

RENEWABLE ENERGY IN COMPETITIVE ELECTRICITY MARKETS

ALAN MILLER and ADAM SERCHUK

Renewable Energy Policy Project
7100 Baltimore Ave., Ste. 401, College Park, MD 20740, U.S.A.

To be presented at the

WORLD RENEWABLE ENERGY CONGRESS in DENVER, JUNE 1996

and published in

A.A.M. Sayigh (ed.), *Energy, Efficiency and the Environment* (Oxford: Elsevier Press, Ltd., 1996).

ABSTRACT

A restructured electricity system may undervalue renewable energy. We remain wary of unregulated markets, but urge the renewable energy community to begin considering how they could adapt to increasing customer choice.

KEYWORDS

Renewable energy; restructuring; electric utility industry

INCREASINGLY COMPETITIVE POWER MARKETS

The Public Utility Regulatory Policies Act of 1978 launched an experiment in introducing competition to the American electric system. The legislation encouraged entrepreneurs to sell power to utilities. Recent state and federal proposals would curtail utilities' monopoly status more severely by allowing businesses and potentially even households to designate an electricity supplier, much as they now select a long-distance telephone carrier.

Large industrial firms applaud these proposals, which would permit them to contract directly with nearby energy entrepreneurs or distant utilities, bypassing their local power company (Schriefer, 1995). In a politically deft move, they have christened their aim "consumer choice." Skeptics argue that to be meaningful for small customers, choice might require (at least) market aggregation mechanisms, more informative billing, and access to better information about how different appliances and building technologies use energy. To allow customers to choose environmentally sound energy, a restructured system would also have to discard conventional economic dispatch protocols.

We are as yet unconvinced that an electric system leaving energy decisions to the market -- retail choice -- could maximize social welfare. The renewable energy community therefore faces a difficult challenge. It must seize the opportunities identified in restructuring proposals while insisting on a continued role for public policy in advancing environmental and social goals. Furthermore, it must develop these positions in ways that emphasize the larger societal interests at stake and avoid casting advocacy for renewables as special interest pleading.

A CAUSE FOR CONCERN?

Many state public utility commissions now require utilities to select generating resources through integrated resource planning (IRP), a process that evaluates the total social cost¹ of each option. Renewable energy advocates fear that restructuring the electric system would supplant IRP with a market operating strictly on the basis of short-term price to the purchaser. They contend that an unregulated market would ignore the many advantages of renewable energy that are difficult to quantify, yet surely not zero -- for example, renewable energy does not depend on scarce or politically costly fuels, does not risk catastrophic malfunction, and has comparatively little effect on global climate.

Other advocates fret that the greater risk associated with unregulated, competitive markets would deter investment in emerging renewable technology. They suggest that energy research would focus on short-term attempts to accumulate market share, disregarding technologies such as photovoltaics and hydrogen systems that have greater long-term potential to minimize social costs. Finally, supporters of renewables note that restructuring would cleave utilities into generation, transmission and distribution firms. This might hinder accurate evaluation of renewables, which developers can install near where customers use electricity, deferring construction of new power lines. Unfortunately, in evaluating generating options, generation companies would presumably ignore qualities of value to transmission firms.

Of course, a restructured electric system need not be completely unregulated. For example, American stock markets benefit from regulation by the Securities and Exchange Commission, to the apparent satisfaction of listed

¹The total social costs of energy choices include capital and fuel costs, political and military commitment to maintaining access to fuel, current and future environmental degradation, health and insurance costs due to pollution, risk of catastrophic malfunction, labor impacts, etc. Since conventional markets value few of these consequences directly, about half of the state regulatory commissions consider some form of externality values to reflect more accurately the differences in energy options. See Hohmeyer and Ottinger, 1994.

companies and millions of investors. Telephone deregulation also retained limited social policies through small enjoy immense political clout, leading renewable energy advocates to fear that a restructured electric system would reflect corporate goals alone.

Renewable energy advocates promote at least three distinct policy responses to retail choice. None are mutually exclusive or inconsistent with other government subsidies or policy support for renewables. The Natural

universal systems benefits charge of under 5% on all sales of electricity in an unregulated system. NRDC

energy capacity at the lowest price (Lamarre, 1995). The charge would also fund public goods such as energy-efficiency programs and low-income assistance.

retail electric service suppliers in a restructured environment to a *renewables portfolio standard* (May 1995). State commissions would mandate acceptable levels of renewable energy. To meet their share of that obligation, electricity suppliers could build their own renewable energy facilities or buy "renewable form of environmental trading to reduce emissions of sulphur dioxide from coal-burning power plants (Bailey, 1995).²

The third policy response to proposals of retail choice is *green pricing*, associated most notably with David Moskowitz of the Regulatory Assistance Project (and formerly a Maine utility commissioner). Moskowitz notes customers may wish to give additional support to renewables. Green pricing schemes allow these people to pay a voluntary premium on their electric bills to purchase renewable energy beyond what utilities and regulators

EXHORTATION IS NOT PUBLIC POLICY

Green pricing is attractive insofar as it offers the opportunity to capitalize on surveys indicating a strong day in assigning responsibility for "non-economic" investment in renewable energy to those customers who find it

²SO₂

worthwhile. To its fans (who, not surprisingly, include utilities), green pricing symbolizes individual freedom, economic efficiency and the capacity of consumption to cure society's ills. However, we are skeptical that green pricing, *as a primary policy instrument*, can produce a sustainable energy future. First, even if moral suasion induces some individuals to purchase environmentally sound products, it will have less impact on industrial, commercial and other non-household users of power -- who buy 71% of the national total. Indeed, legal obligations to increase shareholder value may prohibit firms from considering non-economic criteria in their operational decisions. Of course, some companies aspire to be good corporate citizens. Many more enlist consumer support by trumpeting their modest efforts at environmental conscientiousness. But we remain skeptical about public policy that relies on boardroom epiphanies.

More troubling, while Moskovitz describes green pricing as an *overlay* to a robust IRP process, we fear that green pricing may become a *substitute* for IRP and other forms of utility support for renewables. For example, the Wisconsin Public Service Commission's recently proposed restructuring plan recommends using green pricing alone to encourage renewable energy (Wisconsin..., 1995). Because people sometimes make better decisions as citizens than they do as consumers, we fear replacing a vigorous public policy process for managing the electric system -- *i.e.*, IRP -- with individual customer choice.

THE DANGER OF RESISTING CUSTOMER CHOICE

Unfortunately, we suspect that implacable resistance to retail choice could severely damage the renewable energy community, while failing to slow the trend toward less regulated markets. Many Americans view renewable energy positively, attributing its diminutive market share to opposition from small-minded skeptics or entrenched special interests. Frequently, even those who oppose renewable energy projects pay the concept lip-service as a savior due to arrive sometime in the future. The renewable energy community would suffer grievously should the public come to regard it as another pressure group with a stake in business as usual.³

For decades, the renewable energy community has invested its scant resources in acquiring influence over policy-making processes. But to succeed in an era of customer choice, renewable energy would require a radically different infrastructure. Market success would depend on the ability of advocates to reach consumers, rather than their elected or appointed proxies. For example, renewable energy advocates might have to familiarize the public with climate science. If Americans come to believe that they have received "choice" *despite* the efforts of environmentalists, renewable energy may never recover.

³Some analysts already argue that environmentalists have "captured the regulatory process" and therefore "depend critically on the continuation of the institution of regulated monopoly." See Joskow, 1995.

SHOULD WE ACTIVELY ENCOURAGE CHOICE?

Apart from the danger to renewable energy of losing its progressive aura by resisting change, we see at two reasons to consider embracing change. First, we doubt whether the conventional regulatory framework has aided the renewable energy community so much that we should defend it unthinkingly. Today, renewable resources other than hydropower supply a scant 0.3% of utility electricity. Given polls indicating strong consumer support for renewable energy, the niche market available in even the crudest customer choice scenario might be much larger.

Second, some advocates, again citing surveys, suggest that renewable energy might burgeon *if* deregulation raises consumers' awareness about the source of their electricity. They reason that electricity retailers in a restructured market would find themselves trying to sell a product with few attributes capable of differentiation. The telecommunication industry provides a useful comparison here. In the case of both power and telephone service, American consumers expect practically complete reliability, eliminating one avenue of possible brand differentiation. Electric suppliers might tout voltage stability, especially to industrial users, just as some telephone providers market the high quality of their sound. But here again, Americans might exhibit little tolerance for performance considered substandard. Most differentiation of telecommunication brands exists in the customer interface -- billing format, discounts, etc. But electricity distribution utilities probably will remain monopoly franchises, perhaps eliminating this avenue of brand differentiation as well.

However, electric power offers an ideal opportunity for distinguishing consumer options: the direct environmental effect of product consumption. Many consumers feel an intuitive appreciation for the concept of environmental soundness, and they demonstrate an increasing willingness to pay for it. The advantage of a popular environmental brand to which customers felt a moral attachment might engender a corporate commitment to renewable energy unknown in the conventional regulatory milieu.

Will marketing opportunity suffice to produce a sustainable energy regime? Perhaps not. Customers will not buy products for their "greenness" alone, as demonstrated by the declining market share of small, fuel-efficient cars, perceived by many consumers as "unsexy" and no fun to drive. Even identifying the most environmentally suitable energy option for a given region can prove complicated (Thomas, 1996). And while some renewable energy firms support consumer choice, reasoning that winning even a tiny fraction of the national power market would enrich them terrifically, this ambitious business goal may be lamentably modest from an environmental point of view.

More important, public policy is often required to chivy recalcitrant companies toward ultimately profitable shifts in long-term marketing strategy. Early utilities disdained to serve rural America, until the Tennessee Valley Authority revealed huge latent demand for electricity, and until federally sponsored cooperatives emerged as potential competitors to utilities. Likewise, automobile safety features today constitute a profitable marketing tool for manufacturers who turned their attention to safety only when compelled by federal standards. Policy

mechanisms such as portfolio standards or universal charges may be necessary to build momentum toward a free-standing market for renewable energy.

In sum, we have serious reservations about the environmental sustainability of an unregulated energy market. Reliance on some form of green pricing seems unlikely to achieve sustainability. Policy mechanisms such as portfolio standards and system benefits charges are in some ways more promising but, since they rely on the battered conventional regulatory framework, they may erode public favor for renewable energy. While we fear the consequences of replacing well-made policy with moral suasion, we suggest that renewable energy advocates begin to think about meaningful customer choice: How might renewable energy thrive in an unregulated retail electricity market? Would the available niche be large enough to support the renewables industry? And would it be environmentally sufficient?

REFERENCES

- Bailey, J. (1995). Electric utilities are overcomplying with Clean Air Act. *Wall Street Journal* (November 15), B-8.
- California proposals support renewables portfolio standard (1995). *Wind Energy Weekly*, 14 (May 29), 1-2.
- Farhar, B.C. (1995). Trends in US public perceptions and preferences on energy and environmental policy. *Annual Review of Energy and the Environment*, 20, 28-32.
- Hohmeyer, O. and R.L. Ottinger, eds. (1994). *Social Costs of Energy: Present Status and Future Trends*. Springer-Verlag, Berlin.
- Joskow, P.L. (1995). Utility-subsidized energy-efficiency programs. *Annual Review of Energy and the Environment*, 20, 533.
- Lamarre, L. (1995). Renewables in a competitive world. *EPRI Journal*, 20 (November/December), 25.
- Moskovitz, D. (1993). Green pricing: Why not customer choice? *Electricity Journal*, 6 (October), 42-49.
- Schriefer, J. (1996). More flexible power rates, more choice in suppliers. *New Steel*, 12 (January), 22-29.
- Thomas, E. (1996). The myth of a single, 'green' power resource. *Natural Resources and Environment*, 10 (Winter), 65-80.

Wisconsin regulators approve timeline for restructuring (1995). *Wind Energy Weekly*, 14 (December 25), 3-4.

NOTE: The authors wish to thank Richard F. Hirsh and Frank G. Muller for reviewing drafts of this paper.