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STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 5270

Investigation into Least-Cost Investments, Energy)
Efficiency, Conservation, and)
Management of Demand for Energy)

Order entered: 4/16/90

BOARD DECISION ADOPTING (AS MODIFIED)
HEARING OFFICER'S REPORT AND PROPOSAL FOR DECISION
OUTLINE OF THE REPORT

(pI-2)

VOLUME I: OVERVIEW

A. Reading This Report

1. Basic Conclusions

On April 22, 1988, the Vermont Public Service Board (Board or PSB) appointed me to serve as Hearing Officer in this proceeding and ordered me to inquire into the cost-effective potential for enhanced energy efficiency and least-cost planning in Vermont, and to propose orders and policies necessary for achieving that potential.[1]

The most basic fact emerging from this proceeding is a bitter-sweet awareness that energy-efficiency improvements could save billions of dollars within the lifetimes of today's Vermonters while reducing the stress upon our environment, combined with the knowledge that those improvements are not now being made.

After examining utility and governmental responses to this potential, my basic conclusion can be simply stated:

> Much has been done; far more should be done.

The three most important things that have been done are:

> (1) the general application of "marginal cost pricing", setting utility rates that approximate the actual cost of each additional unit of power that a particular demand(pI-3)requires;
>
> (2) load management measures that have substantially reduced Vermont's peak demand, particularly by shifting that demand from peak periods to times when it costs less to supply that power; and
>
> (3) the embryonic development of integrated least-cost planning within the Department of Public Service (DPS or Department) and some of Vermont's larger utilities.

The most important things that need to be done include:

> (1) comprehensive utility programs that actually acquire energy efficiency resources whenever they are socially cost-effective;
>
> (2) developing utilities' abilities to rapidly implement further efficiency programs in case future energy conditions make such resources needed and cost-effective;

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1. If readers are deterred by the length of this Report, they may find it helpful to begin by reading the Overview in this Volume, and to continue by turning to Module 7 of Volume III. That section summarizes my conclusions about each large Vermont utility and describes the action and requirements that I am recommending to the Board.

(3) the maturation of integrated least-cost planning for all of the utilities in Vermont (including the fulfillment of the Department's 20-Year Plan); and

(4) a clarification of regulatory rules that govern the effects of energy efficiency programs upon Vermont's utilities.[2]

2. Structure of this Report

The three-volume Report that follows explains the bases for these conclusions and proposes an Order for the Board. This first volume is an overview of this proceeding, and of my conclusions. Some of the terms of art used in this Report are defined in a glossary at the end of this Volume I. The following two volumes parallel each other. Volume II contains detailed and(pI-4)specific findings of fact on each cluster of factual issues ("modules") addressed in this proceeding. Volume III contains discussion, conclusions and recommendations based upon those findings.[3]

B. Overview of Findings and Conclusions

The Board's Procedural Order of 4/22/88 (Procedural Order) required the parties to address seven clusters of issues (each referred to as a "Module") relating to:

1. Baseline information about Vermont utilities' historical efforts to manage demand and enhance efficiency, and about anticipated resource needs;

2. The potential for additional demand-side measures in Vermont, including attention to potential technologies, load management, more efficient usage, and savings within the utilities' own systems;

3. The choice of appropriate demand-side strategies for Vermont, including design principles for successful programs, sectors warranting special attention, and techniques for implementation;

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2. Additional measures, which may not fall fully within the scope of this proceeding, include the development of a state governmental policy for the effective and aggressive pursuit of energy efficiency within state-managed facilities, vigorous application of Act 250's requirement that new projects install the "best available technology" for energy efficiency, and directly addressing the special needs of low-income households faced with stressful bills for energy services.

3. In presenting this Report, I would like to express my gratitude to the parties (many of whom went far beyond the advocacy of their own interests as they endeavored to instruct me about these issues) and to the Board's consultant John Plunkett, of Komanoff Energy Associates, for his counsel (both that which I accepted and that which I declined).

4. Ways of quantifying and ranking alternative demand-side measures, including the roles of four oft-cited tests, and the significance of environmental and other non-monetary costs and benefits;

(pI-5) 5. The consistent integration of supply-side and demand-side options on an even-handed basis, including appropriate treatment of capability building, risk management through incremental acquisition, and non-monetary costs;

6. Institutional imperatives and incentives, including financial consequences that inspire or deter utilities that aggressively and successfully acquire energy efficiency resources; and

7. The necessary actions for implementing integrated least-cost planning, including requirements for utility planning and action, and any appropriate changes in governmental policies.

In accordance with the Procedural Order, I heard evidence and argument on these issues in seven separate Modules of evidentiary hearings, followed by an eighth Module devoted to rebuttal and summary. Those hearings were followed by briefs, oral arguments, proposals for decision, a public hearing, and (in May of 1989) by a partial consensus amongst some of the parties proposing detailed regulatory treatment of efficiency measures.

The following paragraphs set out an Overview of my conclusions on each cluster of issues:

1. In Module 1, I conclude that Vermont utilities have done much in the areas of cost-based pricing and load management, but that little has been accomplished towards raising customer energy efficiencies. As a result, existing load forecasts overstate the load growth that will occur if utilities aggressively and effectively pursue the acquisition of all cost-effective demand-side resources.

(p.I-6) 2. In Module 2, I conclude that there is a high potential for acquiring cost-effective efficiency resources from the great majority of houses, businesses, farms, and factories within Vermont. That potential is very large, but its upper limit cannot yet be quantified. I also conclude that price signals, while necessary, are not sufficient to acquire those resources.

3. In Module 3, I conclude that utilities should seek demand-side efficiencies as actively as they pursue supply resources; in other words they should try to "buy" all cost-effective efficiency savings from their customers, rather than passively offering to "sell" energy efficiency measures to their customers. The Module also specifies principles for successful pursuit of these resources. These include direct utility investments in efficiency programs that are

comprehensive, including aiming at cost-effective savings from new construction, commercial lighting, low-income consumers, and economical fuel-switching.

4. In Module 4, I conclude that utilities should consider the costs and benefits of efficiency improvements on a societal basis when deciding which energy-saving programs to pursue. For other purposes (such as preliminary program screening or for rate design) other tests may occasionally serve as surrogates for, or supplements to, that fundamental test.

5. In Module 5, I conclude that supply and demand-side options must be integrated on an equal footing, and that(pI-7)this has not happened historically. I also conclude that this integration requires Vermont utilities to enhance their ability to acquire demand-side resources. Finally, I conclude that supply and demand options cannot be compared fairly unless all the costs of both options are considered. These costs include transmission costs, relative risks of non-delivery, backup supply needs, and environmental effects that are often hard to price in monetary terms but are nonetheless of vital significance. I recommend a rebuttable presumption that these the unpriced benefits of efficiency should be quantified by adding 15% to the cost of supply resources for purposes of comparisons with energy efficiency alternatives.

6. In Module 6, I conclude that existing incentives reward both consumers and utilities for beneficial peak-shifting measures. In contrast, however, acquiring energy efficiency from cost-effective reductions in demand may not be financially attractive to utilities under today's regulatory regime.

I recommend three specific policy changes to correct this problem. The first change is to allow utilities to recover the expenses for their efficiency programs through mechanisms that parallel those they now use to collect the costs of supply investments, including recovery of some expenditures that were not recognized in previous rate cases. The second is to recognize that the novelty of some of these programs requires that there be an aggregated test of whether a utility's demand-side measures are "used and useful". The third arises from recognition that utilities lose sales when they buy efficiency(pI-8)resources (although quantifying the utility's net reduction in earnings may be difficult). Therefore, I also recommend a third (and more controversial) policy change: utilities should be allowed an opportunity to recover those lost net earnings, if they can reliably quantify the reduction in earnings caused by efficiency acquisitions for each rate category. I recommend that those reduced earnings be accrued in an account similar to supply-side Allowances for Funds Used During Construction (AFUDC) and recovered from the appropriate rate categories over time periods specified in each utility's next rate case.

7. Module 7 summarizes the results of this investigation in three sections. The first section outlines the principles necessary for integrated least-cost planning and acquisition of economic efficiency resources; it sets out a formula for explicitly comparing demand and supply alternatives.[4] The second section reviews the status of least-cost planning at each of Vermont's largest utilities (as of the close of evidence in this proceeding). The third section recommends generic requirements for all large utilities and specific requirements for each large utility.

I recommend that the Board require Vermont utilities to begin pursuing least-cost strategies that integrate both supply and demand options and set a schedule for the filing of increasingly detailed plans for doing so. I also recommend that the Board clearly state that failure to fully pursue all cost-(pI-9)effective energy efficiency and load-management measures can, in and of itself, lead to denial of otherwise appropriate requests to approve power supply contracts or investments.

Finally, I suggest that Vermont should aggressively seek energy efficiencies in areas beyond the jurisdiction of the Board, including rigorous application of Act 250's efficiency requirements, investments in state-owned facilities, and vigorous pursuit of efficiency gains from low-income housing stock.

C. Background and Procedural History

The Board initiated this docket through its Order of February 8, 1988: an investigation into least-cost investments, energy efficiency, conservation, and management of demand for energy (Order Opening Investigation). The objective is to assess "the potential benefit of enhanced demand-side management procedures for ... ratepayers in Vermont ...," id. at 3, and, specifically, to investigate "whether current management of the demand for energy ... is consistent with the long-term provision of necessary services at the least cost to the ratepayers of the State of Vermont as a whole." Id. at 3-4.

The Order Opening Investigation set forth a number of general issues to be addressed, including (1) the existing amount of demand reduction from load management, conservation and efficiency programs (referenced herein generically as "demand-side management" or "DSM" programs), the resulting savings, and the potential savings from additional DSM programs, (2)

4. Appendix II-B illustrates the application of that formula.