

**Disclosure and Certification: Truth and Labeling for Electric Power**

**Edward A. Holt**

**EXECUTIVE SUMMARY**

Consumers will soon be able to select their own power company. To ensure that this freedom lowers the total social cost of electricity, customers need to know how their power is generated, and they need assurance that power sold as “green” really is so. The author argues that comprehensible, accessible information is essential for a properly functioning retail power market. He then discusses how to define green, the roles of new and existing power projects, the distinction between regulated green marketing programs and unregulated green power products, and the institutional arrangements for certifying green power. The paper concludes with seven recommended actions and principles for green power standards.

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## **A Message From the Renewable Energy Policy Project**

Markets function best when participants receive credible and comprehensible information. Unfortunately, advocates of restructuring the American electric system sometimes neglect this principle. Most observers expect deregulation to offer electricity users more opportunities to choose among competing suppliers. But consumer choice will not lower total social costs—the ostensible goal of deregulation—if poor information prevents consumers from including the environmental consequences of energy use in their purchasing decisions. In the following REPP Issue Brief, Ed Holt argues that because the environmental cost of using energy is high, steps must be taken to ensure that the emerging electricity marketplace supplies adequate information.

Mr. Holt advances two approaches to facilitate the provision of information in a more market-oriented electric system. He proposes requiring that all energy merchants in retail markets *disclose* the source of the electricity they sell, and he advises that some commercial or non-profit institution should certify the green power products offered by those merchants. Mr. Holt's analysis suggests to us that these actions will improve market efficiency, benefit the environment, and increase individual liberty by allowing consumers to base their decisions on a broad range of criteria.

In our view, Mr. Holt's approach is sound and workable, and his overview provides valuable insight into issues that are receiving more focussed analysis. At a December 1996 meeting on these issues sponsored by the Energy Foundation with assistance from REPP, several participants emphasized that much of the raw data necessary to allow assessment of the environmental cost of delivered electricity is available today. (Software developed for the restructured California system will be able to track emissions as well.) Likewise, while wholesale electricity purchases are complicated, power producers track financial obligations to their apparent satisfaction; it therefore should be possible to inform consumers about the fuel source of the retail power they buy. While the task will not be trivial, claims that obtaining and providing information is technically impossible or economically onerous do not hold water.

Perhaps the most important point is that these provisions are not esoteric environmental gimmicks, but normal—in fact, essential—elements of an active consumer market. Disclosure of fuel source is no different than such right-to-know regimes as labeling the content of packaged food. Certification of power sold as “green” addresses the same truth-in-advertising concerns as the Federal Trade Commission's definitions of “low-fat,” “organic,” and the like. The FTC has already issued guidelines concerning claims of superior environmental performance. We look forward to the integration of disclosure and certification provisions into upcoming energy policy packages, such as California Energy Commission recommendations (due in March 1997) regarding the restructuring of that state's electric system, and federal restructuring legislation due to be debated early this year.

Disclosure and certification alone cannot ensure that a market-oriented energy regime would be environmentally sound: consumers not only must be informed, but *educated* about the effect of their purchasing decisions. Some consumers still may make selfish choices; for that reason, some analysts remain wary of restructuring. Mr. Holt argues convincingly that if the market-oriented system becomes a reality, it is imperative that consumers be able to base their decisions on accurate, accessible information.

REPP thanks Mr. Holt for preparing this timely analysis, and Susan Conbere for editing of this document.

**Adam Serchuk & Alan Miller**

**January 15,**

1997

## DISCLOSURE AND CERTIFICATION: TRUTH AND LABELING FOR ELECTRIC POWER

Edward A. Holt <sup>1</sup>

### Competition, Green Marketing and Green Power

“The blood is in the water!” is how a representative of one electricity company describes the feeding frenzy among competitive suppliers in New Hampshire’s retail competition pilot program.<sup>2</sup> In May 1996, the Granite State became one of the first in the nation to allow electricity suppliers to compete directly with electric utilities for retail customers, much as long-distance telephone companies now compete to serve individual households.

Closely watched by policymakers, consumer advocates and energy users nationwide, the competing firms are scrambling to find the right combination of pricing and marketing: pricing that offers electricity supply at 25 percent lower than the predicted 3.5 cents per kWh,<sup>3</sup> and marketing that lures (some would say bribes) customers with gifts, gimmicks and checks.

With about two dozen suppliers chasing 17,000 residential, commercial and industrial customers, the advertising has been intense. Customers have been inundated with—and confused by—direct mail, telemarketing, print ads and radio and television advertising.

Of about fifteen suppliers marketing to residential customers, one-third appeal to customers’ environmental values. To establish its green orientation, Green Mountain Energy Partners mailed a spruce seedling to potential customers, and promised that those who took actions to conserve energy would receive eco-credits that could help pay their electric bills. To attract customers, some suppliers offered booklets on how to save energy or free efficient showerheads. Working Assets promised to donate one percent of its gross revenues in New Hampshire to local environmental groups. Freedom Energy/Xenergy offered “meaningful services, like installation and financing of energy-efficient equipment, to lower your costs further.” Granite State Energy wrote, “When you select our Two-Year Savings Plan, you’ll also receive a free bird feeder (\$18 value). It’s made in New Hampshire and officially licensed by the National Audubon Society.” Although Granite State Energy also claimed that “No other utility is doing more to protect our environment,” other suppliers also pointed to their environmental records, or used imagery to evoke an appealing vision of nature.

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<sup>1</sup>The author would like to acknowledge the support of the Energy Foundation for an earlier version of this paper. He also wishes to thank Adam Serchuk, Karl Rabago, and Mike Tennis for their comments on this Brief. The opinions expressed in this paper are those of the author and do not necessarily reflect the views of REPP, its Steering Committee, or the reviewers.

<sup>2</sup>Jim Rodier of Freedom Energy, to a meeting of the Association of Energy Service Professionals, Framingham, MA, 11 June 1996.

<sup>3</sup>The electricity prices cited are for supply only. Consumers still pay their franchised utility for transmission, distribution, standable costs and other charges. A consumer served by a high-cost utility (one with significant standable costs) and paying just \$.02 per kWh for supply may nevertheless be paying a total price of \$.13 per kWh for delivered electricity.

Three suppliers direct attention to the source of their power:

- Green Mountain Energy Partners offers predominantly hydro energy from a partnership with Hydro-Quebec and states that its emissions are 97.5 percent free of greenhouse gases. Price: 2.66 cents per kWh. Hydro-Quebec projects, however, have been criticized for destroying Canada's First Nation (Native American) lands.
- Northfield Mountain Energy describes its pumped storage hydro project at a beautiful recreational area: "Where you see a breathtaking vista, we see megawatts.... Water is pumped up the mountain at night and flows down during the day to generate low-cost power." Price: 3.11 cents per kWh. The company does not mention that the pumped storage may rely on controversial nuclear power to pump the water to the top of the hill.
- Working Assets Green Power lists the resources it does *not* use: nuclear power, coal or Hydro-Quebec. Price: 3.5 cents per kWh. However, it is unclear how Working Assets, which buys its power from New England Power Company, can avoid the power produced from New England Power's coal plants. It is unclear how effective these green marketing efforts have been, but Green Mountain Energy Partners reported signing up the second-highest number of customers among the competing suppliers in New Hampshire.<sup>4</sup> (See box below for another example of green marketing.)

One eligible customer, confused by the blitz, is quoted in the *Boston Globe* as saying, "They're all pandering to the environment. There's so much image, but very little information." Fortunately, there are two policy and marketing tools that could cut through the marketing haze to help consumers understand their choices:

**"[Power companies] are all pandering to the environment. There's so much image, but very little information."**

- **Disclosure of energy resources** used in generating electricity should be required of all suppliers. Disclosure provides an objective statement about resources used to supply power by a specific company or under a specific brand name. Policymakers should have a particular interest in disclosure because of its role in reducing information barriers in the market place, and as a consumer protection measure.
- **Certification of green power** is a value statement about whether the electricity offered is consistent with certain preferred resources, technologies or environmental results. Although certification is an optional marketing tool for suppliers, policymakers may wish to endorse it to express their support for renewable energy technologies and the environment.

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<sup>4</sup>"No Longer Just a Dream, Green Pricing Heads to the Market," *Energy Daily*, 18 Sept. 1996.

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## Massachusetts Suppliers See Green

Massachusetts Electric Company is embarking on a pilot program to allow its customers to select their electricity suppliers. One part of the pilot program, which began in December 1996 for one year, is directed to 10,000 residential and small business customers in four cities. Instead of opening the market to all suppliers, as in New Hampshire, Mass Electric hired a Program Administrator to pre-qualify a limited list of competitive suppliers. The Program Administrator issued a Request for Proposals and selected suppliers in different categories.

In the “green” category, four suppliers are competing:

- Northfield Mountain Energy will offer 100 percent hydropower (no pumped storage) from its parent company, Northeast Utilities; \$30 worth of energy conservation products; a mail-in home energy survey; donations to local community green projects; and a donation to the American Lung Association.
- Working Assets will offer the same no-nuclear, no-coal, no-Hydro Quebec product purchased from New England Electric Power, but with specific generating plant commitments to avoid coal. Working Assets will also donate one percent of gross revenues to Massachusetts environmental groups and give customers a \$25 gift certificate for energy efficiency products after six months.
- AllEnergy will offer power from the supply mix of its affiliate, New England Power Company; permanent retirement of SO<sub>2</sub> emission allowances; and community-based solar.
- Enova Energy (San Diego Gas & Electric) will offer New England power supply (presumably a mix from New England Power Pool), an energy/environmental survey, quarterly energy use reports and rewards, matched donations to environmental projects, and a raffle for electric vehicles.

As in New Hampshire, the Massachusetts green suppliers (with the exception of Northfield Mountain Energy) appear poised to define their bundled product as environmentally-friendly, but not to define their power as renewable energy.

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If adopted, these consumer protection and market enhancement tools will help ensure that consumers get what they pay for in the emerging market-oriented energy system.

Why these tools are desirable is discussed in the next section of this paper. The first tool, disclosure of energy resources, is then explained and illustrated. The second tool, certification of green power, raises a number of implementation issues which are addressed in turn: how to define “green,” the role of new and existing green energy resources, the distinction between green marketing and green power, and who certifies green power. The paper concludes with answers to these questions and recommendations for how to proceed.

### Why Green Power Standards Are Needed

In regulated electricity markets, at least fourteen utilities offer captive customers the option of environmentally-preferred electricity. Customers choosing this option pay a premium to help develop the market for renewable energy technologies beyond what is cost-effective to their regulated utility. They

thereby contribute to improving environmental quality.<sup>5</sup>

Consumers participating in these regulated green pricing programs may have questions about the offer of green power: Where is the power coming from? Is it really adding renewable energy? Is it making an environmental difference? Is it fairly priced? Will the utility use my premiums wisely? Regulators can ensure that these questions are answered to their satisfaction, but consumers may continue to have doubts. Overcoming these credibility concerns is a marketing issue.

Opening retail electricity markets to competitive electricity suppliers introduces a bigger challenge. Electricity supply prices will not be regulated, although competitive suppliers are likely to face some minimum requirements. Also, there will be no public analysis of avoided costs or integrated resource plans to determine which resource projects are cost-effective and which are not.<sup>6</sup>

Further, the advent of power marketers and brokers in retail markets will increase the number of competitors and intensify advertising for market share. “Obfuscation marketing,” whether intentional or not, will confuse consumers about which offer best meets their needs.<sup>7</sup> Green or environmentally-friendly advertising claims will be more difficult to verify in a complex and sometimes chaotic market. In a competitive environment, the marketing issue takes on a new dimension: consumer protection.

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To address concerns about market credibility and consumer protection, and to increase market demand for renewable energy, green power standards are needed. The development of such standards is urgent because other states will begin offering competitive suppliers direct access to retail consumers by 1998, and we can expect marketing frenzies similar to the New Hampshire experience. Larger markets will require—and justify—electricity suppliers spending more on marketing. Enron Chairman Kenneth Lay noted that “spending as much as \$50 million a year on advertising is not out of sight nor out of line as deregulation opens up the \$270 billion natural gas and electricity market.”<sup>8</sup>

Green power standards are justified primarily by the need for market credibility and consumer protection in competitive retail markets. However, the mechanisms established to substantiate green power generation and sales also would be useful to verify renewable energy projects undertaken by utilities and power

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<sup>5</sup>See D. Moskovitz, “Green Pricing: Why Not Customer Choice?” *The Electricity Journal* 6 (1993):42-50. For a description of most of the regulated programs, see Edward A. Holt, “Green Pricing Experience and Lessons Learned,” in *Proceedings of the 1996 ACEEE Summer Study on Energy Efficiency in Buildings* 9 (Washington, DC: American Council for an Energy-Efficient Economy, 1996), 133-140.

<sup>6</sup>I am speaking largely of supply planning. Regulated transmission or distribution companies may still be required to assess alternative investments for regulatory scrutiny, although even these entities may be regulated by lighter-handed, performance-based regulation.

<sup>7</sup>The intense marketing activity also will have the beneficial effect of raising customer awareness about energy and environmental choices, unless consumers ignore the information. Most consumers are now aware of several long distance telephone alternatives, but they still have a hard time figuring out if they are better off with AT&T, MCI or Sprint.

<sup>8</sup>“EEI OnLine,” *Wall Street Journal*, 28 Aug. 1996, B6.

generators to meet Climate Challenge/Climate Wise obligations,<sup>9</sup> and for compliance with regulatory mandates such as portfolio standards or system benefits charges that support renewable energy.

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### Green Washing and Green Scams

**Consumers' concerns about the credibility of their utilities' green power programs are not unjustified. In 1994, Stockholm Energi, the electric utility in Stockholm, Sweden offered customers an opportunity to pay about \$35 more per year to choose among nuclear, hydro or locally-cogenerated power. In Sweden, 45% of existing electricity resources is hydro, 50% is nuclear, and most of the remainder is combined heat and power. Since these resources are already operating, and the utility would not guarantee that the chosen resource would run any more than usual, Stockholm customers saw no reason to pay more for the right to choose. Following media exposure, Stockholm Energi decided to let customers choose their power resource without the annual charge. Customer choice, they now say, will influence what resources the utility develops next.**

**A different kind of credibility concern stems from the multiple approaches available for supporting renewables. States that adopt renewable portfolio standards or system benefits charges for renewables must take care to avoid double-counting by distinguishing resource investments or purchases to comply with these mandates from market-driven green power programs. Consumers should not be asked to pay a premium for actions which an energy supplier is required to undertake anyway. Consider a renewable portfolio standard with no provision for a funding mechanism. Suppliers must comply with the standard, and costs should be borne by all consumers as part of the price, not by a few consumers willing to pay a premium. However, some consumers may *choose* to pay a price premium to support a higher level of renewables beyond what is required by the portfolio standard.**

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### Disclosure of Energy Resources

Disclosure would provide consumers with the information necessary to choose a supplier based on energy source. Disclosure also could be used to present certain types of environmental impacts which are measurable and routinely reported, such as air emissions for criteria pollutants per unit of electricity produced. Consumers could then shop for the power supply with the least environmental impact. This approach is analogous to nutritional labeling on all food products by the Food and Drug Administration to provide information to health-conscious consumers. Another example is EnergyGuide appliance labels provided by the Federal Trade Commission to indicate the relative energy efficiency of many household appliances.

The desirability of disclosure is beginning to receive policy recognition. The most important example is the

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<sup>9</sup>The Climate Change program is a joint initiative of the U.S. Department of Energy and the electric utility industry. Nearly 600 utilities have voluntarily committed to reduce, avoid or sequester greenhouse gas emissions. Climate Wise is a similar DOE program in partnership with U.S. corporations. Corporate participants include AT&T, Coors Brewing, DuPont, and General Motors.

recent action by the National Association of Regulatory Utility Commissioners. At its annual meeting in November 1996, NARUC adopted a “Resolution in Support of Customer ‘Right-to-Know’ and Product Labeling Standards for the Retail Marketing of Electricity”(provided at the end of this paper).

The Maine Public Utilities Commission, the Massachusetts Department of Public Utilities and the Vermont Public Service Board all support mandatory disclosure in their recently published recommendations for restructuring. The Massachusetts DPU and the Vermont PSB go farther by including both fuel emissions profiles, while the Maine PUC declined to require anything more than the generation resource mix.<sup>10</sup>

The justification for disclosure of energy resources is two-fold. First, for markets to operate efficiently, consumers require adequate and accurate information relevant to their decision-making criteria. Second, there is a documented history of consumer support for renewable energy<sup>11</sup> suggesting that how electricity is generated is an important criterion to many consumers. There is some direct evidence that consumers want this information disclosed. In September 1996, the Maine Public Utilities Commission surveyed 500 residential and 500 small business consumers regarding their attitudes and expectations about retail competition in electric industry restructuring. The surveys posed the question, “Do you believe electricity companies should have to tell customers how their electricity is generated?” Eighty-six percent of residential and 75 percent of small business customers answered yes.<sup>12</sup>

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**In 1996, the Maine Public Utilities Commission surveyed 500 residential and 500 small business customers. Eighty-six percent of the former group and 75% of the latter indicated that electricity companies should be required to tell customers how their electricity is generated.**

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Disclosure should be simple and uniform so that consumers are not overwhelmed with information. Consumers will require significant education about different energy resources and environmental impacts in order to understand the information being provided. State utility regulators should make uniform disclosure of energy sources or environmental impacts a requirement of retail power suppliers who wish to compete in that state.<sup>13</sup> Focus group market research is now planned to determine what information is of greatest interest to consumers and how best to present it.

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<sup>10</sup>Maine Public Utilities Commission, *Electric Utility Industry Restructuring: Report and Recommended Plan*, Docket No. 95-462, 31 Dec. 1996; Massachusetts Department of Public Utilities, *Electric Industry Restructuring Plan: Model Rules and Legislative Proposal*, Docket No. 96-100, 30 Dec. 1996; and Vermont Public Service Board, (title unavailable), Docket No. 5854, 30 Dec. 1996.

<sup>11</sup>Barbara C. Farhar, *Energy and the Environment: The Public View* (College Park, MD: Renewable Energy Policy Project, Oct. 1996). The Brief is available from REPP at (301) 405-4550, or on the Internet at <http://solstice.crest.org/renewables/repp/>.

<sup>12</sup>For the full text and results of the surveys, see Maine Public Utilities Commission, “Electric Utility Industry Restructuring,” *Bulletin* 4 (Nov. 1996). For further information, contact Phil Lindley, Maine PUC, at (207) 287-1598 or e-mail [phil.lindley@state.me.us](mailto:phil.lindley@state.me.us).

<sup>13</sup>For further discussion, see the following publications of the Regulatory Assistance Project (RAP): “Information Disclosure for Effective Customer Choice,” *Issuesletter* (Oct. 1996); *Green Pricing Newsletter* 4 (Oct. 1996); and “Full Consumer Disclosure of Power Supply Characteristics, draft paper (11 Nov. 1996). See also Barbara R. Alexander and the National Consumer Law Center, *Consumer Protection Proposals for Retail Electric Competition: Model Legislation and Regulations* (Oct. 1996). These publications are available from RAP: (207) 582-1135 or e-mail [rapmaine@aol.com](mailto:rapmaine@aol.com).

Several national restructuring bills are currently being considered. If Congress adopts federal legislation, disclosure should be included. The format and presentation could be left to each state to determine but electricity suppliers marketing across multiple states may prefer a uniform label. Lacking either state or federal disclosure requirements, individual suppliers with particularly attractive green portfolios may wish to disclose energy content or impacts voluntarily to challenge their competitors. Without a uniform approach, however, its effectiveness as a consumer education tool would be seriously weakened. An example of a disclosure label follows.

**GO-GREEN**  
**CUSTOMER INFORMATION**  
National Renewable Energy Consumers Council

System Power: Where Your Electricity Comes From  
(Based on actual generation da/mo/yr through da/mo/yr)

<b>FUEL FACTS</b>	<b>RENEWABLE ENERGY</b>
Coal	50%
Natural Gas	35%
✓ Solar	1%
✓ Wind	14%
<hr style="width: 20%; margin-left: 0;"/>	
Total	100%



✓ Solar and wind energy are certified as  
Environmentally Preferable  
by the National Renewable Energy Consumers Council.

**FOR MORE INFORMATION, CALL 1-800-GO-GREEN**

Credit for this label, originally designed on the back of an envelope, belongs to Karl Rabago, Environmental Defense Fund at (512) 478-5161 or e-mail [krabago@edf.org](mailto:krabago@edf.org).

Who would be responsible for the labeling and how would it be done? The electricity suppliers themselves should be responsible for labeling their own products according to a standard format, with penalties for deceptive information or fraud. The information should be provided by each supplier to each of its customers for the brand of electricity being sold and to potential customers as part of advertising or a prospectus. The information should be issued periodically, perhaps quarterly, and updated at least annually. Other consumer information may have to be disclosed, as the NARUC resolution reproduced at the end of this paper indicates. Labels could include only resources, as in the illustration, or resources and perhaps two critical environmental impacts. Additional information could be provided in a one- or two-page

statement similar to the abbreviated prospectus now being developed by the Securities and Exchange Commission for mutual funds.<sup>14</sup>

## **Certification of Green Power**

There are several options for certifying green power. These include developing (1) guidelines for industry self-certification; (2) principles or criteria; (3) environmental impact protocol; or (4) a customized program for product review and assessment.

**(1) Develop guidelines for industry self-certification:** Stakeholders would meet to develop certification guidelines. With some oversight, green power suppliers would have to certify that they meet all (or perhaps a minimum number) of these guidelines to claim approval. Advocates or competitive suppliers would have to be watchful of advertising and use the threat of public exposure to achieve compliance for questionable claims. This is the loosest approach, but it offers a way to build experience. The U.S. Environmental Protection Agency's Energy Star label for office equipment is one successful self-certifying program for energy-efficient performance. EPA will investigate any Energy Star-labeled product whose performance has been questioned.

**(2) Develop principles or criteria:** In this case, the application would be reviewed by an independent organization. Again, interested parties, including public sector entities, would develop and announce criteria. Instead of allowing self-certification by suppliers, an independent organization would be contracted to apply the criteria. Green power suppliers who want to be certified would have to pay the independent organization to be evaluated. This is similar to the process used to certify non-toxic household cleansers, safe electrical products, and well-managed forests.

**(3) Develop environmental impact protocol:** A formulaic approach could be developed for estimating environmental results. For example, a spreadsheet tool that calculates air emissions might be developed. The Natural Resources Defense Council recently ranked U.S. electric utilities based on carbon dioxide emissions, and plans to extend this information to include fine particle emissions and selected toxic pollutants.<sup>15</sup> To be certified, a green power supply or renewable resource would be compared to the best utility performers, or it could be required to beat the top ten percent or exceed the performance of the best by some further percent. Nuclear waste, loss of natural river flows, thermal pollution, bird kills and aesthetic impacts might also be incorporated into such protocol.<sup>16</sup>

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<sup>14</sup>Contact Jan Hamrin at HMW International, 50 California Street, Suite 3005, San Francisco, CA 94111; (415) 397-2210.

<sup>15</sup>Ralph Cavanagh, Dan Lashof and Susan Schwab, *Risky Business: Hidden Environmental Liabilities of Power Plant Ownership* (Washington, DC: Natural Resources Defense Council, Sept. 1996). This report may be accessed on the Internet at <http://www.nrdc.org/nrdcpro/>.

<sup>16</sup>It would be a challenge to establish an acceptable baseline for comparison purposes. Included for completeness, this option seems problematic, although someone experienced with reporting greenhouse gases under Section 1605(b) of the Energy Policy Act of 1992, for example, may see some feasibility in it.

**(4) Develop a customized program for product review and assessment:** Instead of meeting prescriptive standards or being assessed by a formula, each green marketing or green power product desiring certification would be reviewed by an independent certifying organization to determine and document life-cycle environmental net benefits.

Consider the analogy of building energy codes, which generally offer three paths to compliance: the prescriptive path, in which a building is constructed with specified materials and thermal properties; the component approach, in which materials may vary but thermal integrity must be maintained; and demonstration of equivalence by design analysis (computer modeling). Applied to green power certification, the prescriptive—and simplest—path might relate to how the power is produced, using a narrow definition of renewable. The component approach might be a demonstration by simplified formula that environmental impacts (however narrowly or broadly defined) meet threshold standards. Finally, the demonstration of equivalence might be a more expensive customized review. This path would be used by a power supplier who blends sources but feels that significant environmental benefits are achieved.

Whichever method is chosen, the difficulty lies in finding a way to *substantiate* the claims made. Ascertaining “greenness” is one thing; determining whether the green power is in fact being generated and fed into the system is another. This probably will require cooperation from system operators and access to power sales/purchase contracts. Case studies are also needed to demonstrate how green power sales can be substantiated.<sup>17</sup>

## How Green Is “Green?”

Two approaches to determining what is green have been suggested. The first approach would certify *generation* as being renewable, green, or clean—however preferred resources are defined. A second, alternative approach would certify *electricity sellers or suppliers*.

### Certifying Generation

If generation is the focus, one of the first tasks will be to define eligible resources. Determining what is eligible, however, could be a divisive issue for the community of interests that has supported renewable energy. Given that different regions of the country face different environmental issues, and that different environmental groups have different agendas, it may be difficult to agree on eligible resources. For example, where air emissions are paramount, nuclear might be considered green. A community with a nuclear plant, however, might care little about carbon emissions and air pollution. The determination of what is green may be a local or regional decision; in the end, it is also a market decision.

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**The determination of what is green may be a local or regional decision; ultimately, it is also a market decision.**

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<sup>17</sup>The Regulatory Assistance Project is working to identify potential mechanisms for verifying fuel mix. See their draft paper, “Full Consumer Disclosure of Power Supply Characteristics,” *op. cit.*, note 13.

Some examples of contentious areas follow:

- **Hydro:** Although the California legislature omitted the much-discussed renewables portfolio standard in its restructuring bill, alternative proposals were made to exclude hydro altogether, to exclude only large hydro, or to exclude hydro built before a certain date.<sup>18</sup>
- **Fuel Cells:** Massachusetts is considering a system benefits charge for renewables. Proposals have been made to include fuel cells fired by natural gas (which is a cleaner fuel than coal and oil, but not as clean as most renewable energy resources) because they would improve the environment in the near term and provide a bridge to a more sustainable future in the long term.<sup>19</sup> But to many, being *greener* is not sufficient to qualify as being *green*.
- **Combustion Technologies:** Should waste-to-energy plants be included? Even closed-loop biomass may be questioned. Growing biomass may absorb as much carbon from the atmosphere as burning biomass releases; however, planting, harvesting, and transportation of biomass fuels may create net carbon emissions, not to mention non-greenhouse gas emissions.
- **Blended Fuels:** Some Qualifying Facilities, such as those burning solid biomass, are allowed to use fossil fuel for as much as 25 percent of the energy input. Under the California restructuring law, these QF's will qualify as renewable resource technologies. Also controversial may be electricity suppliers who market solar but, to make the price affordable, blend it with gas-fired electricity.

Once preferred energy resources or technologies are defined, a supplier's generating assets, power purchase contracts and dispatch information provide the means for reporting. Although this information is not fully public, it exists. A supplier who wants an electricity brand to be certified will have to make available the transaction documents to substantiate fuel supply information. Sensitive wholesale price information need not be divulged to the public.

Using generating assets to determine what is green would cement a common foundation with disclosure of generating resources, which also emphasizes the generation fuel mix and is substantiated by power purchase contracts. In other words, certification and disclosure will reinforce each other if they determine what is green in the same way.

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<sup>18</sup>See reports prepared for the Renewables Work Group of the California Public Utilities Commission: Independent Energy Producers Association, "Customer Choice," *Renewable Portfolio Standard* (1 May 1996); California Energy Commission, Development Division Staff, *A Renewables Portfolio Program Based on Market-Oriented Development* (1 May 1996); American Wind Energy Association, California Biomass Energy Alliance and the Geothermal Energy Association, *Comprehensive Implementation Strategies* (3 May 1996); and Sacramento Municipal Utility District, untitled (2 May 1996).

<sup>19</sup>Alan Noguee (Union of Concerned Scientists), personal communication to the author, 1 Nov. 1996.

## **Certifying Suppliers and Sellers**

Certifying suppliers raises a different set of issues. With utility restructuring and mergers, energy supply companies may take several shapes: holding companies, affiliates and subsidiaries, independent power marketers and brokers. Supplier certification would have to determine whether to certify a parent company, a genco (generating company) subsidiary, or a marketing affiliate.

A company such as Working Assets is generally recognized as environmentally responsible, but might not pass muster if it sells system power that contains coal or gas. Another company that depends heavily on coal might never satisfy the environmentally-friendly test, yet might decide to offer power from a solar or wind project which could be certifiable as green power.

Certifying sellers first requires determining the basis of certification, probably environmental performance. This approach offers the following options:

- The most comprehensive basis of certification would be an analysis of the life-cycle environmental impacts created by the supplier's entire operation.
- The environmental impacts of the supplier's energy production alone might be assessed, from energy extraction or technology manufacture to generation process to disposal of waste products and decommissioning.
- Specific environmental criteria, such as air emission rates from plant operation and power purchase contracts, might be selected for emphasis.

Oversight of this approach will require regular reporting of air emissions and other environmental impacts, as well as updated assessments of the suppliers every two or three years.<sup>20</sup>

### **Must Green Power Offer New Renewables?**

Regulated green pricing programs should ensure that the premiums customers pay will result in new renewable capacity, or at least additional renewable energy generation. In deregulated supply markets, however, green power may be generated by existing, operating power plants. Those who purchase existing renewable energy out of a fixed pool of resources leave the dirtier resources to their neighbors, who express no preference. It is likely that the green buyer's neighbor is unwittingly browner as a result of allocating existing power generation according to choice.<sup>21</sup> This may be psychologically satisfying to some green buyers but it creates no net environmental improvement. Selling existing renewable energy does nothing

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<sup>20</sup>Two to three years was chosen because a company's policies, practices and generating resources could change dramatically over a longer period of time.

<sup>21</sup>Would an individual consumer pay to become greener if it is understood that the choice makes another consumer browner? If the environmental benefit were private, some consumers might choose this option; however, given that environmental improvement from green power is a public good, the zero-sum game would seem unattractive.

for consumers who choose green power for non-environmental reasons, discussed later in this paper. Further, selling existing energy fails to extend the availability of fossil fuels for future generations, diversify the resource mix, or satisfy consumers who buy new sources like solar photovoltaics because they want to be in the technological vanguard.

There are two reasons for the emphasis on existing renewables in competitive retail markets. The first is the market price of electricity. Price is always a consideration, even for committed green buyers, and today's supply prices are low. The current overcapacity in much of the country contributes to depressed short-term market prices. Existing renewable capacity, especially large hydro, is more likely to be competitive than new renewable capacity.

A second reason may be that the supply of new renewable capacity falls short of demand. Even if a buyer is willing to pay a higher price for new renewable energy, a supplier usually cannot deliver it immediately and delivering it in six months to two years will not capture market share. Suppliers can only provide what is available when they enter newly-opened markets.

### **How to Use Certification to Encourage the Development of New Renewable Capacity**

There are several ways to use certification to encourage the development of new renewable capacity, while recognizing that existing renewables are still important to achieving environmental and resource diversity benefits.

- **Use existing resources as an interim measure:** Recognizing that existing renewable energy will be sold to meet demand, certification would accept the use of these resources as an interim measure while new resources are being developed. To be certified, however, the suppliers of green power must be committed to a plan to develop new capacity, and each certified program or brand must report annually its progress toward plan implementation.
- **Commit to build new plants:** A variant on the first approach is to offer a specific new resource that is not yet built. The supplier would commit to build the new plant by a certain date with the proviso that the price premium (if any) would be refunded if the commitment cannot be met. Until that date, energy is supplied by existing renewables or other non-renewable resources.
- **Establish a minimum standard for new renewables:** Certification would be reserved for electricity supply in which new renewables exceed a minimum threshold, say 50 percent. The minimum requirement for certification might even vary by region, depending on natural resource availability.

## Should Product Positioning Matter?

Product positioning is the way the electricity product is packaged and offered to consumers. Pilot programs in New Hampshire and Massachusetts provide several examples. A significant question in the certification debate is whether green power certification should encompass green marketing as well as green power. The two terms might be differentiated in the following way:

- **“Green marketing”** is an attempt to characterize the *supplier* as environmentally friendly without referring to the energy resource used to produce electricity.
- **“Green power”** is *electricity* which may be characterized as environmentally friendly by virtue of the energy resource used. Generally speaking, this resource is renewable energy.

The following examples illustrate green marketing:

- The retirement of SO<sub>2</sub> emission allowances, greenhouse gases mitigation efforts, or the development of small renewable demonstration projects, bundled with the sale of undifferentiated system power: Retiring emission allowances will improve the environment and renewable energy demonstrations advance the development of sustainable technologies, but the consumer is not purchasing green power.
- Donations to environmental organizations or causes bundled with the sale of traditional or system power: Such donations may or may not lead to environmental improvement, and no renewable energy is added.
- Financing for customer-owned renewable technologies: The financing cost is not bundled with the power supply price; it is a separate charge.
- Customer energy efficiency improvements, either bundled or unbundled with the electricity supply: If the energy efficiency measures are bundled with the supply price, they tend to be superficial and of limited value. More in-depth efficiency improvements may be marketed but are priced as separate value-added services. Energy efficiency is one of the most cost-effective ways to reduce the environmental pollution caused by electricity generation, but it does not provide green power.

Green marketing is a legitimate approach to selling products, including electricity supply. It may yield real benefits depending on how it is done, but is it sufficient to meet a green power standard? To answer this question, policymakers and energy advocates must consider carefully whether their goal is environmental improvement or the development and commercialization of renewable energy technologies. They may have different agendas but, perhaps more important, consumers who might respond to a green offer have various reasons for their interest. Because the promotion of renewable energy is called green power (or green pricing), many tend to think the only motivation for its purchase is improved environmental quality. This is undoubtedly important to many consumers, but others are motivated by a fascination with new technology for personal use (such as photovoltaics), reducing dependence on utility companies, making sure

energy resources are available for future generations, protecting themselves against electricity price fluctuations, or reducing risk and vulnerability to supply interruptions. Renewable energy, rather than environmental improvement, seems to account for more of these motivations.

One may have a preference for how green power is positioned but these concepts are still being discussed. Perhaps a hierarchical system of certification would allow for market innovation. Green marketing that provides meaningful environmental improvement might merit one star (light green), green power from existing resources (built before a certain date) could receive two stars (medium green), and green power from new resources (built since that date) could earn a three-star rating (dark green).

### **Who Certifies Green Power?**

Several organizations, such as Green Seal, Scientific Certification Systems and Eco-Rating International,<sup>22</sup> are in the business of environmental certification. Green Seal has been active in certifying various consumer household products using life-cycle environmental analysis. The organization sets standards for certification, and manufacturers pay to have their products evaluated. If the product is certified, it may use the Green Seal logo.<sup>23</sup>

Scientific Certification Systems (SCS) does not endorse a product as the best of its type or as meeting minimum standards but verifies environmental claims for products voluntarily submitted by manufacturers.<sup>24</sup> They also provide information (Eco-Profiles) about the life-cycle environmental impacts of product manufacture, use and disposal. Although they use the term “certified,” these Eco-Profiles are more like nutritional labels for informed consumer choice. SCS operates a Forest Conservation Program that recognizes the exemplary forest stewardship of landowners and forest management companies.

The Green Seal approach does not distinguish between two qualifying products that nevertheless differ in their environmental impacts. The SCS informational label is limited because not all products of the same type provide uniform information. Another approach, used by Eco-Rating International (ERI), is certification by rating on a gradient. ERI will rate products on a scale from -5 to +5. The approach is probably more complex than the yes or no decision to award a label, but provides a relative gauge for consumer decisions. ERI has been involved in rating the environmental performance of several vineyards and wineries.<sup>25</sup>

Not only private certification organizations, but the federal government as well may have a role in certification. The U.S. Environmental Protection Agency has successfully promoted market transformation

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<sup>22</sup>An excellent survey of eco-labeling is contained in “Using Eco-Labeling to Find ‘Green’ Energy Products,” *Energy Ideas 4* (Washington, DC: The Center for Study of Responsive Law’s Government Purchasing Project, Winter 1996). Contact the Government Purchasing Project at P.O. Box 19367, Washington, DC 20036; (202) 387-8030; [energyideas@essential.org](mailto:energyideas@essential.org).

<sup>23</sup>Contact Green Seal, 1730 Rhode Island Avenue, NW, Suite 1050, Washington, DC 20036-3101; (202) 331-7337 or on the Internet at <http://www.solstice.crest.org>.

<sup>24</sup>Contact Scientific Certification Systems, 1939 Harrison Street, Suite 400, Oakland, CA 94612; (619) 739-9525. A Web site is under construction.

<sup>25</sup>Contact Eco-Rating International, 115 W. California Blvd., Suite 294, Pasadena, CA 91105; (818) 792-3380.

through national marketing programs such as Green Lights, Energy Star and Green Buildings. Nevertheless, there is a risk that a government agency would have to compromise high standards to satisfy the interests of many suppliers, or would be subject to political pressure to certify a particular supplier or category of suppliers. Also, if the federal government were involved, it must clear that certification, and promotion of certified green power, is optional and not required by regulation.

Another approach is to create an organization that is dedicated to rating and certification in just one area. For example, the Wildlife Habitat Council (WHC) was formed in 1991 to encourage the development and maintenance of corporate land management plans in support of wildlife habitat.<sup>26</sup> WHC first developed consistent, stringent standards for wildlife habitat management; these have been revised each year. To qualify a site, a corporation must implement, maintain and monitor a complete, viable habitat management project for at least one year prior to seeking certification; provide adequate documentation of management efforts; receive formal evaluation by a WHC biologist; and commit to a two-year wildlife management program. Because certification is an accreditation, not an award, renewal is required every two to three years.

With 167 sites now certified, corporations have asked WHC for help in two situations:

- Initially, corporations with employee-developed and employee-run habitat programs frequently desired public recognition for their efforts.
- Corporations without a habitat program have been pressured by local environmental critics to manage their lands better as WHC has become better known.

WHC charges a fee for review of applications and a separate fee to help create a plan that meets the Council's standards. In exchange, WHC offers not only the requested service but also a recognition program. WHC requires little marketing because it serves a niche market in corporate land management.

Recognizing that there is no natural monopoly in the certification market, an umbrella organization also could be created, a kind of certifier of certifiers. An example of this type is the Forest Stewardship Council, which was established in 1993 to accredit certifying organizations worldwide. The Forest Stewardship Council bases its evaluation of a certifier's organizational competency on adherence to guidelines for certifiers, and on principles and criteria for sustainable forest management.<sup>27</sup>

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<sup>26</sup>Contact Wildlife Habitat Council, Silver Spring, MD, (301) 588-8994; or on the Internet at <http://www.wildlife.org/wildlifehc>.

<sup>27</sup>Virgilio M. Viana, Jamison Ervin, Richard Z. Donovan, Chris Elliott, and Henry Gholz, *Certification of Forest Products: Issues and Perspectives* (Washington, DC: Island Press, 1996).

## Recommendations

There are many possible permutations of these options. My preferred package for developing green power standards includes the following seven actions and principles:

**(1) Institute mandatory uniform disclosure:** State regulators and legislators should require uniform disclosure of energy resources used in generating electricity. This factual information will enable consumers to base their selection of supplier in part on their resource preferences. Speed in implementing disclosure requirements is important in states moving rapidly towards retail competition. Working out the details of disclosure, particularly substantiation of portfolio claims, also may provide technical support for the development of certification.

### RECOMMENDED ACTIONS AND PRINCIPLES FOR GREEN POWER STANDARDS

- Institute mandatory uniform disclosure
- Develop a fairly simple voluntary certification program
- Develop green certification principles
- Define green by generating resources
- Promote green power products
- Favor new resources
- Create a new, focused organization

**(2) Develop a fairly simple, voluntary certification program:** Certification is a value judgement that can be used to provide credibility in marketing and help consumers easily identify preferred power supplies. In developing a certification program, there is a fundamental trade-off between easy-to-use but potentially simplistic on the one hand, and precise and comprehensive but impractical to implement on the other. The following recommendations on implementing certification favor keeping it simple.

**(3) Develop green certification principles:** Certification advocates (who mostly will be renewables and environmental advocates) should first develop a set of principles or criteria for certification. Recommended components of these principles are discussed below. Once a satisfactory draft has been articulated, they should be proposed and promoted to a wider audience, including electricity suppliers, the renewables industries, environmental organizations and consumer groups. This process will slow adoption of the principles but is critical for widespread recognition and acceptance.

**(4) Define green by generating resources:** Power sources, not power suppliers, should be the focus of certification. Defining eligible resources or technologies will be challenging, but not as challenging as attempting to define a comprehensive standard of environmental performance for electricity suppliers. Also, generation resources are the focus for disclosure; maintaining this common link will reinforce the development of both disclosure and certification. If accumulated experience proves this approach to be inadequate, the definition of green may be broadened at a later time to include more comprehensive environmental attributes.

**(5) Promote green power products:** Marketing environmental improvement is not the same as marketing green power. Certification should emphasize the latter. Focusing on renewable energy and sustainable technologies will appeal to a broad range of consumer motivations, not just environmental improvement.

Green marketing, the characterization of a supplier's environmental orientation, could be treated as part of an overall supplier evaluation at a later stage.

**(6) Favor new resources:** Preference in certification should be given to new resources and supplier commitments to develop new capacity, while recognizing that new renewable capacity is in short supply. This will support continued progress in the commercialization and competitiveness of environmentally-preferred generation technologies. Existing green resources likely will be part of a portfolio receiving certification but should not constitute the entire portfolio.

**(7) Create a new, focused organization:** A new non-profit organization should be established that is dedicated to the development, implementation and advancement of green power certification. The proposed new organization, the National Renewable Energy Consumers Council, would first certify early green power products offered in emerging competitive markets. Electricity suppliers wishing to have their green brands certified would pay for the necessary evaluation and for the use of a logo and other marketing support services.

This organization, however, should not have a monopoly on certification services. Existing certification companies and other new entities will probably emerge in the electric power field. The organization's purpose therefore may quickly evolve to provide accreditation of national and regional certifiers, and to create national standards which could accommodate regional variations. It would have the following four functions: (1) accredit certifiers (reviewed and renewed biannually); (2) offer quality control in adherence to green power certification principles; (3) revise and update these certification principles as necessary; and (4) provide a forum for green power certification issues.

## Conclusion

Research is needed to demonstrate the technical, legal and contractual methods to substantiate energy resources used in electricity sold, both for disclosure and certification. A few case studies would be helpful. In-depth study of other industry certification processes—such as those for certified or rated forest products, vineyards, wildlife habitat management and consumer products—also would extract lessons applicable to electricity sales. Note that although a new, dedicated certification organization is recommended, existing organizations with experience in environmental certification, rating or verification should be invited to make presentations to certification working groups. Certification advocates should learn more about these organizations and their perceptions of green power issues before proceeding too far. Finally, several states appear poised to develop certification experiments simultaneous with regional and national organizing efforts. Indeed, California legislation has created a *de facto* certification category defined by a minimum of 50 percent of renewable energy in an electricity supplier's portfolio. State and regional experiences and activities should be shared, if not coordinated.

Disclosure of basic information about retail power products and certification of environmentally-preferred resources and technologies will increase the efficiency of retail electricity markets and protect against green scams and green washing. Both measures are needed to reduce consumer confusion in a complex and unfamiliar market.

**NARUC Convention Resolution No. 17:**  
**Resolution in Support of Customer “Right-to-Know” and Product Labeling Standards for the  
Retail Marketing of Electricity**

WHEREAS, At least 30 million consumers in six States will begin choosing among competitive electricity providers in early 1998 and retail access to competing electricity suppliers is under consideration in many other states; and

WHEREAS, Electricity purchases make up a significant portion of the budget of many households; and

WHEREAS, The production of electricity imposes very substantial resource and environmental impacts; and

WHEREAS, Pilot retail access programs have shown that customer confusion and misleading claims are highly likely; and

WHEREAS, Clear and uniform disclosure may promote efficiency through informed product comparisons; and informed customer choice cannot occur in a retail electricity market without full disclosure of all relevant and important facts; and

WHEREAS, The desirability and feasibility of such disclosure is clearly established in nutrition labeling, uniform food pricing, truth-in-lending, and many other federal consumer protection programs; and

WHEREAS, The National Association of Regulatory Utility Commissioners (NARUC), at its November 1994 meeting, adopted a resolution on competition and stranded benefits calling for new proposals to preserve environmental and diversity benefits in a more competitive marketplace; and

WHEREAS, The NARUC, at its July 1996 meeting, adopted principles to guide the restructuring of the electric utility industry which include market-based mechanisms to promote effective consumer choice and to preserve renewable resources, resource diversity, and environmental protection; now, therefore, be it

RESOLVED, That the National Association of Regulatory Utility Commissioners (NARUC), convened at its 108th Annual Convention in San Francisco, California believes that restructuring the electric industry should facilitate informed customer choice that will promote efficient markets, resource diversity, and environmental quality; and be it further

RESOLVED, That the NARUC supports initiatives leading to minimum, enforceable, uniform standards for the form and content of disclosure and labeling that would allow retail and wholesale customers to easily compare price, price variability, resource mix, and environmental characteristics of their electricity purchases; and be it further

RESOLVED, That NARUC urges states adopting retail direct access programs to include enforceable standards of disclosure and labeling that would allow retail customers easily to compare the price, price variability, resource mix, and environmental characteristics of their electricity purchases.

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## Issue Brief Abstracts

### **“The Environmental Imperative: A Driving Force in the Development and Deployment of Renewable Energy Technologies,” Irving Mintzer, Alan Miller, and Adam Serchuk, Issue Brief 1, April 1996**

Energy technologies drawing on renewable energy avoid the severe environmental impacts of the fossil fuel cycle. An energy market that considers the total cost to society of our energy choices would greatly encourage the deployment of renewable energy technologies. This paper outlines the environmental imperative of accelerating the exploitation of renewable resources. In particular, the authors argue that well-designed energy policies, such as those promoting renewable energy, would help prevent serious environmental degradation.

### **“Net Metering: New Opportunities for Home Power,” Thomas J. Starrs, Issue Brief 2, September 1996**

Growing numbers of American homeowners seek to lower their monthly electricity bills and soften the environmental impact of their energy use by installing photovoltaic panels, solar water heaters, and small wind and water turbines. Net metering, a technique for calculating the household’s resulting electric bill, can boost the financial appeal of renewable energy technologies. Although net metering may slightly reduce utility revenues, utilities and policymakers can cap the amount of net metering that utilities allow. A well-chosen cap will minimize the financial loss to the utility while stimulating substantial growth in renewable energy use. Net metering also can produce appreciable non-revenue advantages for utilities while protecting the environment and benefitting consumers.

### **“Energy and the Environment: The Public View,” Barbara C. Farhar, Issue Brief 3, October 1996**

In surveys over the past eighteen years, majorities of the public have chosen renewable energy and energy efficiency over other energy alternatives -- a finding important to local, state and federal legislators; utility companies and regulators; environmental organizations; and the renewables and efficiency industries. In her synthesis of data from more than 700 polls, the author found evidence that the public wants policymakers to support a national agenda of sustainable developments, and it wants energy efficiency and renewable energies to comprise increasingly large portions of the nation’s energy mix. The poll data point to opportunities for industry to develop products and services, and for government to create programs and policies, that appeal to the public.

### **“Wind Clusters: Expanding the Market Appeal of Wind Energy Systems,” John R. Dunlop, Issue Brief 4, November 1996**

Over the past two decades, Americans have harvested wind energy through windfarms -- large arrays of turbines operating as a single powerplant. By contrast, European wind development has featured small clusters of one to five turbines owned and operated by local residents. In the gusty Great Plains, site of an emerging windpower boom, the European model has sparked enthusiasm among developers and residents alike. Wind clusters involve communities in their own energy development, bolster local economies, reduce problematic visual impacts, and create relatively little strain on transmission and distribution systems.

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## Forthcoming Papers: 1997

### Draft Papers (available in coming months)

- Human Health Impacts of Energy-Related Air Pollution** by Curtis Moore summarizes the human health effects of six common air pollutants, reviews EPA's recent proposal for new air pollution standards, and discusses the potential of renewable energy technologies to reduce or eliminate air pollution.
- A Review of *Renewing Our Energy Future*** by Sam Baldwin summarizes the market-policy interactions for various renewable energy technologies based on the 1995 report from the Office of Technology Assessment, *Renewing Our Energy Future*.
- Clean Transportation: A Market Opportunity for Renewable Energy** by Jim Cannon explains the environmental and strategic rationale for increasing the profile of renewable energy/hydrogen vehicles in sustainable transportation policy.
- Commercial Participation in Green Pricing Programs** by Ed Holt discusses the motives of small commercial participants in Traverse City's green pricing program and is based on original research funded by REPP.
- The Natural Gas Bridge to a Renewable Energy Future** by Adam Serchuk and Bob Means analyzes the long-term strategic relationship between gas and renewables.

### Papers in Progress

- Langdon Crane** analyzes clean energy programs run by the Sacramento Municipal Utility District.
- Keith Kozloff** discusses deregulation and other policy issues affecting overseas markets for renewables.
- Alan Miller** considers how deregulation may alter the level and nature of renewable energy research and development.
- Irving Mintzer** explains the business opportunities for clean energy created by ongoing climate negotiations.
- Michael Tennis** describes the effort by a rural generation and transmission cooperative to market windpower to their distribution co-op customers. This paper is based on original research funded by REPP.

### Papers Under Negotiation

- How to present energy information so that consumers can make environmentally-sound buying decisions
- Role of government policy in the development of small-scale, rural PV projects in developing countries
- Policy strategies to promote renewable energy projects on Native American lands
- A market entry plan for renewable energy in a deregulated electric system offering retail choice, focussing on the small commercial consumer
- How government procurement at all levels can be used more effectively to promote renewable energy technologies
- How local, state and federal policies can open and structure markets for active and passive renewable energy technologies in residential and commercial buildings
- How tax policy can support renewables
- Analysis of methodologies calculating the effect of renewable energy development on employment

**Researchers interested in addressing these or similar topics are encouraged to contact REPP's Research Coordinator, Adam Serchuk, at (301) 405-4191, or [aserchuk@bss2.umd.edu](mailto:aserchuk@bss2.umd.edu)**