Joint Delivery of Core DSM Programs: The Next Generation, Made In Vermont

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Offering uniform core DSM programs across entire states permits economies in planning, improved relations with trade allies, and greater participation. Jointly delivering these core programs permits significant economies in planning, delivery, monitoring and evaluation, and regulation; faster and broader market transformation; greater participation; and accessibility of advanced programs to very small public and cooperatively owned utilities and their customers. Jointly delivered core DSM programs can stretch limited DSM budgets and render utilities better able to compete in a restructured electric industry.

Seven joint-delivery core programs being developed by the Vermont Department of Public Service (DPS) illustrate this approach. The State of Vermont has five years of experience with comprehensive DSM programs. Vermont's many small utilities field a variety of programs that serve the same basic market segments. The proposed programs suggest lessons for other jurisdictions.

INTRODUCTION AND SUMMARY

The small state of Vermont is served by more than 20 electric utilities offering almost as many utility DSM portfolios. For any given market sector—such as residential new construction—the result is a patchwork of programs with different technical requirements, eligible measures, and financial incentives.

While such diversity may have once been advantageous, it is increasingly clear that the drawbacks of such largely uncoordinated utility efforts are far more serious. They include unnecessarily high program costs, low participation, confusion or outright resistance among trade allies, lack of continuity and consistency, and failure to achieve lasting market transformation. These drawbacks are becoming more pronounced as utilities announce plans to revamp or severely cut back program efforts in specific market segments. Too often, such drastic changes are pursued with incomplete consideration of their consequences or alternatives.

After several years, programs should reach a state of maturity. In lost-opportunity market segments such as new construction and equipment replacement, programs should have advanced sufficiently to have effected some market transformation (by elevating common practice through high participation rates). Retrofit programs should have progressed sufficiently to firmly establish the preferred strategies for securing the remaining economically achievable potential.

In some instances, Vermont utility DSM efforts have met these challenges. Farm retrofit programs have succeeded in capturing a large share of the cost-effective potential, and have clear timetables and commitments for realizing the remaining potential. Some utility programs have evolved and cross-bred so that they have become more consistant, such as in the commercial replacement programs.

Some Vermont utilities are working together on joint delivery of common DSM program designs in some sectors. Perhaps the best example is the residential new-construction program using an assessment-fee approach. This program, pioneered by Washington Electric Cooperative, is being replicated and coordinated on a pilot basis by two investorowned utilities.

In other sectors and for many utilities, however, the outlook for progress under current utility practice is poor. Many smaller utilities still do not have meaningful DSM programs in place for major market segments. Others have failed to heed the lessons of experience by other utilities and correct the problems in their current program designs. In some cases, utilities have abandoned market segments entirely. In others, the apparent answer is to abandon key DSM policy goals, often relying on so-called new approaches that have failed before and that ignore positive results and advancements of other utilities in Vermont and elsewhere.

A more systematic and coordinated approach to utility DSM program design and delivery is needed to minimize energy service costs. Competitive pressures also call for maximizing net benefits from constrained DSM investment. Consequently, the DPS is working both with utilities, and through the regulatory process, to expand and accelerate the development of joint utility delivery of a core set of DSM programs. At a minimum, core programs should address all lost opportunity markets, such as new construction and equipment replacement, in all customer sectors(Geller, Nadel and Pye 1995). The DPS is also seeking pursuit of all cost-effective savings in at least three high-priority retrofit markets in the core programs: low-income residential, farms, and schools.

JOINT UTILITY DELIVERY OF CORE DSM PROGRAMS

Vermont's new approach to joint delivery of core programs builds on past experience by utilities inside and outside Vermont. As in Vermont, joint delivery of uniform utility DSM programs has been the exception to the rule of separate utility delivery of varying programs. This experience falls into two broad categories. First, some utilities have offered uniform, or almost identical programs, but planned and implemented them separately. In rarer instances, some utilities have gone further and pooled resources to deliver a single program across service areas. The approach being developed and encouraged in Vermont is an extension of the latter variant.

Prior experience with joint DSM program delivery

The earliest experience with full-scale delivery of uniform programs was by the Tennessee Valley Authority (TVA). TVA offered a no-interest loan program to residential customers of distribution utilities it served at wholesale from the late 1970s through the early 1980s (Chernick, Plunkett and Wallach 1993). The individual distribution utilities used the same program design to assist their customers with weatherizing their electrically-heated homes. In the Pacific Northwest, Bonneville Power Administration (BPA) offered a number of residential programs for its wholesale utility customers to provide end-users. In the late 1980s the BPA Super Good Cents residential new construction program was a pioneering effort specifically designed to foster market transformation (Onisko and Lee 1992). There are numerous examples of utilities offering similar but not uniform programs within states. For example, New York utilities offered PSC-mandated "core" programs in the early 1990s which targeted several market segments and major end-uses with similar program designs. However, programs were neither uniform nor jointly delivered (Public Interest Intervenors 1992).

Efforts to standardize utility programs continue today. The Consortium for Energy Efficiency (CEE) has developed model programs for commercial and residential HVAC equipment designed to be more effective in encouraging equipment manufacturers to build high-efficiency units (CEE 1994a, 1994b). Perhaps the best example of joint program delivery to date was the Homeworks program initially developed by United Illuminating (UI). This program provided direct installation of relatively low-cost efficiency measures for residential customers, which was modeled on the Santa Monica Energy Fitness program. UI evolved this concept to have a single contractor install electric-gas-and water-saving measures. The gas utility and local water departments contributed toward measure and delivery costs, allowing more comprehensive savings at lower program delivery costs (UI 1992). Another example of joint program delivery was the Energy Advantage Home new construction program (Delaney & Peterson 1994). This fuel-neutral program was jointly delivered by the competing utilities of Northern States Power Electric, Northern States Power Gas and Minnegasco.

In 1992 CVPS, GMP, BED, many of Vermont's municipal utilities and WEC conducted a jointly designed appliance labeling program, which was delivered by a single contractor. Since 1993 many of the same utilities have cooperated in a point-of-sale lighting program that has been cooperatively designed and delivered and has used the combined purchasing power of the utilities to solicit favorable bids through a competitive process from lighting manufacturers. Vermont's two largest utilities, CVPS and GMP have jointly offered a prescriptive rebate for lighting approach and motor trade allies since 1993. A number of additional utilities have agreed to use the same for 1996. Most Vermont utilities have contracted with Vermont's state-funded weatherization program to provide piggybacked electric efficiency and fuel switching services to low income Vermonters, and several of these utilities are in the process of developing a singlevendor delivery mechanism for low income multifamily housing projects in cooperation with the weatherization program and the Vermont DPS.

Vermont's approach to joint delivery of core DSM programs

The DPS advocates a joint venture between all of the state's utilities to deliver DSM programs with a single program design for each market segment. Program designs would combine strategies that have worked best for each market segment. Core programs represent a minimum, long-term commitment to maintaining an ongoing approach to key market segments that no utility should omit from its DSM portfolio. The commitment would apply to consolidated program designs relying on proven strategies and measures. Over time, modifications and refinements would be made to programs within the overall structure of a core portfolio, which would no longer be subject to abrupt changes or termination by individual utilities.

The DPS is seeking joint delivery of seven core programs. Three of the core programs are lost-opportunity programs; two are retrofit programs targeting low-income residential customers and farms. Two, the commercial and industrial market opportunities program and the residential time of sale program, concentrate on lost opportunities but also seek to leverage participant retrofit investment. Table 1 describes each program and its current status in Vermont. Standing regulatory policy in Vermont is for all utilities to pursue all cost-effective demand-side resources as part of their integrated resource plans (Vermont Public Service Board 1990). Aspects of virtually all of the core programs have either been implemented successfully by one or more Vermont utilities; or are being tested by multiple utilities.

RESIDENTIAL Program	Description	Status
Residential new construction	Uses a mandatory energy assessment and "feebate" approach.	WEC, CVPS, GMP currently fielding variants, using single contractor, with assessment fee and home energy rating; active discussions with utilities on core program.
Low-Income and multifamily retrofit program	Targets space heat efficiency and fuel- switching investments "piggybacked" on the state weatherization program.	Numerous utilities seeking DOE funding for jointly delivered program through state weatherization agency for low income, single entity for multifamily.
Residential point-of-sale program	Targets efficiency upgrades at the time of replacement purchases for lighting, refrigerators, freezers, room air-conditioners, and clothes washers.	Numerous currently on lighting through retail points of sale; discussions underway on core program to expand products.
Residential time-of-sale retrofit program	With energy ratings and incentives to encourage fuel-switch and other retrofit at remodeling, refinancing or resale of existing homes.	Under development; preliminary discussions underway with CVPS, GMP.
NONRESIDENTIAL Program	Description	Status
Commercial and industrial new construction	Linked to Vermont's Act 250 building- efficiency standards and to code advancement for buildings not covered by Act 250, and to economic development efforts.	Discussions underway on core program modeled after CVPS and GMP programs.
Commercial and industrial market opportunities program	Driven by market investment in equipment replacement, building remodeling, or facility renovation, emphasizing comprehensiveness, high participation, and linkages to interdependent retrofit investment.	GMP, CVPS, CUC, and some Coops and Munis offering uniform rebates for "over-the-counter" products such as lighting, and motors; discussions with numerous utilities about other aspects of core program, including customized, market niche components.
Farm retrofit	Comprehensive retrofit of dairy farms, a market under extreme stress.	GMP, CVPS, CUC have already retrofitted majority of eligible farms. DPS proposing core program offering choice of two existing incentive schemes for remaining utilities; farm new construction also included.

Several Vermont utilities, including the state's two largest, CVPS and GMP, are working cooperatively with the DPS on jointly delivered core programs.

Jointly delivered core programs are central to the Department's involvement in the ongoing investigation by the PSB into utility restructuring (Vermont DPS 1996). All parties in the Restructuring Working Group agreed that: "A restructured industry must preserve key public benefits of the current system, including cost-effective end-use efficiency. ...'' A Subcommittee of the working group filed a report which stated that "At least during the transition period, utility based energy-efficiency investments will continue to play a valuable role in reducing market barriers in certain market segments, reducing customer costs and mitigating power system environmental impacts. Overcoming those barriers for certain societally beneficial energy efficiency investments will require some financial assistance in the form of a non-bypassable, non-discriminatory, appropriately structured charge'' (Competition Workgroup 1995).

The most likely outcome of restructuring litigation and legislation in Vermont is the continuation of regulated distribution monopolies. Under such a restructured scenario, core programs would be screened using statewide avoided costs, and would apply to all distribution utilities. Each distribution utility would be responsible for its allocated share of core program costs, which it would recover through a non-bypassable volumetric charge to customers. For each jointly delivered core program, program planning and cost recovery would use standardized ex ante estimates of measure costs and savings. Each distribution utility would be directly assigned the costs directly related to participation by its customers, such as incentives and direct technical assistance. All other program costs would be allocated in direct proportion to responsibility for participant-related costs. This strategy ensures that utilities pay no more and no less than their fair share of core program costs. For example, a utility with no new commercial and industrial construction in its service area would pay absolutely none of the costs of the jointly delivered core program targeting this market.

The joint delivery mechanism will vary by program. For some programs, a single independent entity will be contracted to implement the programs. Ongoing planning, management and oversight for jointly delivered programs is still under development. In its restructuring position, the DPS has proposed that it take the lead in discharging these responsibilities. The PSB would retain ultimate jurisdiction over all decision-making for the core programs.

In the DPS view, core programs represent the minimum responsibility of distribution utilities. Basic IRP principles still apply to T&D investment. Utilities will retain the obligation to pursue all cost-effective demand-side resource alternatives to investments in T&D facilities (Chernick and Wallach 1996). Accordingly, the DPS expects utilities to supplement their core program investment with demand-side investments indicated by distributed utility planning. Supplemental investments may consist of further measures or program strategies added to core programs delivered in their service territories, or specific retrofit programs, targeted to load centers where T&D investments are planned.

The Department's strategy is to get as many utilities to commit voluntarily to as many core programs as possible, and then seek a PSB decision requiring all others to participate. Most major Vermont Utilities have agreed in principle to the concept of core programs, that a process likely to lead to agreement on the basic design of core programs, and strategies for joint development and coordinated delivery for Low Income, C&I new construction, C&I lost opportunities, and residential new construction is under way.

Benefits of Joint Delivery

Joint delivery offers three improvements over the current system of largely uncoordinated delivery of separate, standalone programs.

First, there would be a reduction in the number of different programs serving each market segment run by Vermont utilities. Second, joint delivery of a single program will avoid duplication of effort and expense associated with numerous utilities separately delivering essentially the same programs serving the same market segment. Third, long-term commitment to joint delivery of a core set of permanent DSM programs will vastly simplify the complicated and uncoordinated analysis and planning that the state's utilities now undergo in deciding whether and how to proceed with different DSM programs.

For the most part, utilities would no longer need to maintain their own program staffs or engage their own delivery contractors under joint utility delivery. The cost and risk of program management at individual utilities would also be significantly reduced.

The overriding advantage of this approach is greater net benefits to utility customers through greater, long-lasting efficiency savings acquired at lower costs. Real market transformation should be the ultimate result.

These outcomes will result from the following specific advantages of joint utility delivery and coordinated utility management of core DSM programs:

- Greater economy and efficiency in delivery
- Greater participation by trade allies

- Increased cost-effective savings potential
- Better acceptance of innovation and renewable technologies
- Enhanced competitiveness of Vermont's utilities and the Vermont economy
- Improved planning
- Reduced regulatory and litigation burden on utilities and regulators.

Greater economic efficiency

The primary improvement in economy and efficiency would be from reduced costs of administration, delivery, and evaluation of programs. These cost reductions would be realized from reduced duplication of effort. In many cases, a single contractor will be capable of providing the same services statewide at lower cost than would multiple contractors. In addition, there are some program costs that are fixed no matter how big the program; cutting the number of separate programs, no matter how similar they may be, will lower costs. Joint delivery would avoid redundant marketing and advertising costs for multiple programs targeting a common audience. Similarly, the cost of evaluating a single program serving the entire state will cost significantly less than evaluating a score of separate programs run by all the state's utilities.

These and other advantages discussed below are likely to generate further economies. For example, reduced delivery cost will likely render the core programs cost-effective for utilities for whom stand-alone programs would not be economically feasible. Wider participation may generate reduction in measure costs as high-efficiency options become more commonplace.

Greater participation by trade allies

Consistency and continuity are the two advantages of joint delivery that should dramatically increase participation by trade allies in utility DSM programs, and ultimately, the prospects for long-term market transformation.

Consistency is essential for meaningful participation by such trade allies as retailers, vendors, architects, engineers, builders, realtors, and lenders in DSM programs, particularly in lost-opportunity market segments. In Vermont, most, if not all, of these stakeholders operate in areas that span more than one utility service area. Currently, they do not face the same program designs in their day-to-day business. Inconsistency between program requirements breeds confusion and misunderstanding among the very people for whom utility DSM programs are supposed to overcome market barriers. The time and expense of mastering the finer points of two or more utility DSM programs and incorporating them into their business activity far outweighs any supposed benefits from the programs.

Without the active participation of these stakeholders in DSM programs, high customer participation in key market segments—let alone market transformation—is impossible. Joint utility delivery in Vermont is therefore especially essential for achieving market transformation. As the Board explained in its decision in Docket 5270, DSM programs are supposed to pave the way for more efficient common practice; these efficiency gains are then supposed to be consolidated with higher standards.

The initial acceptance by trade allies requires consistency in the approach to efficiency improvements. Only with joint delivery and coordinated management of a single program design can utilities target a particular program strategy (e.g., home energy ratings) to a specific group of trade allies (e.g., engineers, bankers) who work and compete with one another statewide. This dynamic is particularly critical for Vermont, with its relatively small size and dispersed population.¹

Sustained commitment to a set of core programs by Vermont utilities would convince trade allies that utilities bring the requisite staying power to justify their own commitment to the programs sought by utilities. Without this staying power, trade allies dismiss as a waste of time and money the changes in their behavior utility programs seek. These desired changes involve costs to trade allies, beyond merely learning the ins and outs of utility program designs. Examples include time spent on training; hiring; ordering and stocking new, more expensive high-efficiency equipment; and departures from current standard practice that are initially perceived as risky.

Abrupt changes in program designs or commitments can cause serious and long-term damage to the trust placed in utility DSM programs by customers and trade allies. Such damage in turn jeopardizes Vermont's ability to acquire cost-effective efficiency resources and to transform the marketplace. A joint commitment by Vermont's utilities to continue core programs for five or more years not only raises the level of trust by trade allies, but allows them enough time for their investments in new ways of doing business to pay off.

Increased cost-effective savings potential

Continuity will also reduce costs of program operation, and improve the quality of information derived from such operation. For example, having utilities pool resources and operate an assessment-fee program for residential new construction for five years is better than having numerous utilities in the state try basically the same approach in five, one-year increments. The sustained, joint approach will not only cost less; it will reveal far more about how to improve the program in terms of marketing, technical assistance, and eligible measures.

Some programs may only be cost-effective as statewide joint ventures, such as Vermont's appliance-efficiency program. Designing and deploying programs in this way increases the level of savings that is cost-effective for utilities to acquire. Other programs may be cost-effective on their own for larger utilities, but uneconomical for the many smaller utilities. By allowing and requiring small utilities to buy into jointly delivered programs, more customers get to benefit from cost-effective DSM at lower costs. The increased savings generated by such expanded opportunities would in turn further reduce the cost of savings acquired by the core programs, since fixed costs would be spread over more savings. Furthermore, applying superior core program designs will increase savings by raising both participation and comprehensiveness, particularly in lost-opportunity market segments. Some programs naturally lend themselves to common design because they operate in the context of statewide standards. Joint utility delivery of new construction programs would also level the compliance burden for projects in different service areas across the state.2

Enhanced acceptance of alternative-energy sources

For any given market segment, joint utility efforts are much more likely to gain attention, confidence, and acceptance for new efficiency measures in the marketplace compared to individual utility efforts. Success with such innovation is also likely to be achieved more quickly, with less effort, lower cost, and greater uniformity.

These better results are particularly promising for marketdriven investments by existing customers for building remodeling and equipment replacement, where market barriers to new approaches targeted by even the best utility program designs have frustrated widespread adoption.

Joint delivery would generate wider acceptance of renewable technologies and more comprehensive design approaches. Renewables stand a much better chance of adoption if they are introduced and promoted on a statewide basis through a single program vehicle for any given market segment. The same is true for more comprehensive savings through innovative design. High-efficiency design still holds out large untapped potential for highly cost-effective savings. Market barriers to date have proven intractable. The best chance for success is through the concerted approach of joint utility delivery to key players statewide. Only with such an approach can a utility hope to convince architects, for example, to adopt more comprehensive approaches to improving building energy performance.

Enhanced competitiveness

Joint delivery of core utility DSM programs enhances the competitive position of Vermont utilities in several ways. First and foremost, joint delivery allows Vermont's utilities to acquire cost-effective savings at minimum cost to the state as a whole and to individual utilities. Second, joint delivery of the same core programs by all utilities prevents individual utilities from pursuing an unfair—and economically inefficient—competitive advantage. Otherwise, utilities could be tempted to deploy little or no cost-effective DSM, seeking to use lower rates in order to lure customers from one another.

Third, joint utility delivery makes the transition easier to the use of wires charges to recover stranded benefits from cost-effective DSM (a solution favored by all but the largest industrial customers in negotiations surrounding future utility restructuring in Vermont). Not only would the playing field be leveled with joint utility delivery, but utilities would have already established contractual and billing relationships with one another for equitable cost recovery of costs. Fourth, the reduced regulatory burden due to joint delivery would also enable utilities to compete more effectively. Finally, joint delivery of core DSM programs ultimately creates the potential to place energy efficiency at center stage in the state's economy. Improving efficiency in Vermont, for example, increases the productivity of Vermont business and industry, making it more competitive in national and global markets.

Improved planning

Joint utility delivery of core programs would improve and ease planning in several ways. First, it would allow for more uniform characterization of demand-side resources, both for individual utilities and statewide. Ongoing characterization of the costs and savings from measures in key market segments could be done with improved accuracy and at lower cost. Quantification of environmental benefits of DSM measures would be clearer and more uniform. The potential from new technologies could be incorporated in utility demandside planning more readily. Joint utility delivery would therefore reduce the number of variables that individual utilities must contend with in their demand-side planning. Second, joint utility planning would allow for a more uniform approach to economic screening issues. Differences in methods could be minimized, with differences in assumptions continuing between utilities where appropriate (e.g., avoided costs).

Joint delivery would also allow utilities to address emerging challenges in DSM planning. For example, joint delivery would allow for explicit accounting for customer value that utilities realize from activities ordinarily associated with DSM. Customer retention benefits of some DSM activities should therefore be separately allocated to marketing functions when screening DSM resource acquisitions.

Another planning challenge that joint delivery would help standardize is the attribution and accounting for market transformation effects of DSM programs. To the extent that utility programs elevate the efficiency of common practice, utility planning should account for it, both in comparing costs and savings from prospective DSM investment, and in demand forecasts.

Finally, joint utility delivery would dramatically ease the burden of designing and planning DSM programs for the state's smaller utilities.

Reduced regulatory and litigation burden

Joint delivery of the core programs would confer on utilities the strongest possible presumption of prudence. Not only would the program design by pre-approved, but savings protocols and other assumptions would be fixed in advance. In addition, utilities would have stronger protection against charges of management imprudence in the implementation of DSM programs under joint delivery. Consequently, the likelihood of full cost recovery of DSM program expenditures and lost revenue through rates would increase.

The workload associated with overseeing DSM activities and enforcing compliance on the part of regulators and public advocates would also diminish. Imagine how much less staff and consultant effort it would involve to follow seven programs jointly delivered by all the state's utilities, compared to the responsibility for literally dozens of disparate utility programs.

With the consolidation of program design and delivery, analysis methods, and assumptions, there would simply be fewer DSM issues to fight about. The cost of litigation could only decline with joint delivery of core programs.

Further Considerations

On the supply side, utilities have a long history of combining forces to realize the economy and efficiency of joint resource acquisition and coordination. Examples include joint-action agencies and regional power pools; in many competitive scenarios, independent system operators would perform similar functions. Joint delivery does not require the creation of new governmental or regulatory entities. On the contrary, joint utility delivery would reduce the burden for regulatory oversight and litigation regarding DSM.

Joint delivery should be designed to accommodate variations in the mix of customers between utilities, and distinctions between the types of measures for utility customers within each sector. For example, a utility with relatively little commercial new construction would incur relatively little cost for a commercial new construction program—considerably less than it would if it had to field a stand-alone program of its own. Further, joint utility delivery would involve program designs that are flexible enough to reflect differentiation in the types of new construction between utilities. A utility experiencing (for example) ski-area development would still pay for different measures than another utility encountering growth in retail space. The same flexibility would apply to joint delivery of other core programs, such as residential new construction and low-income retrofit programs.

Jointly delivered programs could test new measures or strategies, either statewide or within the service territories of individual utilities. Compared to uncoordinated experimentation within stand-alone programs, joint utility delivery would allow for better experimental design at lower cost. For example, if a new technology had statewide potential, the cost of testing could be shared by all the state's utilities, rather than having an individual utility shoulder the entire cost of testing it in its service area.

CONCLUSIONS AND RECOMMENDATIONS

In Vermont, which may have more utilities per capita than any other state, the logic of joint delivery is self-evident. Because it is not typical, it serves as a stark, if exaggerated, illustration of the advantages of joint delivery in any jurisdiction that comprises more than one electric utility.

- In any state, uniform core program designs will achieve the first level of savings, by providing trade allies with consistency and continuity. This will lead to greater participation by trade allies, who are key to the success of lost-opportunity programs. This participation will lead to more cost-effective energy design and purchase decisions.
- Joint delivery of these programs permits significant economies in shared administration, marketing, planning, and monitoring and evaluation. These economies may permit smaller utilities to offer to their customers programs that would otherwise be beyond their cost-effective grasp. Parallel economies exist on the regula-

tory side, leading to a reduced regulatory and litigation burden.

• Core programs should generally be linked to market events—time of home sale or retrofit, or point of sale. In other words, they should target lost opportunity resources. This strategy focuses limited DSM budgets on the most energy savings per dollar spent, enhancing the competitiveness of utilities in tomorrow's restructured industry.

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ENDNOTES

- 1. Even programs incorporating mandatory assessments would be likely to draw less opposition if they were applied consistently statewide. The situation is analogous to that faced by appliance manufacturers in the late 1980s regarding mandatory efficiency standards. In the end, they embraced uniform efficiency standards at the federal level, rather than confront multiple state standards.
- 2. In Vermont, joint delivery also holds the promise of reducing the real and perceived burden of meeting the energy-efficiency requirements of Act 250, the state's land-use law. Consequently, a common utility approach to Act 250 compliance would increase the attractiveness of locating new facilities in Vermont.

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