

Retail wheeling

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In the past few years, Maine's electric utilities have begun to face the forces of competition. Maine is experiencing the effects of a national trend, a shift from a traditional and regulated system to a more innovative and competitive one. The following four articles offer differing perspectives on this complex and controversial issue. In the first of this series, Gordon Weil, active in Maine and elsewhere in promoting increased competition in the electric industry, explains the forces for competition. Mr. Weil traces the history of the electric power market from its beginnings as a monopoly, to its present status where all of the forces promoting competition nationally are at play in Maine.

The latter three articles are taken from the authors' presentations at a December 1994 conference entitled Retail Wheeling, sponsored by the Margaret Chase Smith Center for Public Policy's Project for the Study of Regulation and the Environment. William C. Perkins analyzes a number of potential costs and risks of full-scale retail wheeling. Armond Cohen explores the environmental impacts that are at stake in restructuring and offers some possible solutions. Finally, James F. Mitchell describes some of the political and financial limits to restructuring and provides suggestions for how to proceed in creating full and fair competition.

Electric market restructuring: Environmental considerations

Armond Cohen

Retail wheeling is part of a larger restructuring of the electric industry. The initial push for retail wheeling focused on bypass and indirect access, with less concern about the larger structure. The debate has now shifted to a more sophisticated level, and the environment will be part of the debate. I want to specifically address environmental impacts that are at stake in restructuring and to suggest some possible solutions.

Obviously, the pressure for restructuring is coming from the gap between current average and marginal costs. The drivers of that gap, in Maine and throughout New England, are predominately the supply acquisitions of the 1970s and 1980s: the nuclear construction programs and the administratively-priced Independent Power Producers (IPPs). Many of those resource acquisitions were strongly supported by industrial and commercial interests, some of whom are now seeking to bypass them through retail wheeling. In many cases, the environmental community opposed these high priced units like Seabrook. Certainly the recession, excess capacity, and low oil and natural gas prices all contribute to the gap between average and marginal costs. To that extent, much of this has to do with some short-term dislocations in the market. Integrated resource planning (IRP) and demand-side management (DSM) did not get us

into this problem. By and large, the costly supply acquisitions that comprise current embedded rates pre-date IRP and certainly pre-date the wholesale bidding regimes that Maine pioneered.

Some industrial customers (although less in Maine than elsewhere) complain that DSM is the cost center. But even in the most aggressive states, DSM is less than five percent of electricity prices. Because of the delivered benefits, DSM has either no net impact on total bills or actually reduces them. In Massachusetts, for example, electric bills are \$160 million per year lower as a result of DSM investments. The very IRP innovations that the Maine Public Advocate's Office, the Maine Public Utilities Commission, and the Conservation Law Foundation supported drove down capacity costs in New England over the last ten years. There has been significant wholesale competition introduced in New England. It is a rare utility today that would attempt to build a new plant without running through some kind of market test process. The argument that the present situation is the result of this horrible scheme of central planning is really not supported by the facts.

The origins of retail wheeling can be found in a very useful and opportunistic strategy by some customers. These customers were seeking some suppliers to bypass the utility and thus to shift embedded costs to captive customer groups. That version of retail wheeling, simple bypass, has been, to a stunning extent, successful in its basic strategic objective, which was to get some rate breaks. We see it all over the country; we see it in New England. The threat to leave is resulting in more bargaining leverage.

My view, however, is that such an approach is self-limiting. First, the bargains will wane in their size as various things affect the average/marginal cost differential. These may include early retirement of nuclear plants, Clean Air Act requirements leading to retirement of fossil units, and higher natural gas and oil prices. Second, electric prices are not a major locational factor for most New England industries and certainly not most New England commercial enterprises. Would everyone like lower costs? Sure. Is it a major obstacle to New England's industrial renaissance? Probably not, with the exception of a few electric intensive industries.

Third, as the last election revealed, municipalization and legislative declarations of wholesale status are not undertaken lightly. To become a supplier is a very serious obligation. It is not simply a bargaining chip. There are a variety of issues that have to be resolved, including what is the obligation to serve and what does it mean to provide reliability or any kind of obligation in a retail wheeling regime? What is the effect on long-term price and costs? You may get some short-term economies, but what happens to the average cost of electricity over time?

Fourth, we must pursue true economic efficiency rather than cost shifting. California, and other jurisdictions that have tried to wrestle with retail wheeling, now realize that the issue is: Where are the true economic efficiencies? Even those who expected very quick rate reductions by ignoring the stranded investment issue now realize that this is not a fruitful course of action.

Finally, I want to address environmental impacts. The environmental sustainability issues associated with the power system are significant and important, politically as well as in terms of the quality of life in New England. They will be a major focus of the industry restructuring

debate. When governors and legislators consider the industry structure that they want, the environment and environmental impact will be important consideration.

The reason for the focus on the power sector is obvious: It is the largest industrial air polluter in the country and in the region. Power generation accounts for between one-third and two-thirds of all major air pollutants like sulfur dioxide, nitrogen oxides, carbon dioxide, hazardous air pollutants, and the like. Its environmental impact is disproportionate to its economic impact. The power system produces something like three percent of the gross domestic product in the region and in the nation, but accounts for a much larger proportion of air pollutants. There is mounting evidence to suggest that the current level of system emissions is environmentally unsustainable.

More and more research suggests that fossil fuel emissions generally, and power system emissions in particular, are a major cause of persistent environmental and public health problems. The Environmental Protection Agency (EPA) is due to release, at the end of next year, a major report on this issue. Maine has had to warn pregnant women and children not to eat freshwater lake fish because of mercury contamination. Coal plants are a major source and will be an increasingly larger percentage of airborne mercury deposition. The effects of lead, arsenic, cadmium, and other kinds of pollutants, are major concerns from a public health perspective as well as to the ecosystem. With smog and nitrogen deposition, again, the region's power system accounts for between a quarter and a third of emissions. EPA is considering whether the existing ozone smog standard is too lenient, and we all know that it is going to be very difficult to comply just with that standard. EPA is under legal obligation to consider cutting that limit in half.

A recent study in the New England Journal of Medicine estimated that 40 to 60 thousand premature deaths annually are caused by currently unregulated small particulates (0.5 microns and less). These are, again, a very significant output of power system processes. Northern New England forestry researchers are looking at the slow, stunted growth of forest ecosystems. A major cause of the slower growth of some New England forests, at least in the view of the scientific researchers, is airborne nitrogen deposition. Likewise, nitrogen deposition is causing eutrophication of lakes and degradation of streams and coastal ecosystems.

Finally, there is the issue of greenhouse gasses (primarily carbon dioxide [CO₂] and methane). The U.S. is under treaty obligations to stabilize greenhouse gasses at 1990 levels. Due to the recession, that goal may not be difficult to meet for the next few years. But the New England Power Pool (NEPOOL) projects that, on a business as usual case, CO₂ will continue to increase substantially. If we close several large nuclear plants, or one nuclear plant, then those emission levels increase. Higher electric load growth will also increase emissions. These emission increases are going in the wrong direction as far as environmental sustainability is concerned. And CO₂ is really a proxy for other unregulated pollutants and particulates. Business as usual suggests substantial increases in many emissions from the power sector. Significant energy efficiency and cleaner, renewable energy sources will be critical to controlling this problem. Wind energy, fuel cells, and biomass are all very promising technologies. They will not do particularly well in a retail spot market for electricity.

What are the concerns about retail wheeling for the environment? In a retail wheeling environment, without a substantial environmental overlay, you will get producers with the lowest price winning. Commodity markets are price driven.

The response by generators and suppliers is very predictable. It can be seen in the United Kingdom (U.K.). The U.K. experience generally has demonstrated that, in a retail wheeling environment, the utility will run old coal plants as long as possible to keep prices at a minimum. High capital costs, low fuel costs, renewable energy technologies, and clean technologies like fuel cells and energy efficiency will fare badly in this system. And that is what has happened in the U.K. The U.K. government has had to institute a non-fossil fuel obligation to counter this tendency. They recognized that important clean energy technology would not come on line without this nudge. They require a 1500 megawatt renewable energy target within a 40,000 megawatt system, which is fairly significant. We are already seeing the same tendency for U.S. utilities to respond to competition by continuing to operate cheap and dirty fossil fuel coal plants and to resist acquisition of new, cleaner resources.

The long term fuel diversity and environmental risk-avoidance benefits of renewable energy and use efficiency are not likely to be credited in this system. Unlike some, I do not believe that demand side management (DSM) will flourish in this deregulated retail wheeling system. In the United Kingdom, a recent report by the Energy Saving Trust, a government agency, documented that there has been no significant movement towards an energy efficient market, although there has been some load management response to short-term price fluctuations. Conservation of energy has not been successful.

Several principles ought to govern retail wheeling or any other form of industry restructuring. First, if we will have competition, let us have competition on a level environmental, as well as a level economic, playing field. If we deregulate generation to create a robust wholesale market, incumbent plants, which are mostly existing utility plants that were by in large exempted from the 1970 Clean Air Act, cannot have an advantage by virtue of that fact. The older plants must be brought into some kind of environmental equality with new competitors.

Second, we must create some durable drivers for renewable energy and use efficiency. The idea that natural gas will take care of our environmental problems does not bear out. Even a predominantly gas future does not look terribly good from a CO₂, hazardous air pollutants, or NO_x perspective. Renewables, effectively, are the only realistic path that is environmentally sustainable for New England. They are also the only way to break our dependence on foreign fuels. Even in the U.K., with the most radically restructured electric market in the world, the government recognized the need for these policy drivers. One approach was the non-fossil fuel obligation. On DSM, the U.K. stumbled a bit, but is now trying to create an investment fund for DSM in local distribution companies.

The Conservation Law Foundation (CLF) has a specific proposal that primarily addresses wholesale, but could also accommodate retail, wheeling. The financial feature of our proposal—which deals with the current problem of stranded investment, access, and the difference between average and marginal cost—proposes that transmission be sold to an independent company at a market-based price. The proceeds of the transmission sale would be used to write down stranded

generation investment or existing utility plants with costs greater than current market prices. The newly-created transmission company would recover its investment through charges to distribution companies. In the analysis that we have done for this proposal, there is an immediate rate break of 10 to 15 percent from the refinancing of stranded investment. This occurs because the current distribution companies which own generation are paying a significant financing premium due to the financial instability of the franchise. Also, by amortizing the costs of IPP contracts on a long-term basis (instead of the current 8 to 10 years) through the transmission sale, a significant reduction in near term rates can be possible. The new Transco would be regulated by FERC or possibly by an interstate compact.

Our proposal for wholesale or retail competition would create a level environmental playing field. We propose that existing generation be brought up to new source standards. We have proposed a trading system so that every plant would not have to meet that standard. Any non-conforming plant would have to buy pollution allowances sufficient to offset its existing emissions above new source standards. Our calculations for the New England Electric System indicate that this move alone would create as much as a 50 percent reduction in current power system air pollutants for a very modest cost, if trading is allowed. In addition, we address the possibility that integrated resource planning is not continued in competitive generation markets, although we believe that IRP has enormous benefits that justify its continuation. We would propose a declining emissions cap on the company or the pool for current unregulated pollutants such as CO₂, small particulates, and hazardous air pollutants.

There is continued justification for DSM investments in both distribution and generation. DSM could displace distribution capital, so the distribution company should continue to be required to invest in targeted DSM load reduction and in distributed renewables or distributed fuel cells that can displace more expensive distribution equipment. DSM and renewables should also continue to be funded by the distribution companies where market failures in generation continue to be demonstrated. The costs are likely to be quite modest, as they presently are. Small DSM investments can provide significant power swings and we believe that DSM should be part of any restructured system, whether or not it has retail competition.

Finally, we propose, as in the U.K., that a modest amount of distribution company funding be made available to help commercialize renewable energy sources. This would enable them to compete in the market on a stand-alone basis after a short transition period.

Armond Cohen is Senior Attorney and Energy Project Director with the Conservation Law Foundation, Inc. He has written numerous articles on energy and land use policy, and is a frequent speaker on electric industry restructuring and the environment.

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