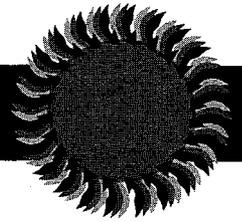


TOPICAL ISSUES BRIEF



Power Marketing and Renewable Energy

Jeffrey M. Fang



National Renewable Energy Laboratory
A national laboratory of the
U.S. Department of Energy

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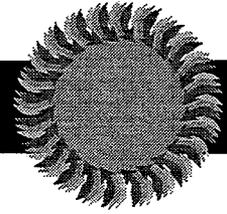
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Jeffrey M. Fang

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Abstract

Power marketing refers to wholesale and retail transactions of electric power made by companies other than public power entities and the regulated utilities that own the generation and distribution lines. The growth in power marketing has been a major development in the electric power industry during the last few years, and power marketers are expected to realize even more market opportunities as electric industry deregulation proceeds from wholesale competition to retail competition.

This Topical Issues Brief examines the nature of the power marketing business and its relationship with renewable power. The information presented is based on interviews conducted with nine power marketing companies, which accounted for almost 54% of total power sales by power marketers in 1995. These interviews provided information on various viewpoints of power marketers, their experience with renewables, and their respective outlooks for including renewables in their resource portfolios.

Some basic differences exist between wholesale and retail competition that should be recognized when discussing power marketing and renewable power. At the wholesale level, the majority of power marketers stress the commodity nature of electricity. The primary criteria for developing resource portfolios are the same as those of their wholesale customers: the cost and reliability of power supplies. At the retail level, electricity may be viewed as a product that includes value-added characteristics or services determined by customer preferences.

The main observations of this brief are as follows:

- Today, most power marketers view the wholesale market as their primary market, with electricity representing a commodity business. Accordingly, cost competitiveness and reliability are the main decision criteria.
- A majority of the power marketers participating in this study had very limited experience with renewable energy transactions. However, one

power marketer participating in this study has made a major commitment to seek out renewable energy opportunities. Others have also declared their intentions to market renewable power as retail competition opens up. If such firms are successful in their efforts, others are likely to follow their lead.

Although most power marketers are comfortable with the intermittency of renewable power, such as solar and wind, and feel that it can be operationally mitigated through scheduling and blending, there may be ancillary service costs associated with the time-varying output. Efforts may be needed to address this potentially competitive issue.

- As retail competition increases demand for renewable power because of customer concern about the environment, fuel price uncertainty, and the customers' interest in conserving fossil fuel resources, demand for renewable power in the wholesale market may also increase. The results of the retail competition pilot programs in New Hampshire and Massachusetts support this view.
- Aggregators will be important particularly for combining small residential loads into large market pools, reducing the transaction costs, thus making these loads attractive to suppliers, including independent power producers, public power entities, and renewable energy developers.
- Some power marketers believe that there will be greater opportunities to provide value-added services at the retail level, because individual consumers will be interested in a broader package of products and services. For example, power marketers can package renewable power with other residential services to satisfy customer preference.

Acknowledgments

Power Marketing and Renewable Energy was prepared by the Center for Energy Analysis and Applications for the Office of Utility Technologies (OUT) of the U.S. Department of Energy (DOE). The author would like to acknowledge Joe Galdo, U.S. Department of Energy, for the guidance and financial support he provided to this project. The author also wishes to give special thanks to Kevin Porter, a colleague at the National Renewable Energy Laboratory (NREL), for serving as research assistant, peer reviewer, and advisor to the project. Special acknowledgment is given to the power marketers who participated in the interviews and reviewed an earlier draft. Without their participation, the study would not have been possible. These power marketers are: Jim

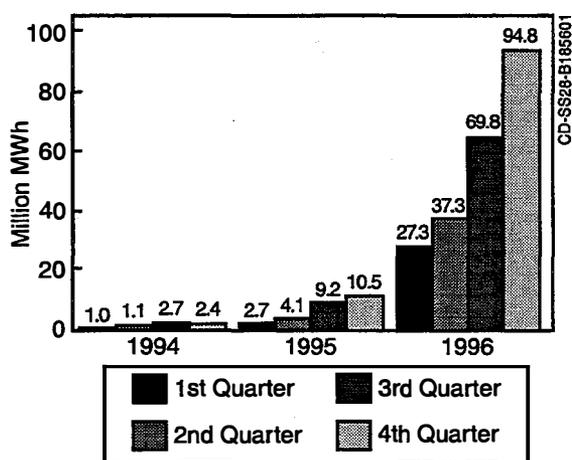
Farrar, AES Power, Inc.; Michael Wallace and George Rumsey, NorAm Energy Services, Inc.; Ed Stoneburg, Illinova Power Marketing; Bob Kennel, LG&E Power Marketing; Tom Dodd, CNG Power Services Company; Richard Dahnke, R.J. Dahnke & Associates; Keith Goerss, QST Energy Trading, Inc.; Jim Steffes and Tom McNulty, Enron Capital & Trade Resources; and Larry Kellerman, Citizens Lehman Power Sales. Finally, the author thanks the following peer reviewers for their comments and suggestions: Randall Swisher, American Wind Energy Association; Mac Moore, Solar Energy Industries Association; Reid Detchon, Biomass Energy Alliance; Robert Boyd, Zond Corporation; Scott Spiewak, CPM Energy; and Eldon Boes, Larry Goldstein, Christy Herig, Ralph Overend, Brian Parsons, Blair Swezey, Yih-huei Wan, Bob Westby, and Scott Wright, NREL.

Power Marketing and Renewable Energy

I. Introduction

This brief provides preliminary information on an industry that is still in an early stage of development. It provides insights to the current thinking of power marketers regarding renewable energy and highlights an apparent lack of knowledge regarding renewable resources and renewable power marketing among some power marketers. In this brief, the term *renewable power* refers to electric power generated from renewable energy sources such as biomass, hydro, geothermal, solar, and wind.

Power marketing is rapidly emerging as a major force in the electric power industry. The number of power marketing companies approved by the Federal Energy Regulatory Commission (FERC) increased from 70 in 1994 to 288 by the end of 1996. Power marketer sales increased from just under 7 million megawatt-hours (MWh) in 1994 to more than 26 million MWh in 1995 and to nearly 230 million MWh in 1996.¹ Figure 1 shows the dramatic quarterly growth in sales from 1994 through 1996.



Source: Edison Electric Institute, *Power Marketers Yearbook - 1995, Sales, Purchases and Profiles*. 1996, p. 18, and *Power Marketers Yearbook - 1996, Sales, Purchases and Profiles*. 1997, p. 14.

Figure 1. Total quarterly electric sales of power marketers, 1994-1996

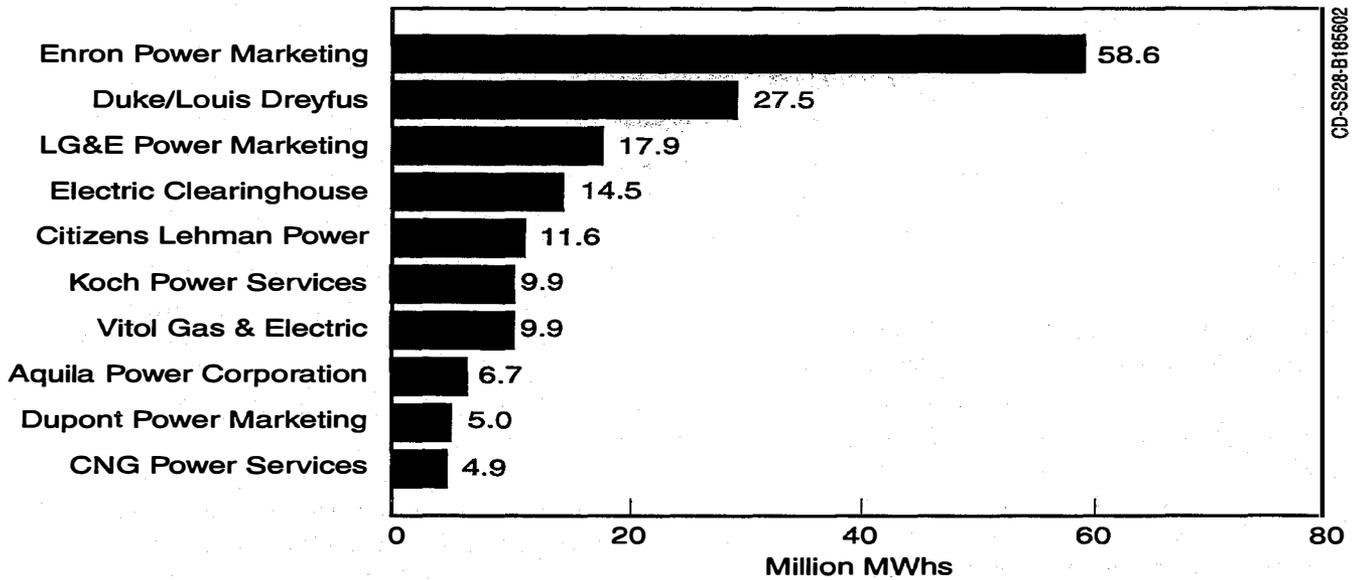
Power marketing is dominated by several large firms. Of the 288 FERC-approved power marketing firms, the five largest accounted for more than half of all power marketer sales, and the 10 largest accounted for over 73% of sales. Figure 2, at the top of page 2, shows sales in 1996 of the 10 largest marketers.

The role of power marketers in electric markets is certain to continue to grow in importance, and power marketers are expected to realize new market opportunities as electric industry restructuring proceeds to embrace retail competition. The primary objective of this brief is to gain an understanding of the experience and views of power marketers with regard to renewable power. This knowledge could provide important insights into how competitive markets will impact the deployment of renewable power and what influences power marketers may have in this respect.

To conduct this study, NREL talked to nine power marketers who agreed to take part in the interviews. The companies interviewed either were among the top companies in 1995 power marketing sales or were participants in retail wheeling pilot programs. Appendix A contains a list of the power marketers interviewed, and Appendix B includes the interview questions. As a group, these nine companies had sales of 14.1 million MWh in 1995, accounting for approximately 54% of all power marketer sales for the year. The interviews, conducted between August 19 and October 11, 1996, included eight telephone interviews and one face-to-face interview. Analysis of the interview responses has been supplemented with more recent information on the power marketing industry.

II. The Power Marketing Business

In this brief, power marketing refers to wholesale and retail transactions of electric power made by companies other than the regulated utilities that own the distribution lines. Power marketers may buy electricity from utility generators, nonutility generators (or NUGs, such as independent power producers, cogenerators, and renewable energy producers), and other power marketers. At



Source: Edison Electric Institute, *Power Marketers Yearbook - 1996, Sales, Purchases and Profiles*. 1997, p. 14.

Figure 2. Electricity sales by the 10 largest power marketers in 1996

the wholesale level, power marketers sell electricity to utilities, both private and public, other marketers, and resellers. At the retail level, they may sell to end users such as industrial, commercial, residential, and governmental customers.

Unlike power brokers, power marketers take title to the power being transacted. Because power marketers take title to the power, they assume some price and market risk. Generally, power marketers rely on a portfolio of purchased resources and arrange for transmission and distribution services.

Although power marketers must register with FERC, they are not subject to state rate regulation. However, in New Hampshire and Massachusetts where retail competition pilot programs are being implemented, power marketers were required to meet some registration, prequalification, and/or certification requirements to participate in the programs.

In general, all power marketers take advantage of inefficiencies in the electric power supply system; their objective is to buy low, sell high, and profit from the margin between the buying and selling prices. Regional electricity price variations and price differences among fuels provide these opportunities to power marketers.

In addition to selling Btus, some power marketers seek to add value by offering additional products or services determined by customers' preferences.

The Edison Electric Institute defines seven types of power marketers²:

- Energy consultants—firms whose primary business is to advise industries and other end users on energy and utility matters.
- Entrepreneurials—firms formed to take advantage of the business opportunities in marketing electricity.
- Financial intermediaries—firms originally formed to handle financial transactions but that have branched into power marketing.
- Independent power producers (IPPs)—nonutility entities that own generating facilities and have formed separate business units to market power from these facilities as well as other sources.
- Industrials—large industrial firms that also engage in power marketing.
- Natural gas/fuels marketers—firms with operations selling natural gas and other fuels that also purchase and sell electric power.
- Utility affiliates—unregulated subsidiaries of companies with regulated utility subsidiaries.

Table 1 lists example companies within each group.

Table 1. Classifications of Power Marketers	
Category	Example Companies
Energy Consultant	Electric Power Clearinghouse Power Smarts, Inc. R.J. Dahnke & Associates
Entrepreneurial	Greenwich Energy Partners North American Energy Conservation Prairie Winds Energy, Inc.
Financial Intermediary	Citizen Lehman Power Sales Morgan Stanley Capital Group Phibro
Independent Power Producer	AES Power, Inc. Calpine Power Marketing Destec Power Service Corporation Hartford Power Sales USGen Power Services
Industrial	ConAgra Energy Services Conoco Power Marketing National Gas & Electric LP
Natural Gas/ Fuels Marketer	Catex Vitol Electric, Inc. CNG Power Services Company Coastal Electric Services Company Enron Power Marketing, Inc. Louis Dreyfus Electric Power, Inc. NorAm Energy Services, Inc. PanEnergy Power Services
Utility Affiliate	Aquila Power Corporation Heartland Energy Services, Inc. Illinova Power Marketing LG&E Power Marketing, Inc. QST Energy Trading Southern Energy Marketing

Source: Edison Electric Institute, *Power Marketers Yearbook-1995, Sales, Purchases and Profile*, 1996, pp.13-15.

The power marketers interviewed for this study included three utility affiliates, three natural gas/fuels marketers, and one from each of the independent power producer, financial intermediary, and energy consultant groups (see Appendix A).

III. Power Marketer Interviews

The power marketers interviewed held a wide range of views concerning the nature of the power marketing business. Some marketers stressed the “commodity” nature of electric power in the wholesale market. For example, one firm stressed that it is a “Btu marketing company”; it buys and sells electricity and natural gas. In contrast, other marketers stressed that they provided “value-added” services. The latter noted that they provided their customers with customized solutions that may include offering energy efficiency and renewable energy options, combining electric and gas services and billing, taking over the operation of boiler facilities, and/or providing energy planning services. One firm pursued opportunities to supply energy, financing, and risk management products and services at both the wholesale and retail levels.

Because power marketers take on some risk when they enter into a contract to buy or sell a block of power, financing and risk management have been explicitly recognized as part of the services or packaging that the firms provide. For example, one firm defined its business as helping utilities become more competitive, allowing them to efficiently make the transition from regulated monopolies to competitive businesses. Embodying this vision of power marketing, the company categorized its business into three areas: (1) restructuring utility generation assets and contracts; (2) integrating fuel, capital, and power; and (3) marketing power, trading, and managing risk.

The interviews revealed that power marketing companies often occupy unique niches because they have special expertise or background to offer. For example:

- Some IPPs and financial intermediaries are more likely to focus on electricity as a commodity business.
- Utility affiliates tend to emphasize services because of their prior experience with retail customers.
- Natural gas/fuels marketers are likely to stress combined electric and natural gas services.
- Energy consultants favor advising clients and representing end users.
- Financial intermediaries may stress price risk management through financial derivative products such as futures contracts and options.

- Some power marketers integrate fuels, financial instruments, and the supply of electric power.
- Some power marketers may also restructure existing utility assets and contracts to lower the cost of power generated from the facilities involved, making the projects more competitive.

In terms of the division between wholesale and retail power marketing, the power marketers interviewed for this study had a wide range of experience. Examples include the following:

- Eight marketers indicated that all or most of their transactions to date involved wholesale transactions.
 - One of these eight noted that the company participates in retail competition pilot programs but that actual sales are relatively small compared to sales at the wholesale level.
 - Another indicated that, although it is not marketing directly to end-users, it is supplying power to an aggregator participating in a retail competition pilot program.
 - Still another of these eight suggested that the proportion of retail sales could represent more than 50% of its total business in 4 or 5 years.
- The ninth marketer indicated that its wholesale share is only 5% because its business was in “selling to the retail accounts.”

The power marketers generally believe that increased retail competition will expand the overall market for the services they offer. In the retail market, power marketers would segment customers into two groups: large industrial and commercial customers, and small commercial and residential customers. Some companies intend to focus on one or the other of these segments while others will attempt to market to both segments. These companies are preparing for retail competition by:

- Participating in the pilot programs currently under way in several states.
- Evaluating ways to approach retail customers.
- Developing new products by blending electric power from different sources or packaging other services with electric power.
- Analyzing how the experience of natural gas retail service can be applied to retail competition in

electricity.

- Merging or forming strategic alliances with other companies.

According to the power marketers interviewed, wholesale customers are primarily concerned with the price and reliability of power supply. Wholesale customers buy power in order to resell it to their own customers. To remain competitive, the prices they pay for power supplies must be low. The reliability of electricity is often considered a “given.” To power marketers, reliability refers to the certainty of power delivery and encompasses the dependability of the supplier in delivering the contracted power.

The dependability of suppliers refers to how the supplier honors the terms and conditions of the contract, i.e., will the company keep supplying the power contracted for, even if market conditions change? Some marketers described instances in which suppliers with firm power contracts interrupted deliveries to customers when they found they could get a better price in the open market.

Flexibility in contract terms is also a concern. Flexibility refers to the latitude in changing the level of power received and in adjusting delivery schedules and points.

IV. Impacts of Increased Competition

From the perspective of the power marketers, increased competition in the wholesale and retail power markets over time will lead to lower electricity prices, reduced regional price variations, and lower profit margins, but increased business opportunities.

As described earlier, power marketers take advantage of the price variations in geographical areas, moving power from low-price areas to high-price areas. Theoretically, as the volume of power marketing transactions increases in a particular region, the price of electricity will fall. This will also exert downward pressure on the margin to be earned from buying and selling power, especially at the wholesale level where electricity is sold primarily as a commodity.³ At the retail level, the margin squeeze may be partially offset by an increased customization of value-added services or packaging of products.

Another impact of increased competition is an increase in mergers and alliances among different market players to strengthen market position and develop other strategic marketing advantages. For example, Enron Corporation, a natural gas marketing company, has acquired a wind energy development company (Zond Corporation) and is seeking a merger with Portland General Electric Company, a regulated utility in Oregon. Similarly, Houston Industries, an electric holding company, is merging with NorAm Energy Corporation, a natural gas company. Four companies, Green Mountain Power, Consolidated Natural Gas, Hydro Quebec, and Noverco, have formed a power marketing alliance known as Green Mountain Energy Partners to market power in New England. A final example is an agreement between New Energy Ventures, Inc., an aggregator providing commercial and industrial customers with energy purchase and management services, and LG&E Energy Marketing Group, a power marketer, which will manage the operational requirements.

V. The Move Toward a Retail Market

The power marketers participating in this study speculated on the future of the retail market. Retail competition will encourage customers to exercise choices of power suppliers, products, and services. However, power marketers think that retail customers will be mainly concerned about price and reliability, and secondarily about customer services and the convenience of paying a single bill for all home-based services.

What is Retail Competition?

Retail competition encompasses a number of related terms, such as *retail wheeling*, *direct access*, and *customer choice*. Under retail wheeling, a distribution company is compelled to transmit or wheel power from alternative suppliers to end-use customers over its distribution lines. Direct access refers to the fact that end-use customers have market access to power suppliers other than their local utility. Customer choice reflects the ability of end-use customers to choose suppliers other than their traditional utility provider.

The retail market may provide strategic opportunities for power marketers to expand their businesses to

become more service oriented. For example, business opportunities will occur in packaging different residential services such as natural gas, telecommunications, and security with electric power to meet specific customer needs. Power marketers could also include renewables in these services.

VI. Power Marketing and Renewable Energy

This section examines and summarizes the views and experience of the power marketers on a number of different renewables-related topics.

Past Experience with Renewable Power

With one major exception, the power marketers interviewed had either no experience or limited experience with renewable power. The exception is a company that closed several major long-term deals involving geothermal and waste-to-energy generators. These deals involved either the restructuring of existing qualifying facility (QF) contracts with utilities or directly marketing the plant output. The impetus for such deals has been the utilities' desire to buy long-term power at a competitive price. This company also arranged more than 50 transactions involving hydropower, which are generally much shorter in duration.

Those power marketers without renewables experience indicated that they had not included renewables in their resource portfolios because of a lack of supply sources, unfavorable economics, and/or a lack of customer demand. In general, renewable power supplies were either unavailable where some power marketers were doing business or there was no excess supply for sale. In the latter case, renewable power sources are often tied up in long-term contracts with utilities and not available to power marketers. Power marketers also indicated that they did not identify a specific demand for power from renewable sources at the wholesale level.

Nevertheless, the parent company of one of the power marketers with limited experience marketing renewable energy has made a major commitment in renewable power. It has part ownership in a solar module manufacturing company and has recently acquired a wind energy technology company. It has also established a renewable energy subsidiary to pursue project development opportunities in renewable energy.

Outlook for Including Renewables in Future Portfolios

According to power marketers interviewed, the opportunities for including power from renewable sources in their resource portfolios depend on a combination of economics, customer choice, public policy, and the overall dependability of renewable power suppliers. Currently, at the wholesale level, renewable power is more expensive than power from coal, gas, and other conventional sources. However, at the retail level, some marketers think it may be possible to differentiate and market green power through customer choice. For example, some customers are interested in being served with renewable power because of their concern about the environment and fuel price uncertainty, and their interest in conserving fossil fuel resources, and, therefore, would pay a premium for such a service. Several marketers indicated that, if this demand could be aggregated, they would be willing to supply customers with renewable power. As illustrated by the results of the retail competition pilot programs in New Hampshire and Massachusetts, such customer interests do translate into actions; i.e., both residential and commercial customers signed up to purchase “green” power.⁴

Role of Power Marketers in Promoting Renewable Power

When asked, “What role can power marketers or power marketing play in promoting renewable power?” the responses ranged from not being interested to being somewhat receptive. Some marketers replied that promoting renewables is not a function of power marketers. Others indicated that it may be possible to blend renewable power with fossil-fueled power to both lower costs and firm up the power supply. However, blending presents no immediate benefits to these marketers because the average cost of the power portfolio would rise. On the other hand, if there is customer demand for green power, then relative costs differences will be less important. Another perspective was that power marketers may be better able to reach those who are interested in renewable power because of their expertise in marketing power and in customizing products to meet customers needs.

Green Pricing/Marketing

Green power marketing refers to the activities of power suppliers to sell green power products and services directly to electricity customers, either at the wholesale or retail level. At this time, there is no universally accepted definition of green power. In one definition, green power

may be equivalent to renewable power defined in this brief, including biomass, hydro, geothermal, solar, and wind. In a narrower definition, large-scale hydro or pumped storage hydro resources may be excluded. California included small-scale hydro, but not large-scale hydro, in the AB 1890 renewables funding. In a broader definition, green power may encompass renewable power, energy efficiency measures, retirement of emissions credits, and donations to environmental and other public interest group.

In August 1996, there was very little direct, competitive marketing of green power in retail markets. However, about 20 electric utilities in the United States have either initiated or are planning “green pricing” programs, in which utility customers may elect to purchase all or some portion of their power needs from renewables or contribute to a utility-managed fund to support renewables development. In these programs, customers are asked to pay a rate premium, which is generally meant to cover the costs that the utility incurs to provide this service above those paid to supply electricity from conventional fuels.

In the retail competition pilot programs in New Hampshire and Massachusetts, green options involving both renewable power and other green factors such as energy efficiency and environmental considerations were marketed. Additional experiences with green marketing will likely be gained as industry restructuring proceeds and additional pilots and full retail competition are implemented.

Five of the nine power marketers interviewed had some familiarity with the green pricing/marketing approach. Different views were expressed on the efficacy of green power marketing. One marketer suggested that some newer generating technologies, such as gas-fired power plants and advanced coal plants, are less polluting than older plants. Thus, from the perspective of reducing emissions from power generation, there is no need for green pricing. Another commented that customers cannot tell “green” from “gray” electrons, suggesting that any distinction made between renewable power and conventional power sources is arbitrary. At the other end of the spectrum, some marketers thought that green pricing is a good idea that will improve overall efficiency of power markets. Others indicated that green pricing is consistent with the theme of allowing customer choice under retail competition.

Project Financing

The power marketers were asked whether they would be interested in financing renewable power projects. Three of the nine answered no; the other six would be interested if there were money to be made. One firm indicated that its interest in the financing area is focused primarily on restructuring existing renewable power projects, not on financing new projects. Barriers to financing renewable power projects mentioned by the power marketers include economics, technical issues for some renewable energy technologies (such as dispatchability and intermittency), and, at this stage of development of the power marketing industry, a general lack of demand for such investments.

Intermittency

Solar and wind are intermittent sources of energy, producing electricity only when the sun is shining or when the wind is blowing. According to some of the power marketers interviewed, this intermittency requires additional planning, which in turn requires additional costs for backup power.

According to these marketers, at the level of generation currently anticipated, intermittency can be mitigated in two ways. First, system operators who routinely deal with load fluctuations and unscheduled downtime of conventional generating facilities can address intermittency in a similar manner. Second, most power marketers who have a large and diverse portfolio of electricity resources can increase output from other resources in the portfolio when the intermittent renewables are unavailable. However, one marketer emphasized that, in his opinion, even with mitigation, nondispatchable resources remain less valuable than dispatchable, fossil-based resources. These operational strategies mitigate the technical aspects, and the cost of dealing with the intermittency is likely to be quantified through ancillary services from other suppliers.

Distance and Geographic Considerations

Power marketers believe that distance and geographic considerations work both in favor of and against renewable power. Some renewable technologies can be deployed in distributed utility applications where it is difficult to build or upgrade transmission and distribution facilities. Because renewables have lower environmental impacts, new projects can be located closer to load

centers. Locating renewable power plants in more remote locations may require transmission over a long distance, raising the cost of bringing renewable power to load centers. However, the same issues associated with long distance transmission apply to power supplied from conventional and nuclear fuel sources.

Lack of Information on Renewable Power

Other than conventional hydro, many power marketers had little information concerning the availability of renewable power capacity. According to some power marketers, most existing renewable power projects are tied up in long-term QF contracts with utilities and are not available to power marketers. Therefore, in the absence of explicit customer interest in renewable power, power marketers would not include renewable power in their resource portfolio. As the market evolves, electronic information on all sources of power supply, including renewable energy, may become more easily accessible and facilitate these decisions.

VII. Observations

Before discussing the observations of this study, three points need to be emphasized. First, although the power marketers interviewed accounted for more than half of 1995 power marketer sales, the actual number of power marketers interviewed was relatively small. Only nine firms were included, representing utility affiliates (three firms), natural gas/fuels marketers (three), independent power producers (one), financial intermediaries (one), and energy consultants (one). Two categories of power marketers—entrepreneurials and industrials—were not represented. Second, with the exception of one firm, most of the experience of these power marketers was in wholesale transactions. As yet, power marketers have only very limited experience in selling power in retail markets. Third, the interview questions were not exhaustive in the approaches that could be considered for renewables. Mechanisms for encouraging renewable energy, such as a system benefits charge, were not included in the list of questions.

Given these qualifications, the observations of this study are as follows:

- Today, most power marketers view the wholesale market as their primary market, with electricity representing a commodity business. Accordingly, cost competitiveness and reliability are the main decision criteria.

- A majority of the power marketers participating in this study had very limited experience with renewable energy transactions. However, one power marketer participating in this study has made a major commitment to seek out renewable energy opportunities. Others have also declared their intentions to market renewable power as retail competition opens up. If such firms are successful in their efforts, others are likely to follow their lead.
 - Although most power marketers are comfortable with the intermittency of renewable power, such as solar and wind, and feel that it can be operationally mitigated through scheduling and blending, there may be ancillary service costs associated with the time-varying output. Efforts may be needed to address this potentially competitive issue.
 - As retail competition increases demand for renewable power because of customer concern about the environment, fuel price uncertainty, and the customers' interest in conserving fossil fuel resources, demand for renewable power in the wholesale market may also increase. The results of the retail competition pilot programs in New Hampshire and Massachusetts support this view.
 - Aggregators will be important particularly for combining small residential loads into large market pools, reducing the transaction costs, thus making these loads attractive to suppliers, including independent power producers, public power entities, and renewable energy developers.
 - Some power marketers believe that there will be greater opportunities to provide value-added services at the retail level, because individual consumers will be interested in a broader package of products and services. For example, power marketers can package renewable power with other residential services to satisfy customer preference.
2. Edison Electric Institute, *Power Marketers Yearbook - 1995, Sales, Purchases and Profiles*, 1996.
 3. One respondent commented that wholesale power marketing is already very competitive and the margin has become very slim.
 4. The pilot programs in New Hampshire and Massachusetts are the subjects covered by two forthcoming issue briefs being prepared separately by Ed Holt and Environmental Futures, Inc. They will be published in the second half of 1997. Although there are some questions regarding the nature of the green options offered and whether additional renewable energy supplies are forthcoming as a result in both pilot programs, the results do indicate that consumers do take actions based on their views and beliefs in the areas of environmental quality and renewable energy.

VIII. Notes

1. Edison Electric Institute, *Power Marketers Yearbook - 1995, Sales, Purchases and Profiles*, 1996, Preface; *Power Marketers Yearbook - 1996, Sales, Purchases and Profiles*, 1997, p. 13.

APPENDIX A

Power Marketers Interviewed			
Company	Category	Individual(s)	Title
AES Power, Inc.	IPP ¹	Jim Farrar	Vice President
NorAm Energy Services	Natural Gas/ Fuels Marketer	Michael Wallace George Rumsey	General Counsel Vice President, Marketing & Business Development
Illinova Power Marketing	IOU ² Affiliate	Ed Stoneberg	Vice President, Operations
LG&E Power Marketing	IOU Affiliate	Bob Kennel	Vice President, National Accounts
CNG Power Service Co.	Natural Gas/ Fuels Marketer	Tom Dodd	Vice President
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Enron Capital & Trade Resources	Natural Gas/ Fuels Marketer	Jim Steffes Tom McNulty	Director, Governmental Affairs Associate
Citizens Lehman Power Sales	Financial Intermediary	Larry Kellerman	President

Notes: 1. IPP means independent power producer.

2. IOU means investor-owned utility.

APPENDIX B

Questions Presented to Power Marketers

A. Power Marketing in General

1. In terms of your company's power marketing business, what do you think is the nature of the business?
2. How will increased competition likely impact your company's decisions and operations?
3. Approximately what proportion of your company's sales to date is at the wholesale level?
4. In doing business with your **wholesale customers**, which aspects of the transactions are they most concerned about?
5. In retail competition, the key focus is customer choice. From your perspective, what choices do your **retail customers** want?
6. In doing business with your **retail customers**, which aspects of the transactions are they most concerned about?
7. In your negotiations to buy a block of power, which aspects of the transactions are you most concerned about?

B. Relationships with Renewable Energy

1. To date, are any of your company's power purchases from renewable energy sources?
 - a. If "yes," please answer the following questions. If "No," go to (b).
 - i. How many transactions?
 - ii. Who were the customers?
 - iii. Which type (solar, wind, geothermal, biomass)?
 - iv. When (quarter, year)?
 - v. How much (MWh)?
 - vi. What was the impetus to those transactions?
 - vii. Do you think there will be further opportunities for your company to purchase power from renewable sources? Why?

- b. What are the main reasons for not including renewable power in your past purchases?

2. One approach to marketing renewable power at the retail level is green pricing/marketing. What do you think about the approach?
3. Another approach being considered for promoting resource diversity and renewable resources is the renewables portfolio standard (RPS).
 - a. What do you think of this approach?
 - b. How would the RPS affect your trading operations?
4. a. As a power marketer, would you be interested in financing renewable power projects?
 - b. What are the likely obstacles that would prevent you from providing financing to renewable power projects?
5. In general, do you believe power marketers can play a role in promoting renewable power? In what ways?
6. Is the intermittency of renewables something that you view as a serious constraint? If so, how can it be mitigated by the services your company provides?
7. In your opinion, how do distance and geographic considerations affect the ability to arrange deals for renewable power?
8. What are the other important constraints you see to having a more active renewables power market?
9. What are the constraints you see for renewables in the evolving debates on pools (international standards organizations [ISOs] and transmission terms)?