"LEAST-COST DOING": LESSONS FROM THE NEW ENGLAND "COLLABORATIVE"

Armond Cohen, Senior Attorney Joseph Chaisson, Technical Coordinator Conservation Law Foundation of New England

INTRODUCTION

On the threshold of the 1990's, energy efficiency is at the top of the national agenda--increasingly for environmental as well as economic and energy security reasons. In the realm of regulated utilities, this interest has fallen under the more general umbrella of "least cost planning." Countless utility commissions in the United States have exhorted their jurisdictional utilities to integrate energy efficiency investments into their supply portfolio. Numerous power plant siting battles are being fought over the issue of whether this agenda has been sufficiently accomplished. As a consequence, analysts for the industry and for intervenors have been inordinately busy for the better part of the last decade generating computer scenarios of technical energy efficiency potential within various utility service territories.

While the computers whir on, however, astonishingly little has happened in the field. The electric and gas industry has spent a negligible fraction of its annual revenues on energy efficiency investment, while spending hundreds of times more on new power plants and transmission facilities. True, in the early to mid-1980's there were several large scale *pilot* efficiency rebate programs in the Pacific Northwest and California--but they were substantially scaled back in the latter part of the decade. Until recently, utilities have not embarked upon major, sustained, direct capital investment in end use efficiency in a manner sufficient to establish the real efficiency potential.

THE NEW ENGLAND EXPERIENCE

New England in 1987 was little different from the above scenario. Utilities clamored to build and license expensive new power plants, while confining their end use efficiency investments to providing audits, information--and, in some cases, limited rebates for energy efficiency technology.

In 1987 and 1988, the Conservation Law Foundation of New England ("CLF"), a non-profit environmental law organization, intervened in a series of utility proceedings in several New England states and laid out a very different vision of the role of efficiency in utility planning. In this vision, electric and gas utilities would themselves make direct capital investments in customer facilities--paying up to 100% of total installed cost, where necessary to get the job done. Utilities would be responsible for planning, executing, and monitoring these energy efficiency improvements, wherever they were cheaper than building new power plants. And the utilities would recover the costs of these investments along with a fair shareholder profit--just as if they had invested in a power plant.

In early 1988, Connecticut utility regulators embraced much of CLF's vision, and ordered that state's largest utility--Connecticut Light & Power--to work with CLF and other intervenors to implement it. In a novel twist, the utility--seeking to avoid continued litigation--offered to fund CLF and the other intervenors to employ energy efficiency program design experts (some of whom had been witnesses in the case) to work with company staff to design and monitor the programs. In a crash "collaborative" effort lasting a little under two months, both sides reached agreement on major new direct investment programs, which were then approved by the regulators.

After these programs were developed, CLF offered a similar efficiency blueprint in litigation in Massachusetts and Vermont. The utilities in those states--led first by New England Electric--also agreed to "collaborate" with CLF to develop aggressive state-of-the-art efficiency investment strategies that would give a full and fair test to efficiency. As of Spring 1990, twelve New England electric and gas utilities--and one New York utility--have entered into agreements with CLF to develop, implement, and monitor such programs. In total, New England utilities will spend nearly \$200 million on efficiency investments in 1990 (the first full program year), an amount which will likely double within the next three years.

The programs are relatively straightforward in concept. The first set of strategies focusses on new construction--which accounts for the bulk of New England's electric load growth and offers cheap, up-front opportunities to improve efficiency. (See Figure 1.) In this program (based on Bonneville Power Administration's "Energy Edge" pilot), the utility provides free or nominally priced design and engineering assistance to the builder of a new home, commercial building or industrial plant to maximize the electrical efficiency of the facility through use of high-efficiency equipment, building shell, and even solar orientation. Once the best design is identified, the utility then pays for the full cost of the design and equipment changes which exceed the applicable building code or industrial practice (see Figure 2).

The New England "collaborative" retrofit programs are similar in nature--full design assistance from the utility (with a special focus on process efficiency improvements in the industrial sector), and--in most cases--full utility funding of cost-effective measures. Particularly for the large commercial and industrial sectors, these are not simply "install-a-widget" programs. They involve ongoing, hands-on involvement by the utility in monitoring, optimizing, and looking for new, efficiency investments in the customer facility (Figure 3 describes schematically New England Electric's Energy Initiative program).

Together, run at maximum speed, these programs should provide a fair test of what energy efficiency can do in practice--as opposed to in engineeringbased models. Indeed, with the programs largely defined and in the field, CLF's major focus in New England now is to ensure that the tree does not fall in the forest unheard. Accordingly, Northeast Utilities and New England Electric, along with CLF, are developing plans for more direct metering and building-by-building savings analysis than has ever been done before.

Finally, regulators in Rhode Island and Massachusetts have recently approved an innovative efficiency program ratemaking treatment proposal developed by CLF and New England Electric--in



Figure 1. Cost of Energy Efficiency Measures (New Construction vs. Retrofit)



Figure 2. New Commercial Construction

which the utility's profits will rise by 7% or more if its 1990 efficiency programs reach targeted levels (see Figure 4).

CONCLUSION

The CLF-led New England "collaborative" energy efficiency programs were borne of frustration that the efficiency debate--that is, how much is *really* available to utilities, at what cost?--was mired in theoretical, engineering analysis and litigation instead of real-world application. These programs will supply much-needed data for policy makers inside and outside utilities--as well as environmental officials--as important energy supply decisions are made over the next decade.

Particularly with ratemaking principles realigned to make efficiency as profitable--perhaps even more

profitable--than power plant investments, utilities in New England will be actively pushing the edge of the efficiency envelope. Several U.S. and foreign jurisdictions have begun to embark on similar programs, in some cases using the "collaborative" negotiation process which was pioneered by CLF in New England. Most recently, the major California electric utilities have joined with consumer and environmental advocates to propose a doubling of efficiency spending for 1988 levels, along with favorable rate treatment of those efficiency investments. These examples of "least-cost doing" (or, as we in New England also call it, "least-talk planning") will light the way to a more informed--and environmentally benign--energy future.



Figure 3. Energy Initiative



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Figure 4. The Incentive Structure is Based on the Difference Between the Value of the Conservation and the Cost of the Conservation