IssuesLetter

Electric Industry Restructuring and the Environment

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When asked about environmental issues, many utility regulators wonder "Why ask us? We do economic regulation." In truth, regulators make environmental decisions all the time. The more pertinent question to raise is: Are regulators aware of the environmental decisions they make? Would those decisions change if the environmental consequences were known? (The flip side is also true. Environmental regulators make decisions that affect utility economics, and no utility regulator would urge their environmental counterpart to stay ignorant of the economic implications of their decisions.) The good news is that there is less conflict between the environment and economy than is often assumed. Good economic decisions generally yield good environmental outcomes.

Regulatory and Restructuring Decisions Have Environmental Implications

Most regulatory and restructuring issues do not carry an obvious "caution environmental hazard" sign on their face. But the list of issues that have significant environmental effects is long. This Issuesletter examines the economic/environmental connections by using three examples--default service pricing, stranded cost policies and the pricing of distribution services. In each case, the same basic lesson emerges. Good environmental and economic outcomes often go hand in hand.

Unfortunately, with the advent of competition, many of the better (most economic) environmental initiatives, such as funding for cost-effective energy efficiency and development of renewable resources have suffered. Spending for efficiency has dropped by half, even though it remains the cheapest source of new power.

The Environmental Footprint of the Electric Industry is Very Large

Dollar for dollar no industry has a larger environmental footprint than the electric utility industry. While the industry accounts for only 2.5 percent of the nation's GNP, it is the source of 67 percent of the country's SOx emissions, 28 percent of the NOx emissions, 36 percent of carbon emissions and 33 percent of the mercury emissions. Electricity production is also the country's major source of fine particulates, a pollutant which the USEPA reports is responsible for 60,000 deaths a year from respiratory failure.

Air Pollution from Fossil Electric Generators	
Pollutants	**Health & Environmental Harm**
67% of US SOx	• Acid Rain • Fine Particules - Death & Illness • Regional Haze & Pollution in Parks
28% of US NOx	• Acid Rain • Fine pParticles - Death & Illness • Regional Haze & Pollution in Parks • SMOG - Asthma & Respiratory Disease, vegetation damage • Over fertilization of estuaries
26% of US CO2	• Climate Change
33% of US Mercury	• Fish Contamination • 39 States with Fish Consumption Warnings • Poisoning of Wildlife

Not only do these large environmental impacts distinguish electricity from all other utilities regulated by the states, but also the cost of the health, property and ecosystem damage is not reflected in the price of electricity service. The damage is real, but the costs are external to the prices customers pay for electricity.

Utility Regulators Have Broad Public Interest and Public Policy Roles

A closer look at common regulatory activities reveals that the distinction between economics and other public interest issues is not quite so sharp as some might suggest.

In routine, non-rate setting activities of most commissions, regulators frequently assess the environmental implications of their decisions, at least when they are aware of them. For example, most commissions consider fuel risk, diversity and environmental issues when making siting decisions, in Certificate of Need cases involving the construction of new power plants and in system planning (IRP) proceedings. Some commissions have specific statutory obligations to consider the environmental impacts of their decisions, but more frequently this "taking into account" is based upon utility regulators' general statutory obligation to act in the public interest.

Because electric restructuring rewrites the ground rules for the electric industry in a profound and unprecedented way, regulators have reason to take a broad a view when considering possible alternative policy approaches. The very fact that the electric industry has such a large footprint should prompt policymakers to consider carefully environmental impacts when inventing new rules. As a first principle and at a minimum, regulators ought to make sure their restructuring decisions do not result in harm to the environment.

One step that can be very informative is to consult directly with state environmental regulators on the implications of restructuring options. Environmental regulators can detail the air impacts of state and regional power plants. In turn, they are often eager to understand how restructuring will affect the operation of the plants they regulate. Because such consultations do not occur as a matter of course in most states, commissions would be well advised to seek out and establish an ongoing dialog with their environmental regulators around restructuring issues. These conversations are likely to reveal that the best decisions for the environment are often the best economic decisions as well.

Regulatory decisions with environmental implications include:	
Default Service Pricing	Low default prices mean few shoppers and few green shoppers, few green retailers
Stranded Cost Recovery	Including future costs subsidizes inefficient plants
Distribution Pricing	Average pricing discourages energy efficiency
Rate Design	High fixed charges, low variable charges discourage energy efficiency
PBR	Rate caps, as opposed to revenue caps, discourage energy efficiency
Line Extensions	Subsidized prices discourage off grid options
Consumer Protection, Disclosure, and Education	Labeling, disclosure and consumer education make for informed consumers and larger green markets
Net Metering	Absence increases transaction costs and discourages use of very small renewables
Distribution Planning	Needed to assure consideration of cost-effective distributed resources
Interconnections	Lack of standard requirements discourages distributed resources
Siting	Siting requirements affect fuel and technology choice
Green Pricing	Provides captive monopoly customers access to green options
Merger and/or Asset Sales	Can create market power and keep older plants from facing serious competition
Public Funding	Vital to delivery of energy efficiency and renewables. How the money is spent matters
IRP	Needed more than ever in states without retail competition
Transmission Pricing, Access and Priority	May ignore the special characteristics of renewables and small facilities
Pool Rules	Bidding rules may ignore the special characteristics of renewables, small facilities and energy efficiency

Default Service, Market Development and Green Markets

In states that adopt retail competition, regulators set prices for electric service for customers who do not choose their own provider, or who default from a competitive provider. This type of service is sometimes called provider of last resort, standard service, basic service or just default service. This plainly "economic" decision is critical to the viability of a competitive retail market and misguided pricing decisions can be particularly devastating to the development of a green resources--or any other retail services--market.

As discussed in an earlier RAP Issuesletter (Pricing Default Service, January 1999), the first states to establish retail competition have, with the exception of Pennsylvania, set the price for service to non-choosers too low--at or near wholesale levels. Default service will always be cheaper to provide than competitive service because competitive providers incur customer acquisition costs that default providers do not incur. Retail electricity products will necessarily be more expensive than a default service set at wholesale market prices. Customers are not likely to leave default service and make a competitive choice when the default service is cheaper than the service of any other competitor.

The price disparity for sellers of green resources are often higher than those faced by other sellers of generation resources. This occurs not because green marketing costs are higher but because green generation costs are generally more expensive than dirtier fuel mixes. If regulators set the default price below a reasonable retail price level, customers who want green power face an even larger price premium than would occur if the green option was compared against the average retail market price.

Massachusetts is an excellent example as to why it is important to set the rate for default service at retail market levels. The result of setting the standard offer rates below retail levels has meant that there are no retail power providers in the state. A similar story has emerged in California where setting a default service price at the wholesale market price has greatly limited the number of retail sellers. Pricing retail default service at the average retail price in competitive retail markets will create a fair, competitive playing field and will allow green providers to compete successfully.

Moral of the story: Set default prices right and you get a good environmental (and competitive) outcome. Set them wrong and the environment (and competition) suffers.

Defining and Collecting Stranded Cost

There are two aspects of stranded cost determinations that have environmental ramifications. The first relates to how regulators define stranded cost. In theory, stranded costs are sunk costs that are unavoidable and as such have a bearing on going forward decisions. Stranded cost should, therefore, have no effect on utility decisions that impact the environment, such as decisions to run, retrofit, repower or retire plants. In practice, however, regulators in more than a handful of cases have defined stranded cost to include future costs. Such "economic decisions" are plainly uneconomic and may have a significant environmental impact. Regulators should make environmental decisions on an

economic basis and not assume the outcomes without testing them against the market. For example, requiring new scrubbers on coal plants and adding these costs into stranded cost recovery uses captive, distribution customers to subsidize a coal plant which otherwise may have lost out to more economic and cleaner sources of power.

Some states allow future capital and operating costs of existing nuclear plants to be collected as if they were already stranded. This has the effect of keeping these plants running longer than they otherwise would. One regulatory rational for this subsidized operation of nuclear plants has been that the plants provide environmental benefits. This rational subsidizes nuclear plants without comparing the environmental benefits of other alternatives. The right way to subsidize environmental benefits would be to have all resources compete to provide the sought after emissions reductions. The resource that provided the most environmental benefit for the least cost should win the subsidy.

The second environmental aspects of stranded cost are rate design related issues. Stranded cost collected on a kWh basis as opposed to a customer charge basis will influence customer electricity use and willingness to invest in energy efficiency. Similarly when stranded cost are placed in exit fees, back-up rates or connection fees, investment in on-site distributed resources will be reduced.

Moral of the story: Define and recover stranded cost on an economic basis, and you get a good environmental (and competitive) outcome. Set it to accomplish a predetermined outcome, and the environment (and competition) suffers.

Setting Distribution Service Prices

Setting prices for distribution services (local wires service)--something routinely done by regulators in every state--is rarely thought of as having much to do with the environment. Yet distribution prices do have environmental effects. Consider the many environmentally-preferred distributed generating resources such as fuel cells, small-scale renewable generation and micro turbines that serve the dual functions of producing electricity and substituting for traditional distribution investment. The same is true for distributed energy efficiency. Increased investment in distributed resources can be desirable from an environmental perspective.

The same investments can also be desirable from an economic perspective. Distribution system costs can vary widely within a utility's geographical territory. It is not unusual for cost differences to be large as ten to one. In high cost areas, distributed resources and efficiency may be significantly cheaper alternatives when compared to adding more poles, wires and transformers. However, the use of average cost pricing obscures the economic efficiency of using distributed power resources. While many distributed resources make most sense when installed on the customer's side of the meter, customers often do not see the price signal that would illustrate the economic value of these investments. For customers to invest in distributed resources, they need to see de-averaged distribution prices (reflecting congestion costs).

Of course, average cost pricing serves the important public policy goal of making electric service affordable to all customers, and de-averaged prices could be very disruptive economically and politically. For these reasons, it should not be abandoned. However, regulators could accomplish the positive effects of de-averaged distribution prices by setting geographically de-averaged distribution credits (buy-back rate) for customers who use distributed resources. De-averaged, buy-back rates for distributed technologies would allow all the savings that flow from installing these resources to be fully realized by the customer without requiring de-averaging for all distribution prices.

Substation versus fuel cell

For example, an upgrade at a particular substation might cost 15 cents/kWh even though the average distribution rate is and will remain about 4 cents. A fuel cell installed on the customer's side of the meter that costs only 8 cents/kWh is not likely to be selected by the customer based upon a price comparison. When the economic benefit of the fuel cell purchase is invisible, the value of substituting the 8 cent/kWh distributed technology for the 15 cent/kWh upgrade disappears.

Moral of the story: Set distribution prices right and you get a good environmental (and competitive) outcome. Set them wrong and the environment (and competition) suffers.

Conclusion

Regulators need to understand the environmental implications of their electric industry restructuring decisions. As a first principle, regulators should strive to do no additional harm to the environment than would have occurred under previous regulation. Where policy options exist that will protect or improve the environment while achieving a desired economic objective, regulators should act affirmatively to protect the environment. Finally, in those states where there is continued operation of older fossil plants, utility regulators should establish a close, consultative relationship with environmental regulators to better understand and achieve their state's environmental objectives.

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