Details, Details . . . The Impact of Market Rules on Emerging "Green" Energy Markets

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ABSTRACT

Green power marketing is creating a customer-driven market for renewable energy resources, including solar, wind, geothermal, biomass, and hydropower. Yet there are a number of "market barriers" to the creation of a workable green power market, and the ultimate success of retail markets for green power products will depend critically on the detailed "market rules" established at the onset of restructuring and on a number of "market facilitation" efforts. By surveying green power marketers and reviewing regulatory filings, this paper identifies and analyzes the types of restructuring market rules and market facilitation efforts that impact the competitive market for electricity services broadly, and the retail market for green power specifically. Taking a marketer perspective as our point of reference, we emphasize those rules and efforts that most effectively target key market barriers and that might be most successful in expanding the market for retail green power products. This information should help those interested in encouraging the development of the green power market during the early years of electricity restructuring.

Introduction

The introduction of retail electric competition is creating a new, customer-driven market for higher-cost renewable energy resources, including solar, wind, geothermal, biomass, and hydropower. For the first time, customers are being given the opportunity to select their own power provider, and surveys consistently report that a large number of residential customers, and even some business and industrial customers, support and are willing to pay a small premium for renewable energy (Farhar & Houston 1996; Freeman 1996; Holt 1997a). In fact, approximately 20 U.S. utilities have already developed green pricing programs to target environmentally concerned consumers by allowing them to support renewable energy through price premiums or donations (Holt 1996; Wiser & Pickle 1997). Recent experience in California, Massachusetts, and New Hampshire confirms that power marketers will offer green power products in a competitive context as well (Wiser & Pickle 1997, 1998).[1]

As is increasingly recognized in economics, however, institutional and transactional rules impact the operations of all markets, and can be particularly important in the development of emerging markets (Furubotn & Richter 1991; Williamson 1996). In an emerging market, especially one that was once governed largely by economic regulation, market structure and operations are not yet developed, interactions between regulated and unregulated industry segments are crucial, and customer education is low. In this environment, policymakers should take particular care to shape the types of rules and

[1] For the sake of this paper, green power is defined as electricity that is differentiated based on its environmental attributes. As a practical matter, nearly all such green power products include renewable energy. To the extent that customer purchases of green power offset conventional power supply, net environmental gains can be expected.

institutions that will govern market transactions in ways that reduce barriers to entry, control market power, and minimize the transaction costs faced by both market participants and customers. If these institutional and transaction rules are designed poorly, a number of "market barriers" will restrict competition and customer choice.

For the green power market and the competitive market for electricity services more broadly, success will depend in large part on the detailed "market rules" established at the onset of restructuring. These market rules impact all electricity suppliers and range from the unbundling of billing services to the design of stranded cost recovery. At a minimum, it is essential that regulators and legislators design these rules in ways that allow true competition to emerge and that minimize barriers to entry. If this groundwork is suitably laid, it may then be appropriate to design "market facilitation" efforts, which differentially and directly impact green power marketers relative to other electricity suppliers and which may be intended to specifically encourage the customer-driven market for green power sales. These facilitation efforts could play a crucial role in shaping and transforming the green power market in its formative stages. For both market rules and facilitation efforts, the level of government intervention is frequently confined to enhancing information and increasing competition by reducing the transaction costs in developing a new market for electricity services and green power. Nevertheless, these rules and facilitation efforts are important types of public policy and, if designed poorly, a number of market barriers will persist, inhibiting competition and thwarting significant green power sales.

Inadequate attention has been paid to these specific design and implementation details. This paper therefore identifies and analyzes the types of restructuring market rules and market facilitation efforts that impact the customer-driven market for green energy and the larger market for electricity services. The paper begins with an overview of research methods and describes the primary form of data collection, a green power marketer survey. The comparative impact of different market barriers, rules, and facilitation efforts is then described. To make the research more tangible, market rules and facilitation efforts in specific states are also discussed anecdotally. This paper primarily reports survey results, and therefore takes the perspective of the green power marketer. To a lesser extent, the paper also analyzes the potential rationale behind the responses to the survey. The paper concludes by drawing broader regulatory and policy implications from the work. The overall goal of this research, then, is to explore the comparative impact of different types of regulatory and legislative policy and nongovernmental programs on the green power market. This research is timely because, within the restructuring process, there is an unprecedented opportunity to craft new market institutions, market rules, and policies to help support renewable energy. This research is therefore designed to help state and federal regulatory commissions and policymakers that are struggling with market rules and that hope to encourage the development of the green power market during the early years of electricity restructuring.

Research Methods

Data Sources and Survey Design

Data used in this paper primarily comes from a mailed survey of U.S. green power marketers. As a supplement to the survey, background information and regional details on market rules was obtained from informal conversations with green power marketers and other stakeholders (renewable generators, policymakers, environmental advocates, etc.) and from a review of power marketer regulatory filings.

The survey was mailed in December 1997 to a census of all 15 known U.S. green power marketers operating in competitive markets that had sold, were selling, or had announced plans to sell power products

that are differentiated based on the environmental characteristics of the power supply.[2] Both open- and closed-ended questions were included in the survey. To increase response rates, information was provided under the condition that the responses of individual marketers would not be identified. The survey was designed to elicit information on the relative importance of different types of market barriers, market rules, and facilitation efforts for the green power market specifically and the competitive market for electricity services more broadly. The survey was not designed to assess either the overall importance of market rules and facilitation efforts compared to other aspects of the green power market or the differential impact of specific market rules and facilitation efforts on green power marketers relative to other types of electricity marketers. Nonetheless, our review of regulatory filings and informal discussions with marketers and other stakeholders informed our analysis of these issues.

After several rounds of reminders, 12 of 15 questionnaires were returned by the end of January 1998, for a response rate of 80%. Not all marketers responded to each question, however, so response rates to individual questions vary. The 12 marketers that responded to the survey can be classified based on a number of different characteristics. In the near term, most of the marketers have or intend to sell green power in California, the Northeast, or in both regions. As other states open to competition, many of the marketers plan to expand their operations to those states as well. Four marketers claim to be retailers of green power, three said they were wholesalers, and five claimed to be both wholesalers and retailers. Four of the marketers have or will only sell green electricity products, whereas eight have or expect to have a product line that includes nongreen products as well. Seven of the 12 marketers are affiliated with an electric utility in some way, though the type of affiliation varies. Finally, to meet the demand of their green power customers, many of the marketers have or will contract with specific generators for supply rather than own generation themselves. Four of the marketers surveyed indicated that they do or would own generation resources. Ten marketers indicated that they do or will purchase power from specific generators via contract, and six purchase or plan to purchase bundled electricity products from wholesalers.

Research Challenges

There are a number of challenges and limitations to the research design that should be acknowledged. First, because electricity markets are only now beginning to open, and California and New England are moving most rapidly, the population of marketers used in this research is limited and the market barriers, rules, and facilitation efforts that are rated as most important are expected to be biased somewhat by regional concerns (e.g., stranded cost issues may only be viewed as serious where the magnitude of stranded costs is high). Despite these drawbacks, timely implementation of the survey was felt to be essential given the speed with which states are moving toward retail competition and the immediate need for more information on market rules and facilitation efforts. Moreover, because the size of our survey population is small, the goal of the research was not to develop statistically significant descriptive statistics, but rather to discern general trends from the responses. A second possible challenge is that the research is explicitly marketer focused, and the self-reported interests of the green power marketers will not perfectly coincide with the interests of society with respect to the long-term development of green power markets. Though this limitation is not fully addressed in this paper, areas where societal and marketer interests may

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[2] The survey population therefore excludes: (1) electric utilities that are selling green power products in a regulated context; (2) marketers that, as of December 1997, had not yet made public their plans to sell green power; (3) marketers that have or plan to use environmental marketing based on factors other than the environmental characteristics of their electricity supply; and (4) aggregators that have or plan to purchase green electricity products for their members.

not coincide are highlighted and the final section of this paper provides broader policy recommendations. Third, it must be recognized that green power marketers are not a homogenous group, and differ based on the market niche served, organizational structure, regional target markets, and the breadth of their product line. As a result, some amount of variation in the responses to the survey can be expected. Similarly, though the surveys were sent to individuals involved with the green power business, when reviewing the responses it became apparent that in a couple of cases these individuals were providing broader corporate positions rather than positions specific to their green product line. To help overcome these challenges, this paper highlights areas where different perspectives appear to affect the survey results.

Market Barriers

A number of "market barriers" exist that could thwart the development of the customer-driven green power market. Of the potential market barriers listed in Table 1, each green power marketer was asked to identify the five barriers they consider to be the "most serious" in terms of the barrier's potentially negative impact on the marketer's business. Though many of these barriers are important, this question was intended to assess the relative importance of the various barriers. All 12 marketers provided answers to this question, and Table 1 presents the aggregated results. Shaded rows indicate those market barriers that specifically relate to the green power market, whereas unshaded barriers are those that we believe will impact the competitive market for electricity sales more broadly. As discussed below, the broad concerns expressed by these results translate into specific recommendations on how to structure market rules and facilitation efforts. A general conclusion suggested by the results is that the most serious barriers identified by the

Table 1. Market Barriers to the Development of the Green Power Market

Market Barrier	Number of Times Identified as "Most Serious"
Low cost of utility default service	7
Lack of existing renewable energy plants that are able to sell to marketers due to contract restrictions	7
Lack of customer education on retail choice	6
Protracted direct access phase-ins that favor larger customers	6
Direct access processing and service fees that erect barriers for new participants (via high costs, slowness, lack of parity between marketers and utilities, etc.)	6
Stranded cost recovery	6
Lack of customer education on renewable energy	5
Market power of electric utilities and their affiliates	4
Transmission pricing, ancillary services, and bidding rules that penalize intermittent, low capacity factor, distant renewable generators	3
Insufficient unbundling of revenue-cycle services (metering, billing, etc.)	2
No mandatory fuel source and/or emissions disclosure	2
Power pooling structures that do not allow direct bilateral contracts (but do allow contracts-for-differences and other financial contracts)	2
Insufficient definition(s) of green power	2
Lack of sufficient customer protection regulations	1
Barriers to aggregation of electricity consumers based on geography or affinity	0

marketers are typically those that impact all electricity suppliers. This conclusion implies that, at a minimum, it is essential that regulators and legislators design the basic market structure in ways that allow true competition to emerge and that minimize the barriers to entry faced by all new competitors. If this basic groundwork is suitably laid, it may *then* be appropriate to target those market barriers that relate directly to green power marketers.

Impact of Market Rules and Facilitation Efforts

A key goal of the survey was to map the general market barrier concerns discussed above into specific recommendations on how to structure market rules and facilitation efforts. Though exact categorization is not possible, "market rules" are broadly defined here as structural and operational rules that will impact all suppliers of electricity, whereas "facilitation efforts" are defined as governmental and nongovernmental rules, programs, and policies that directly and differentially impact green power providers and that may be intended to encourage and/or shape the market for green power sales. The first section below reports on the set of questions that emphasized market rules and that therefore target the unshaded market barriers listed in Table 1. The second section reports on those questions that focused on facilitation efforts that are likely to differentially and directly impact green power marketers. Each of the two sections is structured around the market barriers listed in Table 1 but, due to space constraints, we focus in this paper on only those barriers that marketers themselves prioritized as well as on barriers where the survey uncovered surprising and/or interesting results. In addition, the market facilitation section discusses a number of broader policies and programs that do not directly target any of the market barriers listed in Table 1, but that do intend to directly promote the green power market specifically and/or the renewable energy industry more broadly.

Basic Market Rules to Enhance Competition

A major concern of regulators and legislators should be to design the structural and operational rules of the new electricity market in ways that promote fair competition. Table 2 provides a nonexhaustive list of market rules, divided into functional groupings that relate directly to the market barriers discussed above, that will impact all electricity marketers. The green power marketers in our survey were asked to rate these rules on a 5-point importance scale, where 1 means that the marketer believes that the rule is "valuable" (but far from essential) and 5 means that the marketer believes that the rule is "essential." The marketers were also given the option of opposing a particular rule. Table 2 provides the frequency distribution of the results. In addition to this question, several open-ended questions were used to probe for details on specific market rules and to assess the design of market rules in particular regions of the U.S., and answers to these questions are used to augment the discussion below.

Low Cost of Utility Default Service. As a practical matter, it seems likely that, in many states, incumbent electric utilities (now called utility distribution companies, or UDCs) will provide default service to those customers that choose not to switch suppliers. If a customer switches suppliers, the generation component of the default service price will generally be subtracted from the overall UDC rate, which also includes stranded cost, transmission, distribution, and public purpose charges. Absent the complete unbundling of billing and metering services, marketers are therefore forced to compete at retail with the default generation

Table 2. Relative Ranking of Market Rules: Survey Results

Market Rules Affecting all Marketers	My company opposes this rule	My company believes this rule is "valuable" +1	+2	+3	+4	My company believes this rule is "essential" +5
Low Cost of Utility Default Service						
Establish default utility service rates that provide sufficient margin to encourage entry of competitive suppliers	0	0	0	2	3	5
Lack of Customer Education on Retail Choice						
Funding for broad-based, nondiscriminatory customer education on retail choice	0	3	1	1	1	4
Protracted Direct Access Phase-ins that Favor Larger Customers						
Full direct access on a date certain without direct access phase-ins	1	1	2	3	1	2
If a direct access phase-in exists, allow residential customers to receive choice on the same schedule as other customer classes	0	4	0	1	2	3
Direct Access Processing and Service Fees that Erect Barriers for New Participants						
Require utilities to rapidly process direct access service requests	1	1	1	2	1	4
Minimize charges for noncompetitive services imposed by electric utilities on marketers (e.g., costs for customer switching)	0	0	0	0	2	8
Parity between marketers and utilities with respect to obligations, rights, and charges for billing, metering, data transfer, service agreements, avoided cost credits, customer contracts, etc.	0	1	1	1	1	5
Uniformity and consistency across utility service territories for data transfer protocols, direct access service tariffs and agreements, metering and billing requirements, and other rules	0	0	1	2	4	3
Stranded Cost Recovery						
Less than 100% recovery of stranded costs	4	1	1	0	2	2
Establish incentives for stranded cost mitigation by electric utilities	0	1	0	1	5	3
Require stranded costs to be recovered in a short period of time	1	2	0	3	1	2
Recover stranded costs via a stable cents/kWh charge, not a charge that depends inversely on the power exchange clearing price	1	2	0	1	3	1
Insufficient Unbundling of Revenue-Cycle Services						
Full and fair unbundling of billing services	0	2	1	2	1	4
Full and fair unbundling of metering services	0	2	2	2	2	1

price. If this default price is low and therefore leaves little margin for potential competitors, customer switching and marketer competition will be depressed, and the greater the price premium will be for green power products. Therefore, as illustrated in Table 1, marketers regard a low utility default service price as one of the most critical barriers to the development of a competitive market. As a result, as shown in Table 2, marketers consistently and strongly support the establishment of default utility service prices that provide

a sufficient margin to encourage entry of competitive suppliers. The issue of establishing a default service price is a difficult one, however. To attract new entrants, especially in the residential market, a higher default service generation price may be required. Unfortunately, to establish a high default price (i.e., one that greatly exceeds the expected wholesale cost of generation) may require cost shifting between those customers that switch and those that remain with the utility.[3] In contrast, if the default service generation price is too low, as in Massachusetts, a substantial barrier to entry will be imposed.[4] To avoid cost shifting and to promote competition, at a minimum it seems that regulators should design rate cuts in a nondiscriminatory way and establish a default generation service price that is at least as high as the wholesale cost of generation. In addition, as discussed below, revenue-cycle services should be completely unbundled and the stranded cost charge should be designed in a way that does not magnify the problem.

Lack of Customer Education on Retail Choice. One of the fundamental assumptions embedded in the competitive-market model is that buyers and sellers have access to adequate and reliable information. Customer education is particularly important where the market is a new one. Most residential customers are not accustomed to making decisions about their electricity supply and will not be immediately aware of the opportunities that restructuring presents. Without effective education efforts, many residential customers will not understand the potential benefits of restructuring and will be reluctant to exercise their choice of electricity providers. As a result, most states that are proceeding with electricity restructuring have established customer education campaigns. Though the effectiveness of these campaigns is not yet clear, as shown in Table 1, the retail green power marketers clearly believe that a lack of education on retail choice is a key market barrier. Moreover, though not ranked as one of the most important of the market rules, funding for broad-based, nondiscriminatory customer education on retail choice is strongly supported by many of the marketers. There appears to be a bit of a divergence on the perceived value of these educational programs, however, with clusters of marketers on both ends of the 5-point scale. Not surprisingly, those marketers that identified customer education as a "most serious" market barrier tend to provide higher ratings on the importance of customer education. It is also clear that the mere existence of a well-funded customer education campaign is not sufficient. Specifically, it will be critical to design the campaigns and messages in ways that are perceived to be nondiscriminatory by all parties involved.

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[3] In the Pennsylvania PUC's PECO order, for example, to obtain a high generation credit (approximately 4.5-5.5¢/kWh for residential customers), the utility will effectively collect a fraction of their stranded costs through the generation charge placed on customers that decide not to switch.

[4] In Massachusetts, for example, to finance a 10-15% price cut, the default utility-service generation price was artificially set at 2.8¢/kWh for 1998, rising incrementally over time. Because the wholesale cost of electricity is expected to be somewhere on the order of 3.5-4.0¢/kWh, utilities will recover the difference between the wholesale price and the 2.8¢/kWh via a nonbypassable stranded cost charge and marketers are likely to find it impossible to undercut the default service price in the near term. Though price cuts will, in general, reduce customer switching because customers may feel well served by their existing supplier, they do not need to be designed in a way that will unfairly tilt the competitive battle field. In California, for example, the price cut is financed out of the stranded cost charge that all customer must pay and incumbent utilities will provide default service at a rate that reflects the wholesale cost of generation. Even in this case, however, because marketing to residential customers is costly, it is generally believed that in the first years of restructuring residential marketers will be unable to beat the utility price while maintaining a profit. Interestingly, this dynamic has resulted in a significant amount of green power marketing because marketers view green power one of the only ways of legitimately raising prices and increasing profit margins (Wiser & Pickle 1998).

Protracted Direct Access Phase-ins that Favor Larger Customers. Some states such as California are proceeding with full direct access on a rapid time scale, whereas others such as New Hampshire, Pennsylvania, New York, and Oregon are taking a staged approach and intend to phase-in direct access over time. The merits of retail competition pilot programs and phase-ins have been questioned (Landon & Kahn 1996) and, based on the marketer survey, it is clear that marketers would prefer a rapid transition to retail competition without uncertainty as to the timing and scale of market access. Protracted direct access phase-ins that favor larger customers was identified as one of the "most serious" market barriers by a large number of marketers, and Table 2 demonstrates relatively strong support for two market rules that combat this market barrier. First, though not deemed "essential" by many of the marketers, full direct access as of a date certain without a phase-in is viewed very positively. Second, if a phase-in must exist, marketers generally favor allowing residential customers access on the same schedule as larger customers. A common theme expressed by the marketers is that, because of the low expected profit margin for any individual residential customer, high marketing costs can easily absorb potential profit opportunities. Phase-ins and pilot programs do not generally provide an efficient way of contacting customers given that mass media outlets do not allow marketers to target only those few customers that are eligible to switch suppliers. Because the primary source of revenue for green power sales is expected to come from residential customers, phase-ins that favor larger customers are viewed as particularly objectionable.

Direct Access Processing and Service Fees that Erect Barriers for New Participants. Another critical market barrier, as identified by the marketers, is direct access processing and service fees that erect barriers to new participants through high switching costs, slowness, lack of parity between utilities and marketers, etc. Based on their fear that incumbent utilities may have an incentive to erect barriers to customer switching, marketers favor a rule that requires utilities to rapidly process direct access service requests. As shown in Table 2, in addition to timeliness concerns, to reduce entry barriers and increase customer switching, most marketers believe it absolutely essential to:

- Minimize the charges for noncompetitive services imposed by UDCs on marketers, which include direct access processing fees as well as charges for other services that the UDC must provide (customer usage information requests, credit checks, etc.). In California, for example, the UDCs initially proposed direct access service fees of $5-24 per customer, which would have had a chilling effect on residential customer switching given the low margins expected on these retail sales. Partly in response to the concerns of marketers, the CPUC decided to not allow collection of noncompetitive service fees, at least on an interim basis.
- Establish parity between marketers and utilities with respect to obligations, rights, and charges for billing, metering, data transfer, service agreements, avoided cost credits, and other rules. Because the responsibilities and roles of the UDC and the marketer are fundamentally different, full parity is clearly neither desirable nor feasible. Nonetheless, regulators should be particularly wary of market rules proposed by utilities that erect unequal and burdensome requirements on marketers relative to incumbent utility service providers.
- Require uniformity and consistency across utility service territories for data transfer protocols, direct access service tariffs and agreements, metering and billing requirements, and other rules. To the extent possible (e.g., where there are no major technical limitations), to minimize administrative and other transaction costs, operational rules should be simple and uniform across utility service territories and perhaps even across state boundaries.

Stranded Cost Recovery. Perhaps the most contentious part of the restructuring process has surrounded the recovery of stranded costs. It should therefore come as no surprise that the marketer survey uncovered widely divergent views on the impact of stranded cost recovery on the competitive electricity market. Six marketers ranked stranded cost recovery as a "most serious" market barrier and these same marketers support a market rule that requires the recovery of less than 100% of these costs. As expected, most of these marketers are unaffiliated with an electric utility. Marketers that are affiliated with an electric utility generally oppose a market rule that would disallow any amount of stranded costs. Though some marketers are clearly opposed to full recovery of stranded costs, it not entirely clear why stranded cost recovery is itself a major hindrance to the development of a competitive electricity market. After all, if designed appropriately, stranded costs would be recovered through a nonbypassable charge imposed on all customers, whether or not they switch suppliers. Though this will limit, in percentage terms, the bill savings that marketers can offer, it should not fundamentally affect the ability of marketers to offer cost savings. With or without stranded cost charges, competition is primarily restricted to electricity generation and customer services. In order to better understand the nature of the "problem" from the marketer's standpoint, an open-ended question in the survey probed further and asked the marketers how they would design stranded cost recovery mechanisms. The responses supported the basic argument, articulated above, that the *level* of stranded cost recovery is not a major market barrier. Concern was primarily limited to designing the recovery mechanism in ways that provide sufficient incentives for cost mitigation, promote fair competition, and do not depress the default utility service price (see the Massachusetts discussion provided earlier). In fact, as shown in Table 2, there is a general consensus among the marketers on the design of the recovery mechanism: (1) establish incentives for stranded cost mitigation (to minimize the overall cost); (2) require these costs to be recovered rapidly; and (3) recover costs via a stable cents/kWh charge rather than one that varies based on the market clearing price of electricity.

Insufficient Unbundling of Revenue-Cycle Services. Competition in the retail electricity market is possible in two primary arenas: (1) the provision of electricity generation and ancillary services; and (2) revenue-cycle services, including billing, metering, collections, payment processing, and customer service. Competition in billing, metering, collections, payment processing, and customer service may reduce costs, increase innovation and responsiveness to customer-specific demands, and reinforce the marketing relationship between the customer and the electricity provider. In order to promote full competition in this arena, unbundling of these services will be necessary. This includes: (1) creating market rules that allow marketers to provide the services; (2) allowing marketers to innovate in the way the services are provided (e.g., different billing cycles and pricing structures); and (3) developing avoided cost credits or other cost separation mechanisms by which marketers are compensated by UDCs for performing services that the UDC must no longer perform. In part because the full unbundling of revenue-cycle services would result in avoided cost credits for marketers that perform these services, and therefore potentially mediate the impact of a low default utility service price (i.e., marketers would have another opportunity compete against the UDC and a wholesale-retail margin would be created), one might expect that the insufficient unbundling of revenue-cycle services would pose a major market barrier for marketers in general, and green power marketers specifically. The results presented in Table 1, however, suggest otherwise, with only two marketers indicating insufficient unbundling to be one of the "most serious" market barriers. Nonetheless, full and fair unbundling of billing services is ranked very highly as an important market rule and comments by marketers in regulatory proceedings consistently emphasize the importance of unbundling. Because residential customers are unlikely, in the near-term, to benefit from sophisticated metering services, the unbundling of metering services is generally supported but at a more modest level. These results appear

to indicate that, while unbundling may not be the *highest* priority for marketers, competition especially in billing services and the creation of fair avoided cost credits will prove critical over the longer term.

Facilitation Efforts to Encourage a Viable Green Power Market

Once the basic market structure is designed, it may be appropriate for regulators, legislators, and nongovernmental organizations to design "market facilitation" efforts, which differentially and directly impact green power marketers relative to other electricity suppliers. In order to achieve environmental, fuel diversity, and economic development objectives, many of these efforts are intended to specifically encourage the customer-driven market for green power sales or the market for renewable energy more broadly. Because customer preferences are not yet well defined, the early development of the green power market will be crucial for its long-term success and facilitation efforts can play an important role in shaping the nascent market. Even if the promotion of green power and renewable energy is not a major objective, however, customer protection, customer choice, and the creation of efficient competition may demand the implementation of some of these facilitation mechanisms (e.g., disclosure regulations). The goal here is not to tackle the difficult question of whether there are convincing economic or public policy justifications for any of the efforts, but to instead help prioritize these programs from the marketer's perspective and document the tradeoffs that exist between competing and sometimes conflicting policy goals.

Table 3 provides a list of prominently discussed market facilitation efforts, divided into functional groupings that relate directly to the market barriers discussed earlier (as well as an "other" category). As with the market rules, the green power marketers in our survey were asked to rate these facilitation efforts on a 5-point importance scale, with the option of opposing a particular facilitation effort. Table 3 provides the frequency distribution of the results. As before, a number of additional questions were asked to probe for details on specific facilitation efforts.[5]

Lack of Existing Renewable Energy Plants that are Able to Sell to Marketers. Existing renewable facilities are frequently able to sell electricity at lower cost and with more favorable terms (i.e., shorter-term and more flexible contracts) to marketers than are new renewable plants. In the near-term, at least, most of the green power marketers intend to use a large amount of existing renewables generation in product offers. In some regions, however, the availability of renewables generation is limited. Based on Table 1, it is clear that the lack of existing renewables plants that are able to sell to marketers is viewed as one of the most critical market barriers. Unfortunately, this market barrier does not have a clear-cut regulatory remedy. One possibility is to provide incentives for the restructuring and buy-out of existing nonutility renewable contracts and, as shown in Table 3, this approach is looked upon relatively favorably by most of the green power marketers. The current contract restructuring process is complex and time consuming and it is not in the interest of most renewable projects or many of the electric utilities to enter into contract restructuring discussions. Not surprisingly, those marketers strongly affiliated with an electric utility (and therefore perhaps skeptical of the contract buy-out process) generally ranked this market-facilitation

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[5] One general finding from the table is that most of the facilitation efforts are opposed by at least one or two of the green power marketers. Because the marketers are not a homogenous group, one should not expect the same facilitation efforts to be equally important to each marketer. Nonetheless, it is somewhat troubling that facilitation efforts that would clearly positively impact the green power business are opposed. When reviewing the specific responses, it becomes apparent that in a couple of cases the marketers appear to be providing broader corporate positions rather than positions specific to their green product line. Specifically, many of the oppositions come from electric utilities that intend to sell both green and nongreen power products once competition is introduced.

Table 3. Relative Ranking of Market Facilitation Efforts: Survey Results

Market Facilitation Efforts that Differentially Affect Green Power Marketers	My company opposes this effort	My company believes this effort is "valuable" +1	+2	+3	+4	My company believes this effort is "essential" +5
Lack of Existing Renewable Energy Plants that are Able to Sell to Marketers						
Incentives for the restructuring and buy-out of existing renewable energy qualifying facility (QF) contracts	1	3	4	1	1	2
Renewable energy project siting and permitting procedures that allow for more rapid construction of renewable projects	2	2	2	2	1	3
Lack of Customer Education on Renewable Energy						
Publicly-funded education on renewable energy and green power products	1	4	1	0	4	2
No Mandatory Fuel Source and/or Emissions Disclosure						
Mandatory disclosure of fuel mix, emissions, and/or pricing and contract terms information	1	1	3	3	1	2
Insufficient Definition(s) of Green Power						
Expansion of FTC green marketing guidelines to green power marketing	2	2	4	2	2	0
State-level (PUC or legislative) definition of "green" power	3	2	2	2	2	1
Product or company endorsements by environmental groups	0	2	1	3	3	3
Third-party certification of green power products	0	2	2	1	3	4
Other Green Power Marketing Facilitation Efforts						
If a direct access phase-in exists, allow immediate access for all customers that are willing to purchase a certain percentage of renewable energy	2	0	0	1	5	3
Allow customers to make renewables contributions or purchases through their default service provider	5	3	0	1	2	1
Government purchases of green power	2	1	1	2	6	0
Monetary production incentives or rebates to customers that purchase green power	1	1	1	0	7	2
Tax or financial production incentives and/or low interest loans to renewable energy generators	1	2	1	2	2	3
Establishment of state or federal renewables portfolio standards	6	1	0	2	0	2
Net metering of customer-sited renewable energy facilities	1	3	1	3	2	1

effort rather low, whereas nonaffiliated green power marketers ranked it on the higher end of the spectrum. Another regulatory approach would be to speed-up the process of siting and permitting new renewable energy facilities, which is frequently quite time consuming, thereby allowing new projects to come on-line more rapidly. This too is supported by most of the marketers. Neither of these regulatory strategies are given the highest priority by the majority of the marketers, however, perhaps because even with incentives for contract buy-outs and a more rapid permitting and siting process, there is still likely to be a time lag between market opening and the availability of generation. Moreover, bolstering the claim that this market

barrier has no clear-cut regulatory solution, many of the marketers that consider the lack of facilities to be a "most serious" market barrier did not rank either of these market facilitation efforts highly. Finally, from a public policy and consumer standpoint, it is important to recognize that a scarcity in renewables supply could be a positive market force in that it will require marketers to build and support new renewable plants rather than relying entirely on existing facilities.

Lack of Customer Education on Renewable Energy. Though they have met with varying levels of success, there is a long history of government-funded education and information campaigns for social programs (Weiss & Tschirhart 1994). In addition to general education on retail choice, it may therefore also be appropriate for regulators and legislators to fund educational efforts specifically targeted at renewable energy and green product offerings. Customer surveys have consistently found that consumers are poorly informed about the source of their electricity supply, and education on the merits of renewable energy and green power may therefore play an important role in educating customers and promoting the purchase of green power. Individual green power marketers, certification programs, and renewable-generator and green power marketer trade groups are all expected to initiate customer education efforts. Nonetheless, because information is itself considered to be a public good and because the promotion of green power may be an explicit regulatory and/or legislative objective, some states such as California have already established public education programs. Based on the market barriers results, as well as the results presented in Tables 2 and 3, the marketers generally believe that broader educational efforts on retail choice should be the first priority, but that programs targeted specifically at renewable energy could also be an effective use of public funds. Five marketers view the lack of customer education on renewable energy as one of the "most serious" market barriers. Interestingly, though most marketers support a facilitation effort for publicly-funded education campaigns on renewable energy and green power products (see Table 3), as with broader customer education campaigns on customer choice, there is a divergence in the perceived value of these efforts. That is, there are clusters of marketers on both ends of the 5-point scale. Nonetheless, though clearly not an "essential" facilitation effort for most marketers, publicly-funded education campaigns on renewable energy and green power products is viewed very favorably by many of the marketers. Not surprisingly, the five marketers that ranked a lack of customer education as one of the "most serious" barriers also ranked the associated market facilitation effort highly.

No Mandatory Fuel Source and/or Emissions Disclosure. The provision of information is recognized as an important ingredient in the development of competitive product markets, and private firms do not always have the correct incentives to provide accurate, reliable, comparable information on product offers. Though the effectiveness of various forms of product labeling has been debated (Abt Associates 1994; Dyer & Maronick 1988; Harris & Casey-McCabe 1996; Menell 1995), by facilitating the comparison of competing product claims, mandatory disclosure and labeling of fuel mix, air emissions, and pricing is frequently claimed to be critical for customer protection and for the successful development of the green power market (Holt 1997b; Moskovitz et al. 1997). Not only will disclosure benefit customers, but a solid set of basic rules should also enhance the credibility of suppliers making legitimate claims about the source of their supply. Responding to these arguments, a number of states have implemented or are in the process if implementing mandatory disclosure regulations. Among market facilitation efforts, Table 3 demonstrates that disclosure of fuel source, emissions, and pricing rates is one of the more important ways of supporting green power, and when asked directly whether some form of mandatory disclosure is critical for fostering informed customer choice, 11 out of 12 marketers answered affirmatively. When asked to rate the importance of different forms of mandatory disclosure on a 5-point scale, fuel source disclosure was viewed

as more important (4.3) than the disclosure of pricing and contract terms (3.5) and air pollutant emissions (3.2). Nonetheless, though mandatory disclosure is viewed positively by the green power marketers, it is not generally perceived to be an essential component of the green power market. A lack of fuel source and/or emissions disclosure was identified as a "most serious" market barrier by only two out of 12 marketers. Further, as shown in Table 3, marketers are pretty evenly distributed in their positive rating of mandatory disclosure, and certification efforts and environmental group endorsements are generally believed to be more important. Based on discussions with marketers and a review of regulatory filings, one of the key reasons for the somewhat lukewarm reaction to disclosure appears to be the potential downside of disclosure systems that are designed poorly, which may even inhibit the market for green power sales.

Insufficient Definition(s) of Green Power. There is clearly no single definition of "green" power, and regulators and legislators may feel the need to help define this term in order to protect customers from false and/or misleading advertising and product claims. One approach would be for the Federal Trade Commission to expand their green marketing guidelines to more directly apply to green power marketing. Another regulatory approach would have state PUCs and/or legislatures define green power. Though such definitions may play an important role in customer protection, only two of the green power marketers believe that this is one of the "most serious" market barriers. Moreover, though looked upon favorably by most of the marketers, neither of the two facilitation efforts discussed above ranked particularly high relative to other types of market facilitation, with a number of marketers opposing or giving low positive rankings to such efforts. Based on discussions with marketers, the main reason for this lukewarm reaction appears to be the potential downside if the definitions overly restrict the types of resources and products that can be classified as green, therefore limiting potential innovation in product design and marketing and reducing the availability of green resources (this concern is related to the broader concern by marketers discussed above on the availability of green resources). Moreover, if green definitions proceed on a state-by-state basis, there is a general concern that regional disparities will force marketers to design and market products on a state-by-state basis rather than with a regional strategy. Though the approaches are not mutually exclusive, marketers appear to favor a voluntary (rather than a regulatory) approach to the definition of green power. Endorsements by environmental groups and third-party certification of green power products were both viewed very positively by the green power marketers, even outranking mandatory disclosure as important facilitation efforts. These efforts can help inform and influence product purchases and spur suppliers to complete in offering environmentally preferable products. Based on the apparent value of these nonregulatory efforts, a number of environmental groups have and are expected to endorse particular products, and a nongovernmental green power certification effort, called the Green-e Program, has already been launched in California (Rabago, Wiser & Hamrin 1998).

Other Market Facilitation Efforts. In addition to those facilitation efforts described above, which specifically target the market barriers discussed earlier, there are a number of other policies and programs that states are contemplating for the promotion of the green power market specifically and/or the renewable energy industry more broadly. Some of the most important of these programs are listed in Table 3. Based on the results presented in the table, it is clear that the perceived value of these efforts varies greatly and that policymakers will need to carefully weigh the intended benefits of their efforts with the possible negative consequences. The green power marketers clearly *strongly* favor the following: (1) if a direct access phase-in exists, allow immediate access for all customers that are willing to purchase a certain percentage of renewable energy; and (2) monetary production incentives or rebates to customers that purchase green power. In fact, these two efforts are generally ranked as more valuable than any of the other

facilitation efforts listed in Table 3. Other programs that are widely supported include: (1) tax or financial production incentives and/or low interest loans to renewable energy generators; (2) government purchases of green power; and (3) net metering of customer-sited renewable energy facilities.

Two of the facilitation efforts listed in Table 3 are opposed by many of the marketers. First, a large number of the marketers are opposed to allowing customers to make renewable contributions or purchases through their default utility service provider. Though such a policy would offer the many utility customers that choose not to switch suppliers the opportunity to support renewable energy, it arguably provides a disincentive to switch suppliers, suppresses true competition, and may offer strong competition to green power marketers. Second, though some of the marketers strongly support the renewables portfolio standard, which would require all electric suppliers to purchase a fraction of their supply from renewables, six of the eleven marketers oppose this form of renewable energy policy. The fact that these two policies are opposed by a number of marketers reflects a larger debate over the appropriate mechanisms for the promotion of renewable energy. Even with a customer-driven green power market, many renewable advocates are still concerned that renewables will fare poorly in restructured electricity markets. Broader renewable energy policies such as the renewables portfolio standard and generator-based subsidies are therefore often advocated to help overcome market failures and institutional barriers to the development of renewable energy (Rader & Norgaard 1996). Green power marketers, on the other hand, generally support "soft" policy tools that work within the existing set of market institutions to help the customer-driven market succeed. Though this paper will in no way attempt to resolve this tension, the tradeoffs that exist among different facilitation efforts does demonstrate the need to design an effective interface between private-sector green power marketing activity and government-funded renewable programs, including designing programs in ways that complement rather than compete with the customer-driven market for green power.

Policy Implications

Transaction costs are ubiquitous--they exist in every market and generally cannot be eliminated. Nonetheless, when restructuring an industry, an important role for policymakers is to design institutions in ways that minimize the transaction costs that will be faced by new market entrants and consumers, control market power, and minimize barriers to entry. As shown in this paper, designing the market rules that will govern the transition to competitive markets and determining whether and what kind of facilitation efforts to pursue is not easy. Many of the rules and efforts will require tradeoffs between competing and sometimes conflicting goals. No single, generic balance can or should be defined, and no state can be expected to develop market rules that meet the desires of all parties. Nonetheless, if nothing else, this paper should caution that the devil truly is in the details and that careful design of market rules and facilitation efforts is critical for the competitive electricity market and for green power specifically. Though the issues are complex and resolution is likely to be time consuming, if regulators and legislators are successful in developing a workable mix of market rules and facilitation efforts, they will lay the groundwork for a credible and sizable green power market.

This paper has documented significant differences in the relative importance of different market rules and facilitation efforts, sometimes demonstrating clear trends in the views of green power marketers and other times reflecting the specific perspectives of particular types of market players. As noted earlier, however, it is important to recognize that the interests of the green power marketers will not always match the broader interests of society. Policymakers must therefore keep a keen eye on the broader societal issues involved and should be guided, but not driven, by the results presented in this paper. Nevertheless, three

overriding issues and concerns should be noted, each of which is indirectly derived from the survey results and bolstered by informal discussions with various green power marketers. First, at a minimum, it is essential that policymakers design the market rules in ways that minimize barriers to entry and that provide a foundation on which true competition can emerge. Though green power marketers clearly favor the majority of the facilitation efforts covered in this paper, there appears to be a general consensus that the first priority should be to develop a workable market structure and set of market rules. If this foundation is suitably laid, and if policymakers believe it appropriate, they should then design facilitation efforts that specifically encourage the customer-driven market for green power. Second, it is critical that the design of market rules and facilitation efforts be given thoughtful, but rapid, treatment by policymakers. Moreover, once the rules and efforts are established, it will also be essential that they be implemented in a timely manner. Absent a complete understanding of the "rules of the game," it is difficult and costly for marketers to develop strategies for market entry. Finally, to the extent possible, consistency should be sought across utility and perhaps even state and regional boundaries. Most of the green power marketers expect to compete in multiple utility service areas and states, and balkanization in the design of market rules and facilitation efforts can create additional costs in product development and marketing.

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