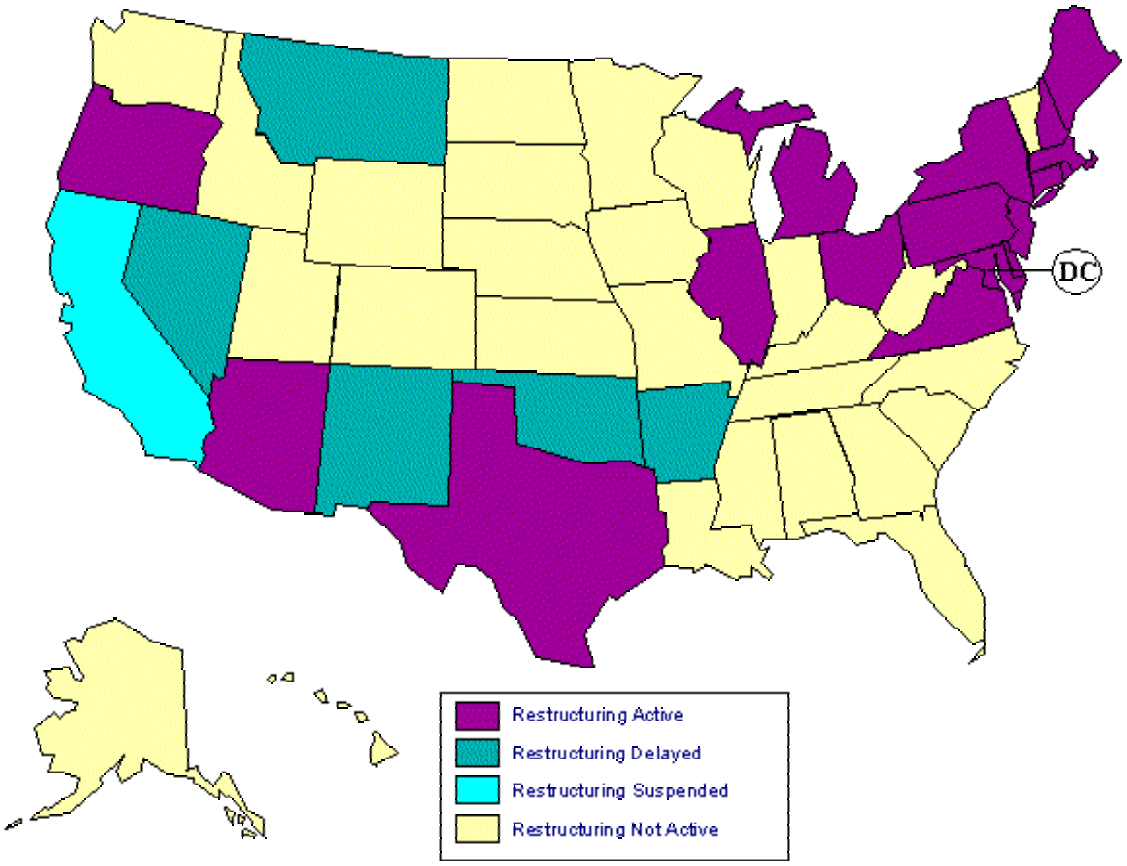
There are several models of retail choice. Under none of those models has the migration from the regulated default service to competitive offerings been rapid and complete. The load requirements of the pool of default service customers remain very uncertain.

Over the past few years customer choice has been introduced in an increasing number of the U.S. states and is now in effect in many, but not all, states. The following map shows the status of retail competition in each of the 50 U.S. states.

Status of State Electric Industry Restructuring Activity
-- as of February 2003 --

for the energy costs incurred by the system operator. In some cases, load-serving entities, which are not necessarily the utilities, incur costs of capacity charges or purchase of capacity credits.

[7] See Loxley and Salant (2003).



Alabama	Alaska	Arizona	Arkansas	California	Colorado
Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii
Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky
Louisiana	Maine	Maryland	Massachusetts		Minnesota
Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire
	New Mexico	New York	North Carolina		Ohio
Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota
Tennessee	Texas	Utah	Vermont	Virginia	Washington
West Virginia	Wisconsin	Wyoming			

Source: Energy Information Administration.

The figure and the accompanying table above details the status of each state's restructuring process in the United States. States in purple are going through the process or have gone through the process of permitting retail competition. The green states are those in which

there is a significant delay that occurred in the restructuring process. California is the only blue state because it is the only state where the restructuring process is suspended. Finally the states colored yellow are those that are not currently pursuing restructuring.

Table 1 shows migration in the U.S. states that have introduced retail choice. It shows significant variation in customer switching rates, from a low of less than 1/10 of 1% in New Jersey to an excess of 15% in Ohio as measured by the percentage of customers who have switched. In some other jurisdictions migration from default service has been less than 1% whereas in others it has exceeded 30%. The migration of larger customers has tended to exceed that of smaller ones, so the percentage of load migrating will be higher than the percentage of customers. However, in many jurisdictions even the migration of large customers remains quite low. While the fraction of consumers migrating from the regulated default service can vary, it has remained well below 50% in every jurisdiction of which I am aware, and in the U.S. tends to be no more than 10% absent some fairly strong measures to force customers to choose.

Table 1 TOTAL MIGRATION: Migration of captive customers in US states in which competitive choice is available as of 2002.

Customer Participation in Retail Access											
State	*Population*	*Customers of Competitive Suppliers*	*Total Customers Eligible for Retail Choice*	*Migration Rate*	*Report Date*	*Competitive Residential Load*	*Competitive Commercial Load*	*Both C&I Load*	*Competitive Industrial Load*	*Total Competitive Load*	*Report Date*
Arizona	5,456,453	n/a	n/a	n/a	n/a	0.0%	0		0.0%	0.0%	Oct-02
California	35,116,033	72,422	10,580,906	0.684%	Dec-02	0.8%	1.4*/13.9#		35.7%	13.3%	Aug-02
Connecticut	3,460,503	n/a	n/a	n/a	n/a	1.3%		0.2%		1.2%	Sep-02
District of Columbia	570,898	25,115	197,359	12.726%	Sep-02	11.1%		59.6%		49.4%	Aug-02
Delaware	807,385	n/a	n/a	n/a	n/a	n/a		n/a		n/a	Sep-02
Illinois	12,600,620	27,896	687,980	4.055%	Oct-02	0.0%	26.9%		50.1%	25.8%	Jul-02
Maine	1,294,464	8,713			Jan-03	1.6%	30.4%		72.1%	34.8%	Sep-02
Maryland	5,458,137	74,870	2,074,243	3.610%	Dec-02	3.9%			29.1%	17.2%	Aug-02
Massachusetts	6,427,801	84,532	2,544,495	3.322%	Nov-02	2.2%	11.4*/17.4#		43.5%	21.6%	Aug-02
Michigan	10,050,446	n/a	n/a	n/a	n/a	n/a	n/a		n/a	7.3%	Jul-02
New Jersey	8,590,300	2,573	3,651,148	0.070%	Dec-02	n/a		n/a		1.8%	Jun-02/Aug-02
New York	19,157,532	388,308	7,279,618	5.334%	Nov-02	5.5%		26.2%		18.9%	May-02
Ohio	11,421,267	747,951	4,681,053	15.978%	Sep-02	13.9%	15.2%		11.7%	12.9%	Jun-02
Oregon	3,521,515	36,503	1,213,858	3.007%	Dec-02	n/a		0.0%		0.0%	Sep-02
Pennsylvania	12,335,091	278,429	n/a	n/a	Jan-03	5.6%	10.7%		11.0%	8.7%	Oct-02
Rhode Island	1,069,725	2,132	468,015	0.456%	Dec-02	n/a	n/a		n/a	12.9%	Jun-02
Texas	21,779,893	469,106	n/a	n/a	Sep-02	4.8%	27.2%		81.1%	38.2%	Jul-02
Virginia	7,293,542	2,584	1,300,763	0.199%	Aug-02	n/a	n/a	n/a	n/a	n/a	n/a

#Large Commercial; *Small Commercial; n/a = Not Available; n/o = Not Open

The exact dates at which retail choice started differ across states. In most of the states listed above, retail choice has been offered for several years. In some states, migration has increased over time, but in others, retail choice has never attracted many consumers. In California, retail access was introduced in 1998 and suspended in 2001.

Differences in default service rates have been responsible, in part, for the differences in customer migration. The models differ in other ways between the states. In many states, such as California, default service rates were regulated under legislation that settled some other matters related to competitive restructuring. In a number of states, the default service

rates have been so low that there has been virtually no switching during the period in which switching was permitted. Ohio has a number of large distribution companies serving the different parts of the state. In one part of Ohio, migration has exceeded 15%, whereas in other parts of the state served by other distribution companies, migration has been less than 1%. These differences can, in part, be explained by a flexible approach to setting default service rates, allowing each company to have somewhat different rates, and by other factors such as differences in what it costs competitive suppliers to serve the different regions.

New Jersey has had very little (less than 1%) switching, but has had a very successful approach to competitive procurement of the energy at a wholesale level to serve default service customers. These auctions were a response to the legislative mandate that contained provisions both for retail choice and for competitive bidding for procurement of the default service load. Two sets of auctions have been completed, one just completed in February 2003, and the other one year earlier.

Many other details of competitive restructuring differ from state to state. In all the states, distribution companies have remained in the retailing business. One key difference across states, and even across regions within a state, is the extent to which the distribution companies have divested or otherwise separated their generating assets. Some states, such as California, have required the distribution companies to divest virtually all or most of their generating facilities. In other places the utilities have been required to divest some control, in the form of contracts or entitlements (for example, Texas, and the Canadian Province of Alberta). In yet other jurisdictions the utilities had options, but had to structurally separate generation from distribution (e.g. New Jersey). In New Jersey, one of the three main utilities, PSE&G, retained ownership of its distribution and the other two divested theirs. PSE&G created a separate subsidiary, PS Power, to manage its generation assets.

The United Kingdom has permitted retail competition for the past several years. The model used differs quite a bit from that used in the U.S. It has resulted in greater migration, approximately 35% of all customers, and a higher percentage of total load, than has occurred in most of the U.S. Still, almost two thirds of customers remain on the regulated default service. Over time, competition has grown and seems likely continue to do so.

At this stage it is not possible to predict how, and how much, competition will emerge in Italy. The reason for this is, in part, that many key aspects of the regulatory framework for default service have still to be determined.

2.3 Factors Affecting Customer Migration

A number of factors will affect the fraction of customers who switch under competitive restructuring.

One factor is the extent and manner in which wholesale energy prices are incorporated into default service tariffs. If the tariffs fully reflect truly competitive procurement costs for contracts of the comparable durations, then over time it would be expected that customers would gradually migrate off of default service. For a variety of reasons, such as transaction costs and search costs in switching which likely vary across consumers and over time, one would not expect all end users will to make a decision to switch at one time.

The U.S. experience illustrates the fact that migration away from the default service tariff can be slow and limited, and also provides some clues to understanding why this is so. A number of other factors can also affect the rate of migration. The distribution charges imposed on competitive suppliers may be regulated, and may be uniform in each group and set to accurately reflect the average costs of serving each group; variations in costs within groups

can leave some customers more profitable and others less so.[8] What this means is that some customers will likely continue to be better served by the utility while others by competitive suppliers. This indeed has been the pattern in the UK and the US.

In only a few parts of the U.S. have the savings to consumers been sufficiently large to induce significant migration away from default service tariffs. In all states that have introduced customer choice, the generators pay a "wires" charge to the distributors. Moreover, to date, all states in which there is customer choice also retain a regulated default service offering. One of the main determinants of migration is the size of the margin between the regulated default service tariff and the regulated wires charge. If this margin is large, then competitors have more "headroom" to profitably enter. Where local utilities have traditionally had low regulated rates, the headroom is more limited. In some regions, the existence or lack of headroom is more a function of distorting tariffs than the true underlying costs of incumbent utilities. Regulatory policy, especially in setting tariffs for distribution charges and for default service rates, will have an impact on the headroom facing competitive entrants and will therefore affect switching. In Italy, many key decisions need to be made, especially about the terms and conditions for eligible customers who do not choose that will affect the rate of migration away from default service.

3 Auctions are Efficient an Efficient Procurement Mechanism

Auctions are one form of market mechanism in which competition among bidders determines the allocation. There are many different types of auctions and market mechanisms—each with different properties. In efficient markets the winning bidders are those who are willing to offer the best (lowest) prices. An important role for the Acquirente Unico is to help establish an efficient procurement process. This includes determining what

[8] Two examples of reasons for such variations are differences in collection costs/risks across customers and

should be auctioned, if anything, and with what frequency, as well as the myriad of details involved in implementation that make the difference between success and failure.

Auctions are not the only form of market mechanism. The Gestore del Mercato Elettrico (GME) is in the process of implementing a day-ahead market for electricity trades. Moreover, auctions can be for physical energy contracts, but are more commonly for financial instruments to hedge energy costs, such as contracts for differences (CFDs). While setting up and managing an entire array of markets for electricity trading may not be the role of the AU or any government chartered agency, ensuring procurement of default service customers' requirements at competitive long-term prices is an important role and has been assigned to the AU. To this end, it is crucial that sound trading rules that limit potential for adverse effects from strategic bidding. The AU can best meet this goal through the creation of tradable financial contracts, such as CFDs, and the organization and management of periodic auctions for longer-term and financial contracts that allow hedging of energy costs for default service needs. The GME will not provide such contracts.

4 The AU's Role

As I have already described, liberalization of the Italian electricity sector does not imply all newly eligible customers will automatically switch to a competitive service providers nor will or should default service disappear. Experience elsewhere, such as in California, strongly argues that some precautions or safeguards are appropriate to accompany liberalization. In this section I describe in further detail the role for a single agency or organization to coordinate default service procurement when the different regions have different suppliers. I also explain why coordination across jurisdictions or regions is likely to achieve more efficient outcomes than would be the case if each distribution company in each region conducted its own independent procurement.

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differences across customers in their propensity to shop and switch for a given price differential.

4.1 The Future Role for the AU

Sealed bid type requests for proposals (RFPs) are another type of market approach to procurement. Auctions should not be adopted to the exclusion of RFPs, nor should the converse happen. The likelihood is that a combination of procedures—auctions, RFPs, and spot purchases, should be considered to minimize overall procurement costs. This is true for a number of reasons. On the supply side, producers may want a combination of contracts to best match their asset portfolios. On the demand side, the use of contracts of different durations will affect the vulnerability of the buyers to strategic withholding by sellers in any one market. In addition, auctions provide a transparent price setting process. The prices for the types of contracts in the auction can then be used to assess the value of other types of contracts that may be traded by other means.

Indeed, to limit exposure to strategic bidding, the AU may want to retain some ability to shift a fraction of the overall purchases from longer-term to shorter-term contracts. The AU could retain some discretion or, alternatively, some fixed rules can be used to determine the conditions under which the AU should shift some purchases to shorter-term procurement options. As has been observed elsewhere, such ability to shift demand can be an optimal response to the potential for strategic bidding. [9]

Many tasks will need to undertaken, described in further detail below, which can make a significant difference to the outcome. The specification of the provisions for customers who do not choose a competitive supplier at the time they become eligible is perhaps the most critical task. Such customers will presumably continue to receive some form of default service. Default service terms can be specified in such a way as to provide customers with more or less immediate exposure to market conditions and to volatility. The terms and

conditions for default service, and for access to competitive supplies, will clearly affect incentives of eligible customers to migrate. No matter what provisions are made for default service, uncertainty about the pool of captive and other default service customers will remain. This uncertainty suggests that the default service load and its shape will change over time. Default service customer load will tend to shrink as competition develops. These changes will affect the requirements of the AU and its role.

The establishment of a competitive procurement mechanism will allow the AU to reduce its direct purchases as a competitive market develops. Corresponding to those decreases would be increases in the amounts the distributors or third party retailers purchase to serve the needs of default service customers. As long as the pool of captive and other default service customers remains, periodic wholesale auctions for electricity procurement of longer-term contracts will likely remain a cost effective mechanism for energy purchases, no matter how third parties or distribution companies split the responsibility for procurement. Such auctions will be necessarily more efficient than the alternatives of bilateral contracts or day-ahead purchases. Indeed, in numerous business-to-business (B2B), environments, the need for periodic procurement auctions is giving rise to a new industry to conduct such auctions.

4.2 The Single Buyer's Role in Coordinating Purchases to Ensure Cost Effective Procurement.

The procurement or auction administration will benefit from a dedicated team to manage and coordinate the energy procurement process for all default service customers in Italy.

9 See McAdams (2001) and Loxley and Salant (2003).

For service to customers in different zones and on different distribution networks to be efficient, the procurement should be managed in a coordinated fashion. Lacking a single, coordinated procurement process, each distribution company or default service provider will need to separately procure its own electricity. At the very least, the Single Buyer should not expect to do any worse than the individual companies can do independently.

One reason why separate bidding processes are not advisable is that bidder participation will tend to be lower if the dozens of default service providers hold separate bidding processes. It is highly unlikely that the all the bidders will submit bids in all the processes. This is especially the case if the bidders include importers, traders and other types of resellers whose activity can help reduce overall procurement costs. Small to medium sized regions are unlikely to attract nearly as many suppliers as the Single Buyer would in a nationwide procurement process. In a single large auction, every potential supplier is likely to show up.

Moreover, providing opportunity for suppliers to make simultaneous offers in different regions increases the chances of a more efficient overall allocation of generation and transmission resources. The likely result would be that the Single Buyer obtains much better terms than could the local distribution companies individually.

Even if all bidders show up in each auction in a sequence of identical auctions, prices are likely to vary from one to the next, even if the supply and demand conditions are otherwise very similar in each auction. Economic theory suggests two, potentially offsetting, reasons for this to be the case. The first reason, which suggests that each lot will go for a worse (i.e., higher) price than the one before, is that the more aggressive and lower cost bidders will tend to win the initial lots, and that the subsequent lots will be won by less aggressive and higher cost bidders. The other reason, working in the opposite direction, is that an optimal bidding strategy suggests that bidders bid less aggressively for first lots. If a bidder loses

the first few auctions, it can pursue a more aggressive bidding strategy later on, thereby improving its chances.

A number of empirical studies have observed the "declining price anomaly," where the first auctions in a sequence tend to attract better offers than the latter ones. This means, in this setting, that the first tranches, or portions of the load, procured are likely to have a lower per MW cost than the tranches purchased last.[10]

This possibility that similar slices will receive very different prices (in sequential and separate auctions) is disturbing in that it suggests some allocative inefficiencies. Indeed, separate auctions or RFPs create opportunities for misallocations in which the bidders are put in a position of making strategic guesses. These guesses result in misallocations of capacity across regions whenever someone guesses incorrectly. The inefficiencies of sequential and separate auctions are avoided with simultaneous auctions. The use of a simultaneous and coordinated process for procurement is likely to result in lower procurement costs ***and*** higher net prices for the suppliers. Both sides win.

4.3 Possible avenues for migration of captive customers in Italy

At this time it is unclear how fast, how many, and which captive customers will migrate to competitive providers of energy services. Regulatory policy, as noted above, can affect this migration. Decisions about continuing to make available to all Italian consumers a regulated tariff, the way in which the rates for such a tariff would be determined, eligibility of access to a regulated tariff, and the terms and conditions whereby competitive retail service providers can gain access to the distribution and transmission network will significantly affect the size of the pool of default service customers. Potential benefits of competitive electric retail may be so low that competition will be slow to develop.

[10] See McAfee and Vincent (1993)>

There are several options for how regulation of default service provision will develop. One is that a regulatory mandate can require all "new" customers[11] to choose an electric service provider. In this fashion, competition will be almost certain to develop.

Massachusetts used elements of this type of approach. In Massachusetts, the regulators did not require the utilities to offer Standard Offer Service to new subscribers, but only to continue that offering to old subscribers. In Massachusetts, new subscribers are offered a "Default Service," which is very similar to the Standard Offer Service. As customers churned, or moved, a decreasing share remained on Standard Offer Service. What can be learned from the Massachusetts experience may be limited in that Default Service remained regulated as well, at terms not so different from the Standard Offer Service. So, rather than discontinuing regulated service offerings as customers terminate the Standard Offer Service through normal attrition, and force all new subscribers to make a choice of some competitive service, the regulators in Massachusetts substituted a new regulated tariff (Default Service) for the old one (Standard Offer Service). In determining policy toward default service, policy makers generally seem to have a desire to preserve a regulated tariff offering for at least a large segment of the customers. This is because there is inherently some risk in exposing all consumers to the fluctuations of the market.

In addition, competition may fail to develop for serving some significant customer segments. In such cases, a large set of captive customers will likely remain. Unless the headroom is high, the marketing costs for attracting smaller customers need not be worth the incremental profits. This lack of headroom can limit competition.

Customer switching and the development of competition will affect the role of the AU would need to fill. Assuming that the AU initiates auctions or some other procurement

[11] By "new" Massachusetts mean all new customers in an area, customers who relocate, or return from a competitive supplier or churn)

process for obtaining the electricity to meet the load of captive and other default service customers, and that the pool of captive customers does not shrink much, an important near-term role for the AU is the establishment of an economical process for procuring the electricity to serve the needs of captive customers. The AU's role in such auctions need not remain stay the same forever. In particular, it may not remain a purchasing agent forever, but can continue as an administrative agency with responsibility for the management of auctions for intermediate to long-term contracts for energy. As I discuss below, long-term contracts can affect the strategic incentives of suppliers both in bidding in the shorter-term markets and in available financing. Both factors suggest that developing a market mechanism for the periodic trading of long-term contracts is necessary to minimize electricity procurements, as is an entity whose role is the administration of such markets. This means that some role for an AU-type agency is likely to remain.

Bilateral contracts and purchases in the day-ahead market can be used to supplement coordinated auction purchases. As I have already explained, bilateral contracts should not be the primary procurement approach, as they do not set up a market or a market price and result in inefficient outcomes; in contrast, periodic auctions do establish a market price for contracts.

In the longer run, electricity markets are likely to become increasingly competitive. An active power exchange for both forward and spot contracts may serve to ensure that day-ahead procurement costs are minimized with little additional need for regulatory oversight for of such transactions. The competitive day ahead and/or hour-ahead market(s), being introduced by the GME does nothing to help hedge the risks facing the end users. Longer-term contracts are needed to provide customers with stable prices. The AU will probably need to assume the responsibility of setting up a market type mechanism, or more

specifically auctions, for some forward, longer-term, contracts so as to hedge some of these risks.

The private sector has not yet set up such markets nor can it be relied upon to do so in the time needed. Although long-term contracts can be procured by sealed bid or bilateral contracts, as I have already discussed, such procurement processes neither minimize costs nor provide a transparent mechanism for price determination. This lack of transparency in negotiated procurement contracts will likely lead to challenges that can create further delays or interfere with whatever market or auction processes that are in place.

4.4. Further issues the Acquirente Unico yet needs to address

As I have already discussed, the reliance on the GME for all purchases is not very attractive as risk of price fluctuations is high. Both economic theory and experience suggest that this approach will result in higher overall procurement costs for large purchases. Relying more on longer term forward contracts can reduce procurement costs relative to short term spot purchases when there is any risk, as there almost certainly is, that the AU's participation in the spot market can significantly affect price and that suppliers could have any strategic incentive to withhold supplies in the spot market.

The issue is then the determination of what is the best way of dividing the procurement among the alternatives. The AU's decision on how much to rely on the day-ahead market or hour ahead market vs. longer term contracts acquired through auction or bilaterals, is likely to affect the AU's exposure to market volatility, as well as opportunistic supplier bidding behavior. One of the main implications of research by Allaz and Vila (1994) is that the AU's interests will be better served, and that the likely procurement costs are lower, should the AU (and the distribution companies) secure a significant fraction of the default service load requirements through long term contracts, and little if any of their needs in the day-ahead

market. The rationale is that the suppliers will be anxious to sell in the long-term forward market if they view the day-ahead being very much more competitive. This will indeed be an accurate view when most purchases are in a forward market. The application of this approach to an energy procurement auction is explained in Loxley and Salant (2003). There are a great number of details to determine in deciding to run auctions. One is the terms and durations of the contracts. Another is the intervals, annual, monthly, etc., between auctions. A single auction can include contracts of differing durations. This report is not aimed at describing optimal auction design or of the ideal contract. I merely note that there is *very successful experience* with auctions that include contracts of different durations. Moreover, as long as there is a single large purchaser, an exchange is unlikely to be the most practical or cost-effective way for electricity procurement.

One other benefit of procurement through longer-term contract is financial. Whatever form of procurement mechanism is used, longer-term contracts can facilitate financing of new generation capacity. This is not to suggest that the AU should make all its purchases with long-term contracts. Some variation in contract duration can reduce costs for suppliers in the process of retiring some resources or planning on bringing on line new ones. Auctioning, or otherwise procuring, energy needs by means of contracts of varying duration facilitates supplier minimizing costs by allowing them to assemble a portfolio of contracts that best matches their generation capabilities and business plan.

Including an auction component in the procurement process has several advantages over the other options. One is that bids in an auction provide a transparent mechanism for awarding contracts and setting prices. The alternative RFP/RFQ's lack transparency and almost necessarily include subjective evaluation criteria. The outcome does not result in a single market price that can be used to evaluate all contracts of a given duration and as a basis for evaluating longer-term and shorter-term contracts.

Attention at this time should be focused on better defining the goals and the objectives of the Single Buyer to provide the greatest benefit for the Italian energy sector. Although liberalization is likely to reduce the pool of ineligible customers, as I have already indicated, it is likely to leave a large pool of subscribed to default service. In addition, liberalization on its own is neither likely to have a great impact on the need for long-term contracts for supplying energy, nor even limit risk of price fluctuations. While the Single Buyer's role in the near term is primarily to ensure the economic procurement of energy services on behalf of captive customers, there should be no question that the measures taken and the procedures established will serve an ongoing need in a liberalized electricity sector.

Discussion about the Single Buyer needs to be focused on its mission and on the specific steps it should be taking. For instance, some determination needs to be made about the composition of procurement contracts by type, such as customer class or resource type, and duration. The decision of the type of portfolio of contracts that the AU should seek should be based, in part, on further evaluation of its needs and the resource availability. With limited time, it may be best in the near term for the AU to seek contracts for uniform slices of its requirement. Over time, then, the AU could seek separate bids for different pieces.

Many other issues that need to be determined that will affect how costly it will be for the Acquirente Unico to procure the energy to serve the captive customer load. One of the main ones is the possible limit in access to transmission rights on a transparent and predictable basis. Suppliers in one region with limited or uncertain access to transmission capacity into another region will be less likely to bid competitively than would be the case if the transmission rights were more clearly defined.

The Single Buyer has much to do now. Before any requests for proposals can be issued, no less evaluated and accepted, a bidding process needs to be finalized. The Single Buyer has already completed some of the important initial steps in defining a process. If Italy were to

abrogate this effort, it will likely be the case that non-eligible and other default service customers will become vulnerable to the extreme price volatility or to longer-term, bilateral procurement agreements negotiated under potentially difficult circumstances with unfavorable terms. Both have occurred in California. The day-ahead market was abandoned due to extreme price volatility and chronic supply shortages. Subsequently negotiated bilateral contracts negotiated through the Department of Water Resources left California locked into expensive contracts for up to ten years.

Italy now has the benefit of experience, both in California and elsewhere. In addition, Italy has the benefit of an agency that has been actively trying to profit from this experience. The auction process that the Single Buyer is in the process of evaluating promises to provide a transparent competitive process for establishing market prices for one or more specific types of energy contracts. A fundamental principle of economics is that prices are signals that help buyers and sellers in making decisions. As such, auctions will likely play an essential role in the Italian energy markets, at least for intermediate and long-term forward contracts. The Acquirente Unico has an essential role to play in establishing and administration of these new markets, as well as setting up procedures for dividing purchases between auction and bilateral contracts, on the one hand, and day ahead, hour ahead open market purchases on the other.

5. Experience with default service elsewhere, implications for Italy

In this section I describe some of the most relevant experience with liberalization in other jurisdictions, most notably on New Jersey and Ohio. My focus is on the US. Each of the fifty US States and the District of Columbia have a different regulatory framework. As such, the US is a natural experimental test bed for liberalization.

5.1 The U.S. experience provides an experimental test bed that includes at least one model that seems to have a great deal of relevance for Italy.

It is worthwhile reviewing a few of the details the liberalization process in New Jersey because it could be of especial relevance for Italy. One reason this is the case is that the concentration and total supply relative to demand was, if anything, a little more concentrated and tighter than Italy. In New Jersey, there are four utilities, approximately 18,000 MW of load, and perhaps 6,000 MW of import (interconnector type) capacity. The largest owner of native generation, an affiliate of the largest distribution company, controlled approximately 57% of the capacity; the four largest generators controlled 76% of native, that is in-state, generation, and "interconnector" capacity is approximately 25-30% of the load. A second reason for New Jersey experience being relevant for Italy is that the outcomes of two sets of auctions over the past two years has been considered very successful. Table 3 shows the results of the 2002 auction.

The New Jersey utilities, or Electricity Distribution Companies (EDCs), under a legislative mandate to secure their energy needs through a competitive bidding process, organized a fairly novel auction, a Simultaneous Descending Clock Auction. The first auction was conducted in February of 2002. In it the offers were for uniform slices, called tranches, of approximately 100 MWs of the EDC's default service load requirements. Each tranche for an EDC was a uniform slice of that EDC's entire load; therefore its shape matched the EDC's load duration curve. The contracts auctioned were contracts for differences. These contracts were one-year full requirements contracts. Table 2 shows the results of that auction.

Table 2

2002 NJ BGS AUCTION RESULTS

BGS Winning Bidders for Year 4				
	PSE&G	**JCP&L**	**AECO**	**RECO**

# of tranches	96	51	19	4
Final prices	5.112¢/kWh	4.865¢/kWh	5.117¢/kWh	5.819¢/kWh
ALLEGHENY ENERGY SUPPLY	15			
AMERADA HESS CORPORATION	9	1		
AQUILA ENERGY MARKETING	15	5		
CONECTIV ENERGY SUPPLY INC				1
CONSOLIDATED EDISON ENERGY		3		
DTE ENERGY TRADING INC	20			
DUKE ENERGY TRADING		5		
FIRSTENERGY SOLUTIONS CORP	10	2	5	
MIECO	1			
NRG ENERGY			5	
PPL ENERGY PLUS CORP				3
SELECT ENERGY INC	1	15	5	
SEMPRA ENERGY TRADING CORP	6	9	4	
TXU ENERGY TRADING	7	3		
WILLIAMS ENERGY MARKETING & TRADING	12	8		

Table 2 shows the number of tranches each bidder won from each EDC. The prices ranges from 4.865¢/kWh foreach of the 51 JCP&L tranches, to 5.819 ¢/kWh foreach of the 4 RECO tranches.

What can be seen from the auction results is that competition between the bidders was responsible for the division of the load. The regulatory authority did not need to make any pre-auction determination of the optimal way to divide it. Moreover, competition also determined the price differences between regions. For instance, TXU and Sempra, among others, won tranches in both the PSE&G region and the JCP&L region. The prices were 0.247¢ higher in the former. This means that TXU, Sempra, and the other four bidders serving both regions decided how to divide the amount they supplied to each region based on the relevant prices. For none of these four bidders to want to another division, which had to be the case at the end of the auction, they all had to be close to indifferent between the two at the final price differential. Further, the prices were viewed, ex post, as quite reasonable.

The auction process was transparent, making it clear that competition among the bidders resulted in those prices. The New Jersey regulatory agency gave final approval of the results

within 48 hours of the final bids being received. In February 2003, New Jersey ran a second year auction, with separate bids for Fixed Price (FP - residential and smaller customer) contracts, and Hourly Electric Price (HEP larger business) contracts. The results were similarly competitive, with prices ranging from 5.042¢/kWh for 10 month JCP&L FP tranches to 6.525¢/kWh. This model is now being considered for Arizona, [12]

5.2 Experience in other states

The switching rates *within* states that have liberalized their electricity markets can vary quite a bit. The most informative for Italy is Ohio. Ohio has a few large utilities and a number of much smaller ones. As Table 3 indicates customer migration has varied significantly within the state.

Table 3:

Summary of Switch Rates from Electric Distribution Utilities (EDU) to Certified Retail Electric Suppliers (CRES) in Ohio									
Company	*Customer Migration to CRES*				*CRES Loads (as a percentage of corresponding EDU loads)*				
	CRES Customers	*Total Customers*	*Migration Rate*	*Report Date*	*Residential*	*Commercial*	*Industrial*	*Total*	*Report Date*
Allegheny/Monongahela Power Company	0	27,280	0.000%	Sep-02	0.0%	0.0%	0.0%	0.0%	6/30/2002
AEP*	195	1,403,180	0.014%	Sep-02	0.0%	3.9%	0.0%	1.2%	6/30/2002
Cinergy/Cincinnati Gas & Electric Company	7,838	645,377	1.214%	Sep-02	1.5%	20.7%	21.4%	14.7%	10/3/2002
Dayton Power and Light Company	13	503,255	0.003%	Sep-02	0.0%	5.2%	19.2%	7.6%	6/30/2002
FirstEnergy#	739,905	2,101,961	35.201%	Sep-02	30.5%	23.1%	18.9%	24.0%	6/30/2002
Ohio Totals	**747,951**	**4,681,053**	**15.978%**	**Sep-02**	**13.9%**	**15.2%**	**11.7%**	**12.9%**	**6/30/2002**

=Toledo Edison Company, Ohio Edison Company, Cleveland Electric Illuminating Company

* = Columbus Southern Power Company, Ohio Power Company

Table 3 shows the customer migration rates for the six largest distribution companies. What is notable is that these percentages are essentially zero for residential subscribers of all but

[12] See Loxley and Salant (2003) for a discussion.

First Energy (which serves Cleveland). Moreover, switching rates for commercial and industrial customers vary between 0 and approximately 20%. Somewhat surprising is the fact that migration of commercial and industrial customers for First Energy is lower than it is for residential customers. What, in part, explains this variation, is that the Public Utility of Commission of Ohio (PUCO) provides the Ohio utilities with some discretion in default service rates. The PUCO is currently revisiting this approach. It may be premature to draw conclusions.

I conclude my discussion of the U.S. experience with a very brief discussion of some relevant experience in California and Texas. As has been widely publicized, California's competitive restructuring has not worked well. Indeed, retail competition for residential customers has been discontinued. A full analysis of what went wrong in California is beyond the scope of this paper. However, it is worth making a few observations.

First, the California regulatory framework discouraged long term purchases. Strategically, California utilities purchased the bulk of the energy needs in near term, day ahead, and real time markets and made minimal purchases in the CALPX Block Forward market. It has been stated that California was the perfect storm. However, many of the fine details of the market design were not tested in advance under adequately set of circumstances. Recent work by Baldick and Hogan (2001), Larson and Salant (2002), as well as earlier work by Green and Newbery (1992), indicate some potential concerns of the California trading rules that were not adequately addressed. Such analysis and testing should be comprehensive. The New Jersey experience should be helpful.

I want to mention Texas, although the Texas model has a great deal of differences with Italy. One potentially relevant part of the Texas experience is the fact that financial contracts of different terms and characteristics were auctioned. The three main utilities in Texas conduct quarterly auctions for contracts defined by what type of resources are involved - base load,

peaking or intermediate; term – monthly, annual, biannual; region – north, south, west and Houston; and utility – AEP, Reliant and TXU. These auctions are very similar in design to the New Jersey auction, and many of the spectrum auctions. To date, Texas has conducted over half a dozed auctions.

6 What Now?

There is a great deal to be done soon in Italy. I understand that the day-ahead market is to start operation this year. Customers now captive are all due to become eligible by 2007. Provisions are needed to ensure continued service at competitive rates for customers who remain captive or fail to choose a competitive service provider.

To ensure that service continues and that customers benefit from becoming eligible, default service terms and conditions need to be specified for eligible customers, and provisions put in place for energy procurement to serve the captive and other eligible customer needs. An organization is needed to develop and implement a procurement process with the aim of ensuring as cost effective energy supplies as possible. The implementation will involve many diverse tasks, including participation in the process whereby default service terms are defined, information dissemination, development of auction bidding rules, bidder qualification procedures and credit evaluation.

References

Allaz, B. and J.L.Vila, "Cournot Competition, Forward Markets and Efficiency", *Journal of Economic Theory*, 1993, n° 59, pp. 1-16.

Baldick, R and W. Hogan, (2001) "Capacity Constrained Supply Function Equilibrium Models of Electricity Markets: Stability, Nondecreasing Constraints, and Function Space Iterations, POWER Working Paper (PWP – 089), University of California Energy Institute.

Beggs, A. and Klemperer, Paul D. (1992), "Multiperiod Competition with Switching Costs," *Econometrica,* Vol. 60, No.3, pp.651-66.

Cramton (1997) "The FCC Spectrum Auctions: An Early Assessment," *Journal of Economics and Management Strategy,* 6:3, 431-95, 1997.

Cramton, Peter, Andrew Parese, and Robert Wilson, "Auction Design for Standard Offer Service," Working Paper, University of Maryland, July 1997.

Crew, Michael and Paul Kleindorfer, "Regulatory Economics: Twenty Years of Progress?" in Journal of Regulatory Economics, Vol. 21, No. 1, January 2002.

Green, Richard and David Newbery, (1992), "Competition in the British Electricity Spot Market," *Journal of Political Economy,* 100(5), pp. 929-53.

Klemperer, Paul D. (1987a), "Markets with Consumer Switching Costs," *Quarterly Journal of Economics,* Vol. 102, No.2, pp.375-94.

Klemperer, Paul D. (1987b), "The Competitiveness of Markets with Switching Costs," *Rand Journal of Economics,* Vol. 18, No.1, pp.138-50.

Larson, Nathan and David Salant (2002), "Equilibrium in Wholesale Energy Markets," NERA report.

Loxley, Colin and David Salant (2003), "Default Service Auctions," NERA Report.

McAdams, David, "Essays in Multi-Unit Bargaining," Ph.D. dissertation, Stanford University, 2001.

McAfee, R.Preston and Dan Vincent (1993), "The Declining Price Anomaly," *Journal of Economic Theory,* Vol. 60, No.1, pp.191-212.

Milgrom, Paul, "Procuring Universal Service: Putting Auction Theory to Work, in *Le Prix Nobel: The Nobel Prizes, 1996*, Nobel Foundation, 1997, 382-392.

Milgrom, Paul, *Putting Auction Theory to Work,* Cambridge (forthcoming).

Salant, David "Carrier of Last Resort Sales," Charles River Associates, Inc., mimeo (1996).

Salant, David "Auctions of Last Resort in Telecom And Energy Regulatory Restructuring" *Markets, Pricing and Deregulation of Utilities,* Michael Crew (editor), Kluwer (2002).

Salant, David "Auctions and Regulation: Reengineering of Regulatory Mechanisms," *Journal of Regulatory Economics, May 2000*.