Blowin' in the Wind: Renewable Energy Mandates, Electric Rates, and Environmental Quality

Jonathan A. Lesser

Government mandates supporting renewable energy have become de rigueur among state energy regulators these days. After all, in renewable energy lies mankind's salvation from pollution, nuclear proliferation, and global climate change. At least, that is what renewable energy proponents, including developers and others that stand to make a lot of money in the renewables market, would have us believe.

In the abstract, of course, renewable energy is attractive. If we could meet all our electric needs directly from wind and sun (as opposed to indirectly through fossil fuels) and cheaply store that energy at next to nothing in cost, who would not be in favor of such a bargain? The truth is that renewable energy is not all that cheap compared to its fossil fuel brethren—hence, all the mandates. Some proponents of renewables argue that renewable energy really *is* cheaper than fossil fuels and that only market barriers raised like castle drawbridges by fossil fuel proponents prevent a complete renewables coup. Such "market barriers" arguments ring hollow, because their advocates consistently fail to demonstrate they understand what market barriers are.

Jonathan Lesser, PhD, is a partner with Bates White, LLC, an economic and litigation consulting firm in Washington DC. He can be reached at (202) 747-5972, or via e-mail at jonathan.lesser@bateswhite.com.

Our array of policies on renewables includes the increasingly popular renewable portfolio standards (RPSs), which dictate that minimum requirements of total electric use be met with different types of renewable resources. Less common in the United States, but favored in Europe, are feed-in tariffs (FITs), which provide renewable developers with guaranteed long-term price streams. Last but not least, we have the renewables equivalent of emissions allowances: "green tags" that can be bought and sold in established markets.

Twenty-three states and the District of Columbia have adopted mandatory RPS policies, specifying a target percentage of megawatt capacity of renewable energy out of total capacity requirements. Four states have set voluntary goals of adopting renewable energy instead of RPSs with binding targets—a valiant effort at achieving energy independence, reducing greenhouse gas emissions, and combating global warming. Unfortunately, the economic naïveté of policymakers in these states may cause taxpayers to pay much more than they might otherwise to achieve these objectives, which have been implicitly assumed, but not proven, to make economic sense in the first place.

FREE TRADE OR FOUL

The largest problem with renewable energy mandates is that they are larded with self-interest and contradictions. One might think that "renewable energy" is an easily defined term. Not hardly. In some states, hydroelectric generation is considered renewable, but only if produced by small (less than 80-megawatt), run-of-river projects.[1] No large storage dams need apply, even though such

  / DOI 10.1002/gas

dams, by allowing power to be generated when it is most needed, are far more valuable. Other states include burning garbage as a renewable resource. Of course, states downwind from the garbage burners may not agree, especially if the garbage includes old tires. [Nevertheless, these emissions are harmless, according to Chrostowski's article in this issue.—*Ed.*] Still other states include waste coal on their renewable resource list. All states adore wind and solar, even those where a sunny day might as well be an oxymoron.

From a developer's standpoint, one state's renewable manna may be another's pillar of salt. Disjointed definitions of what are and are not renewable resources lead to higher costs, because a developer who finds an ideal spot for building new renewable generation, such as the flat expanses of the Midwest for wind turbines, may not be able to sell its generation elsewhere. Moreover, individual states' self-interest is often reflected in policies that prevent imported renewable energy from "counting" toward a mandated, in-state RPS. Thus, for reasons that stem from economic ignorance to naked self-interest and political expediency, established economic concepts such as "trade" and "comparative advantage" have not penetrated the legislative consciousness in many states. As a result, despite promises of cleaner air, fewer greenhouse gases (more polar bears), and more jobs, many states' renewable policies are creating one group that is bearing the brunt of the excess costs: consumers, who pay higher than necessary electric rates as a consequence.

A developer who finds an ideal spot for building new renewable generation, such as the flat expanses of the Midwest for wind turbines, may not be able to sell its generation elsewhere.

Renewable energy sources are not uniformly distributed across states. Electric utilities or wholesale electric suppliers located in states with comparatively poor renewable energy resources are, therefore, forced to build minimum quantities of renewable generation; this needlessly raises costs. Legislative attempts to pick renewable industry "winners" by creating head-scratching definitions of "renewable," mandating unrealistic percentages of different types of resources, and preventing trade among states, are no different than the folly of nations raising artificial barriers to trade. A few are economic "winners," whose gains are paid for by a far larger majority of losers, as all previous attempts by governments to pick industrial "winners" and "losers" (think U.S. Synfuels) have painfully demonstrated.

RENEWABLES AND THE ENVIRONMENT: HONESTY AT TWICE THE PRICE

Given that many state's renewable policies are needlessly expensive, to be fair, perhaps we should examine if those excess costs are justified by the environmental benefits that renewable energy provides. If, for example, RPS mandates are a least-cost approach to reducing greenhouse gas emissions or eliminating our dependence on imported oil, then they might be justified on environmental and energy independence grounds. Alas, the evidence in support of this idea is not compelling.

There is widespread agreement among economists, and even some environmentalists, that market-based policies are the most cost-effective approaches to meeting environmental goals. The development of tradable emissions allowances under the Clean Air Act Amendments has led to reductions in overall emissions of sulfur dioxide (SO_2) and oxides of nitrogen (NO_x) at a far lower cost than could be achieved under the previous "command-and-control" approaches. Similarly, combinations of taxes and tradable greenhouse gas emissions permits are generally recognized as the least-cost approach to reducing those emissions.[2]

In developing RPS policies, many states appear to have succumbed to the urge to "do something," even before determining whether that "something" will provide any measurable benefits. A few basic economic questions, none of which policymakers appear eager to ask, nevertheless seem reasonable.

Where Does That RPS Come From?

In most cases, it seems that states (and some countries) have adopted "Mine is bigger than yours" RPS mandates. There is little apparent thought given to the costs, or even technical feasibility, of those mandates. Nevertheless, setting ridiculous RPS goals, only to move the goalposts in a few years when it becomes obvious the original

 DOI 10.1002/gas

mandates will not be achieved, serves only to exacerbate regulatory uncertainty and needlessly raise costs. Perhaps it would be useful to examine RPS mandates from an economic (and technological) basis. For example, one key issue with wind power, which because of its relatively low cost remains today's renewable of choice, is the ability to interconnect massive slugs of wind capacity without destabilizing existing transmission systems.

What Is the Real Cost of Subsidies?

Have policymakers applied any sort of cost-benefit analysis framework to compare the estimated cost of electricity (or market price in states/countries with restructured industries) with the value of the environmental benefits provided by renewables?

Will different RPS standards affect the cost of renewable generation itself? Specifically, by mandating huge increases in the supply of renewable generation, policymakers can increase the cost of that generation. Moreover, inefficient producers can thrive in a subsidized market when that inefficiency is paid for by electric consumers and taxpayers.

Still other, more indirect, subsidies lurk. With the exception of geothermal and biomass, other types of renewable generation cannot provide high-value, round-the-clock electricity. Solar generation is obviously diurnal but is also affected by a variety of atmospheric conditions. Run-of-the-river hydroelectric, besides being almost impossible to site, is seasonal. With wind energy's relatively low capital cost, wind energy is perhaps the worst of all from this respect. It is highly variable and tends not to be available when it is most needed. As a result, solar and wind generation require backup generation to "firm" their output. That backup generation comes at a cost and is paid for by consumers.

Will RPS Give Us Energy Independence?

Energy independence is one of those "apple pie" policy goals that have been flogged ever since President Carter started wearing cardigan sweaters and telling everyone to turn down their thermostats. It was a silly idea then and remains so today. However, that has not stopped more policymakers from promoting it. In fact, earlier this year legislators in Maryland introduced legislation to promote "energy independence" by requiring all electric generation to be produced within that state. No word on whether those legislators will mandate drilling oil and gas wells in the Chesapeake Bay. Not to be outdone, Pennsylvania legislators are planning to introduce their own energy independence legislation this fall.

While one can make an argument about the benefits of using economic pressure to crimp the mischief-making opportunities of today's crop of thugs and caudillos in oil-exporting countries, barring technological miracles, renewable energy is not likely to become "too cheap to meter" in the foreseeable future. RPS mandates will do little, if anything, to decrease crude energy imports. In fact, overly ambitious RPS mandates will encourage greater fossil fuel use: high-priced renewable generation will raise electricity prices and increase the direct demand for fossil fuels. For example, there is much ado about plug-in hybrids and fully electric cars. As electricity prices increase, the economic benefits of those cars decline.

IS THERE ANY ROOM FOR REALISM?

Renewable energy clearly can provide some benefits. However, it has been oversold as a world-redeeming panacea. Policymakers who continue to create RPS mandates that are devoid of realism are not doing their constituents any favors. Instead, they are needlessly raising costs for all of us, while providing little, if any, of renewable energy's promised benefits. A bit more economic rigor could go a long way not only in evaluating the costs and benefits of renewables but also in determining the least-cost approaches to achieving "noneconomic" goals, which, contrary to the beliefs of some, neither economics nor economists disdain.

NOTES

1. The 80-megawatt figure is derived from the Public Utility Regulatory Policy Act of 1978 (PURPA). PURPA created a set of independent, nonutility-owned generators called qualifying facilities (QFs). QFs were required to provide electricity from nontraditional sources and their generating capacity was required to be 80 megawatts or less.
2. In several previous columns, I addressed whether such policies provide any real benefits in terms of stemming climate change relative to policies that focus on adapting to climate change. See (2007, August). No leg to stand on. *Natural Gas & Electricity,* pp. 28–31; Goldilocks chills out. (2007, July). *Natural Gas & Electricity,* pp. 26–28; and (2007, April). Goldilocks and the three climates. *Natural Gas & Electricity,* pp. 22–24.

  / DOI 10.1002/gas