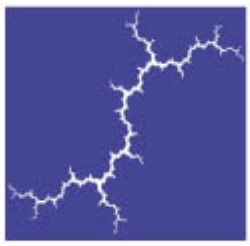

Synapse
Energy Economics, Inc.

How To Deliver the (Efficiency) Goods:

Why an Independent Third Party Works Best and How To Make Sure It Works Well

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1. Introduction

As efforts to implement cost-effective energy efficiency (often called Demand Side Management or DSM) and other public benefit programs emerge from the turmoil of a decade's experimentation and debate over utility "restructuring," consideration of how such programs can best be administered and delivered has surfaced as a critical issue.

In the course of restructuring activities, some utilities, both gas and electric, sought to refocus their enterprises on electric or gas *delivery* services and to de-emphasize or eliminate energy *supply* functions. This trend also raised questions about whether distribution utilities were the entity best suited to implement DSM programs. For the first time since the introduction of utility DSM programs in the late 1980s and early 1990s, the movement toward retail choice and the devolution of vertically integrated utilities raised the serious possibility that entities *other* than the incumbent utility might take responsibility for administering ratepayer funded efficiency programs.

Considerable experimentation has taken place as System Benefit Charges (SBCs)[1] were put in place to preserve some level of investment in cost-effective energy efficiency measures as the role of distribution utilities was significantly altered.

The experience gained in states where "restructuring" has taken place can be applied as well to states that have *not* adopted significant changes in utility regulation and to states where there has been limited implementation to date of Integrated Resource Planning (IRP) and energy efficiency programs.

This paper argues that an independent delivery mechanism for energy efficiency programs (and other public benefit initiatives) can be a critical element in promoting and improving the effectiveness of ongoing efficiency investment and can provide an excellent vehicle for promoting other customer-sited and "distributed" energy resources.[2]

The performance of Vermont's Energy Efficiency Utility (EEU), known as Efficiency Vermont (EVT), and initial reports on the Energy Trust of Oregon (ETO) suggest that these independent administrative system (IAS) models have significant potential to deliver cost-effective savings, improve program delivery and support innovative strategies in energy efficiency and renewable energy markets.

This paper outlines the reasons why IAS models have been adopted, suggests where they may be most beneficial, reports on their performance to date, discusses critical issues in

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[1] A Systems Benefit Charge is an volumetric charge to electric or natural gas ratepayers, as part of their utility bill, designated as a source of funding for one or more societal programs, such as energy efficiency, low income energy assistance, or renewable energy programs.

[2] The term "distributed resources" refers to a range of small-scale, dispersed resources that an energy utility can consider as alternatives to supply resources, transmission and distribution upgrades, or both. Typical distributed resources include energy efficiency, small scale generation (renewable or not), combined heat and power applications, and load control. The common feature of these resources is that they are located at or near the site of consumption, and are dramatically different in scale from traditional large-scale generation. The various types of distributed resources raise many common but not identical issues about how they can be promoted and implemented.

IAS design and makes specific recommendations for how they can be structured to reduce regulatory and administrative complexity and to maximize benefits.

2. Administrative Systems: A Quick Survey

2.1 Types of Administrative Systems

The best available summary of administrative systems for energy efficiency programs is *Who Should Deliver Ratepayer Funded Energy Efficiency?* (Harrington, 2003) That report discusses the administrative approaches that have been used to deliver efficiency programs and provides discussion of nineteen specific state and national efforts that reflect different administrative structures.

The paper groups administrative systems into four categories:[3]

1. **Independent Administrative Structures:** "independent, non-governmental structure[s] to administer ratepayer funded energy efficiency programs"
2. **Vertically Integrated Investor Owned Utility (IOU):** the traditional structure used when utilities (gas and electric) first began implementing DSM programs—prevalent where electric restructuring has not taken place
3. **Distribution Only Utility:** used in Massachusetts, Connecticut and New Jersey, where electric retail choice has been introduced but the distribution utilities continue to deliver programs (often through an allocation of funds from an SBC)
4. **Governmental Administration:** state agency administers efficiency programs in one of several variations.[4]

2.2 Basis for comparison

Harrington uses a set of criteria for comparing administrative structures for ratepayer funded energy efficiency programs originally suggested by Eto, et al. (1988), and adds sub-criteria to provide a sound basis for identifying "good outcomes from efficiency program administration":

1. Compatibility with policy goals *(Does the administrative structure [AS] enhance the broadly-defined policy goals for DSM acquisition?)*

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[3] Categories 2 and 3 are similar to one another, differing primarily in whether or not there has been some level of "restructuring" in the relevant regulatory system

[4] The New York State Energy Research and Development Authority (NYSERDA) is a unique government-sponsored entity with a long history prior to the introduction of regulatory changes in NY. It could be considered an "independent" entity, though technically it is not. Its history and evolution are so distinctive, however, that the notion of duplicating it in another state to deliver SBC programs is not considered further in this paper.

2. Harmony with financial interests *(Do the financial incentives of the AS complement and promote attainment of the goals?)*

- Integrated resource portfolio *(How will the DSM acquisition be incorporated into utility resource and distribution system planning?)*
- Resource acquisition *(To what extent does DSM implementation focus directly on acquiring efficiency savings?)*
- Environmental improvement *(How are environmental improvements [air quality, etc.] valued and treated in the structure?)*
- Economic development *(Are there specific economic development objectives for DSM? Is there a general value assigned to DSM as an economic development tool?)*
- Energy efficiency market transformation *(Is there a focus in program design and activity on permanently changing markets so that efficient products and services become the norm?)*
- Sustainability of effort over time
    - Funding stability *(Will the AS have reasonable confidence of continued stable funding without legislative or executive diversion of funds?)*
    - Institutional stability *(Is the AS likely to have the kind of continued support that will enable it to develop a sustained presence in the markets it serves?)*

2. Accountability and Oversight

- How is the budget set?
- Who participates in program development? What opportunity is provided for public participation?
- Are measurement and evaluation metrics integral part of program design?
    - Program evaluation?
    - Process evaluation?
- How are results verified?
- What is the frequency of reporting?
- What are the protocols for periodic program review?

3. Administrative effectiveness

- Efficient, non-redundant administrative costs
- Budget competency *(Is budget-setting and financial tracking integrated effectively with program implementation?)*

- Ability to acquire and retain high quality staff
- Flexibility to adapt programs to evolving market conditions/opportunities
- Ability to target funds geographically
- Local options for program design

4. Transition Issues
   - Start up costs of new organization covered
   - Smooth transfer of program responsibility

—Adapted from Harrington, pp. 10, 11; material in italics added

This list is useful not only for comparing different administrative structures; it also provides a helpful set of guidelines that can be used by any jurisdiction reviewing its own DSM AS or considering the enhancement of its DSM offerings.

Harrington briefly addresses each of these criteria and sub-criteria in her analysis of the four categories of administrative structures. Her recommendations are based in large part on the effectiveness of each system in addressing these criteria.

2.3 Preliminary recommendations

Based on her review Harrington concludes that "either utility administration or administration by a third party non-governmental [organization] can work well." She concludes that administration by a governmental entity is a "weaker third choice" since it is likely to lack flexibility and be subject to legislative and/or executive intrusions.

The choice between utility implementation and an independent administrative structure (IAS) should be informed by answering the following questions:

1. Is there a solid history of utility involvement and success in delivering DSM programs? Have utilities steadily improved the comprehensiveness, effectiveness and responsiveness of their programs?
2. Is there an established and effective structure of regulatory performance incentives in place?
3. Do the utilities in question have a history of incorporating energy efficiency resources into their supply planning and portfolio management?
4. Is there an experienced and competent utility DSM staff in place?

If the answer to these four questions is a clear affirmative and the service territories of the utilities are sizable then it may make sense to consider continued utility implementation of programs.[5]

[5] The issue of utility size may not be relevant in some jurisdictions. Raising the question of utility size in this context highlights the benefit of an independent administrative structure as a strategy for providing

It is likely that the above criteria will be met only in states with strong records of support for Integrated Resource Planning (IRP). Clear regulatory policy, a track record of effective implementation and multi-utility coordination, and the likelihood that customers and trade allies[6] are already familiar with DSM programs, if present in these jurisdictions, may make the imposition of a new administrative structure less urgent. There may, however, still be efficiencies and opportunities for coordinated DSM delivery only an IAS could provide.

Even in states with a solid history of IRP and DSM implementation, if some form of restructuring has taken place or is possible (category 3, above), serious consideration should be given to adopting an IAS since the underlying regulatory change is likely to affect utility implementation performance over time.

If there is *not* a strong history of effective utility implementation; if there is little utility experience with IRP; if there are multiple utilities with adjoining service territories; or if gas and electric utilities have overlapping, and intertwining territories (or any combination of the above) then an independent third party implementation mechanism may be the only workable option. It is essential that any such effort be undertaken with clearly defined objectives, a long-term vision and commitment, and "ownership" of efficiency goals by key players.

3. An Independent Administrative Structure: Opportunities Presented

3.1 Background

To date the literature on options for DSM administration has focused primarily on issues of legal and regulatory structure and administrative efficiency and effectiveness.

While the Harrington survey provides useful recommendations as to which may be effective public benefit implementation systems, it is important to explore the potential of an IAS to *enhance* the effectiveness of DSM and other customer-sited efforts.

The question that has not been addressed in depth is: "Can an IAS actually *improve achievement* of the goal of effective DSM delivery in new ways not possible under utility administration?" The evidence suggests the answer is "Yes." Moreover, the IAS model

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consistency of program offerings when there are numerous utility service territories (and overlapping territories in the case of gas and electric utilities) in a regulatory jurisdiction. Many jurisdictions regulate municipal utilities and co-operatives in a different manner than investor owned utilities, and this difference often flows through to the administration of DSM programs. There may, however, be significant benefits to providing consistent DSM services on a statewide or regional basis, and an independent administrative structure can be effective in accomplishing that goal.

[6] "Trade allies" refers to retailers, wholesalers, engineering and design firms, construction firms, and other market participants who are essential in the delivery of DSM programs and services.

could *facilitate* adoption of DSM and other public benefit efforts in states that have not had a strong history of IRP.

The following discussion draws on the authors' experience in creating an Energy Efficiency Utility in Vermont and EVT's subsequent four and a half years of implementation experience. Discussion of similarities and differences in Oregon's experience with implementing the Energy Trust of Oregon (ETO), the other available U.S. model of an IAS, is based both on review of the literature and on interviews with ETO staff.[7]

3.2 Required: A Solid Policy Commitment

Vermont, our first example of a state with an IAS, has a long history of legislative and regulatory action establishing and defining the concept of integrated resource planning (IRP, also called "least-cost planning") in Vermont law. For instance, Vermont's energy policy was laid out in 30 V.S.A. § 202a as early as 1980:

> *It is the general policy of the state of Vermont:*
> *(1) To assure, to the greatest extent practicable, that Vermont can meet its energy service needs in a manner that is adequate, reliable, secure and sustainable; that assures affordability and encourages the state's economic vitality, the efficient use of energy resources and cost effective demand side management; and that is environmentally sound.*
>
> *(2) To identify and evaluate on an ongoing basis, resources that will meet Vermont's energy service needs in accordance with the principles of least cost integrated planning; including efficiency, conservation and load management alternatives, wise use of renewable resources and environmentally sound energy supply.*

In Oregon, the other example of an IAS state that we will examine, the mission of the Energy Trust of Oregon is: *"to change how Oregonians produce and use energy by investing in efficient technologies and renewable resources that save dollars and protect the environment."* (From the Trust's Final Action Plan for 2003-2004)

Any state considering creation of an IAS would do well to put in place (if not already present) the legal and regulatory commitments that will make success possible over time. In a state where there has not been a commitment to IRP, to least cost planning and to DSM, building the policy framework first will be more important than rushing to adopt an administrative structure that will otherwise be unlikely to become effective.

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[7] In some states, the Federally-mandated Residential Conservation Service (RCS) during the 1980s led to creation of a mechanism for statewide energy efficiency delivery. Such efforts were, however, targeted primarily to providing audits, weatherization and education services, not cost-effective DSM. RCS was never considered a part of, and in fact generally predated IRP, and was very limited in the customer base served and in the measures it covered.

On the other hand, the knowledge that there are instances in which an IAS is working well, providing significant customer and public benefits, and doing so in a way that builds strong support from consumers and trade allies should reinvigorate the discussion of how to minimize the cost of energy services in jurisdictions where that discussion has not advanced.

The potential to "leapfrog" or put an end to the stage of drawn out struggles with multiple utilities to develop and oversee separate DSM programs and capabilities could greatly leverage the time and resources of DSM regulators and advocates.

3.2 Vermont and Oregon: Two Models of IAS

We will now consider some of the specifics of the Vermont and Oregon IAS models and how they differ. Table 1 outlines a number of the key structural and operational aspects of those two IAS models.

The two IAS models were authorized within six months of each other, but the Oregon version began operation more recently. The Vermont EEU was authorized legislatively in the winter of 1999; a memorandum of understanding among Vermont utilities, regulators and other parties was approved in September of 1999; an RFP was issued almost simultaneously and a vendor was selected in December of 1999. Efficiency Vermont (EVT), the winning bidder, began delivering services in March of 2000.

In Oregon the ETO was authorized in July of 1999. The Public Utilities Commission (PUC) approved the concept of a non-profit administrator in October 2000, and appointed a board of Directors in Feb. of 2001. A final agreement between the PUC and ETO was effective March 1, 2002. There has been a transition program during which utilities continued to run their own programs and some pilot programs were conducted. Most programs have been started as of the writing of this paper; some have been in place for a year, but there are only preliminary program results to report at this time.

3.3 Why Were Administrative Structures Changed?

For both Vermont and Oregon, the choice of a new IAS grew out of a long history of implementation effort and regulatory struggle to improve the quality, consistency and effectiveness of DSM programs. A commitment to gaining the greatest possible benefits for the utility, customers, the environment and the economy requires attention to the details of implementation, and in the case of Vermont and Oregon that attention led to the adoption of an IAS.

In a major report on the status and potential of efficiency programs in 1997, Vermont regulators proposed to create the EEU, identifying five reasons for doing so:[8]

[8] It is interesting to note that Vermont was considering legislation to introduce "retail choice" in 1997, and ultimately did not pass such legislation while Oregon passed restructuring legislation in July of 1999.

Table 1: Features of Vermont and Oregon Independent Administrative Structures

Feature	Vermont EEU	Energy Trust of Oregon
Authorization	Legislative: authorizes EEU and SBC, maintains Utility IRP requirement.	Legislative: part of restructuring legislation, authorizes Trust and SBC.
Funding Level, Purpose	$17.5 million annual cap. (Approx 3%), DSM only.	3% for DSM, Renewable, Low income. At least 90% for DSM.
Contract Held By:	Vt. Public Service Board (PSB). (Vermont's utility regulator)	Oregon Public Utilities Commission (PUC)
How Selected	Competitive bid conducted by PSB	Special entity created by PUC. No competitive bid.
Organizational Structure	Corporation independent of utilities; current selection is a pre-existing not-for-profit that was dedicated to implementation of efficiency/renewable energy.	Newly created not-for-profit corporation. Initial Board of Directors appointed by PUC, 2001
Utility Territories Covered:	All Vermont electric utilities; one municipal and one Co-op conduct consistent programs in their territories, coordinated with EVT.	Two major IOU Electric utilities (Pacific Power and Portland Electric) and North West Natural Gas. Approx. 70 % of Oregon customers covered.
Duration Of Contract	3 years, renewable once; then must be re-bid	10 years/renewal report required 2011
Services Offered	Focus primarily on Electric efficiency and fuel choice. Whole-building efficiency included increasingly in many programs and rewarded by Societal Benefit performance standard.	Gas and Electric DSM; combined heat and power (CHP) an eligible measure, small and large-scale renewable promotion. Specific programs targeted to Schools and Low Income customers.
Type Of Contract	Performance with specific goals, financial incentives (less than 3% of compensation) determined by performance over or under targets.	No performance incentive. Performance will affect 10-yr. renewal. Most contracts ETO has with program implementers do not currently have performance incentives.
Operation/ Staffing	Direct installations outsourced, but most services and administration in-house. Approx. 65 EVT FTE.	Most program implementation through sub-contracts. Approx 30 FTE. Contractor FTE's as much as 200
Benefit Measure	Societal Benefit (societal benefit performance standard in goals)	Societal Benefit and Utility Cost Test
Program Planning	Three-year Plan with annual modifications and revisions. High level of program design and implementation flexibility.	2-year Action Plan and 5-year Strategic Plan. Annual revisions.
Evaluation	Department of Public Service (DPS) (state consumer advocacy entity) responsible for evaluation.	Evaluation is one of the responsibilities of the Trust. Evaluation to be conducted primarily through contractors.
Performance Assessment	DPS performs annual review of savings claims, PSB makes determinations	Programs just under way; performance review process not fully defined.
Utility Incentives	Utility revenue erosion eliminated for EEU programs	Utility performance incentives eliminated by legislation.

1. *Increased statewide availability and uniformity of services*. Vermont, with 22 electric utilities has fewer than 340,000 customers. The level of efficiency service offered to customers varied from intensive to nonexistent. Program designs and offerings frequently varied from one (small) service territory to another. For reasons of equity, trade ally acceptance and thorough resource acquisition, a major goal of creating an IAS was to provide high-quality, uniform program offerings around the state.

2. *Reduced regulatory contentiousness and cost*. Vermont's citizen activists and the State's public advocate and planning entity, the Department of Public Service (DPS), were in frequent negotiations and litigation over the cost-effectiveness of program designs, program performance and cost recovery issues. Significant utility and regulatory staff time and financial resources were devoted to addressing and litigating DSM design and implementation issues. All parties agreed this was hardly the best way to provide intelligent, responsive efficiency services.

3. *Reversal of a downward trend in utility spending on efficiency*. Utilities had begun unilateral reduction of DSM budgets starting in 1993 as the possibility of "restructuring" gained prominence. Savings and expenditures in 1998 were often below 50% of 1993 levels. The decline in program funding also affected staff retention, competence and program quality.

4. *Removal of inherent utility disincentive to perform due to lost sales*. Vermont provided "revenue erosion"[9] mechanisms and special treatment for DSM investments, but these had limited success in overcoming profound opposition by many utilities to DSM approaches.

5. *Greater administrative and delivery effectiveness and responsiveness*.[10] After years of attempting to get utilities to cooperate and coordinate in the delivery of DSM programs, it became clear that a statewide entity provided with clear performance incentives and operational freedom could be far more responsive to market changes, new information, and new opportunities.

In Oregon, the "desire to provide stable, consistent and reliable funding for energy efficiency and renewable power led Oregon utility companies, businesses, industry groups and community service organizations" to support legislation requiring the state's largest utilities to fund such programs through a 3% public purpose charge. (ETO, 2004)

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[9] "Revenue erosion" mechanisms refer to ratemaking adjustments that allow utilities to recover in rates a portion of the net retail revenue lost due to DSM measures installed between rate cases.

[10] Vermont's Public Service Board is authorized to include gas DSM in the spectrum of services offered. Vermont has only one relatively small gas utility, which has a history of reasonably effective DSM programs and close coordination with electric DSM programs. Perhaps for these reasons, there has been no movement to date to have the EEU assume the provision of gas efficiency services.

3.4 Initial Success

In Vermont, EVT has proven to be remarkably successful in accomplishing the stated objectives of transition to a new IAS. It has met and exceeded goals for resource acquisition, participation/equity, and market impacts. These three goals can "compete" with one another, and balancing them through carefully designed performance incentives has been a significant accomplishment.[11]

In its first three years of operation, EVT substantially exceeded its savings goals. For the period 2000-20003 it reduced Vermont's growth in electric consumption by almost fifty percent. (Hamilton, Dworkin, 2004, p.4) It saved a total of 156 GWh and did so at a cost of 2.6 cents per kWh.

The value of EVT investments so far reflects a net Lifetime Economic Value to Vermont of $81 million (net present value 2003 dollars).

Table 2. Economic value of Efficiency Vermont Investments

Net Lifetime Economic Value for 2000 -2003		
Benefits	$143 Million	Lifetime Economic Value of Efficiency Investments (Total Resource Benefits)
Minus Costs	$38 Million	Costs paid for by investments through Efficiency Vermont
	$24 Million	Costs paid for by participants and third party investments
	$62 Million	Total Costs
= Net	$81 Million	Net Lifetime Economic Value to Vermont

Source: (Hamilton, Dworkin, 2004)

The distribution of savings and other economic benefits correlated quite well with the relative funding from sectors which were 56% for business and 44% for residential.

Table 3. Distribution of Benefits by Sector

Cumulative Benefits Achieved in 2000 - 2003			
	Business	**Residential**	**Total**
Annual kWh Savings	90,094,000 (58%)	65,848,000 (42%)	155,942,000
Lifetime Economic Benefit	$85,986,000 (60%)	$57,273,000 (40%)	$143,259,000

Source: (Hamilton, Dworkin, 2004)

[11] For example, resource acquisition goal can lead to a focus on large customers and result in many customers, (residential, small commercial and rural) receiving lower priority. Market transformation programs as they have been customarily designed, may lead to very few near-term resource savings.

Participation by Vermont ratepayers has increased steadily, reaching, by the end of 2003, nearly thirty percent of Vermont electric ratepayers. Similar success in distributional equity is found in the geographic and utility service territory distribution of benefits.

Table 4. Cumulative Unique Participation

Year	2000	2001	2002	2003
Cumulative Participation	5.6%	14.1%	21.6%	29.5%

Source: (Hamilton, Dworkin, 2004)

It is impressive that this record of resource acquisition and distributional equity is accompanied by remarkable indications that the markets for efficiency services and products are being transformed by EVT's efforts. The following list illustrates some of relevant market indicators:

- In 2002, Vermont had the highest market share of any state for Energy Star room air conditioner sales (61%) despite its relatively cool climate, and in 2003 the highest statewide market share for Energy Star clothes washers, with a remarkable third-quarter market share of 62%.
- In 2002, Vermont had the highest statewide market share in the lower 48 states for Energy Star residential new construction (25%).
- *All* of the 74 retail appliance dealers with showroom floor space in Vermont have partnership agreements with Efficiency Vermont, promoting the sale of Energy Star appliances and offering Efficiency Vermont rebates.
- Efficiency Vermont has approximately 155 retail partners who cooperate to promote Energy Star lighting products and accept Efficiency Vermont's instant discount coupons. This is estimated to represent well over 90% of hardware stores, lighting specialty stores, home improvement stores, and electrical supply houses that sell to Vermont consumers[12].
- Almost all new construction or substantial rehabilitation projects for multifamily affordable housing in the State now routinely partner with Efficiency Vermont to address energy efficiency (approximately 500-800 units/year). In partnership with Efficiency Vermont, both the State's Housing Finance Agency and Housing and Conservation Trust Board adopted standards in 2004 that set the efficiency level for all new affordable housing construction they support at a minimum of the Energy Star level.
- For the larger (over 25,000 square feet) new construction market, it is estimated that over 90% of all construction now engages with Efficiency Vermont and receives technical assistance and financial incentives to optimize energy efficiency. Overall, of a statewide estimated total of 500 annual permitted

[12] Penetration of the grocery and convenience store market remains low.

commercial new construction projects, Efficiency Vermont completed 142 (28%) commercial new construction projects in 2003.

- All of the architects, 80% of the engineers and 75% of the contractors surveyed as part of the State's evaluation of Efficiency Vermont in 2003 indicated that they "knew and recognized" Efficiency Vermont. Ninety percent of the engineers spontaneously identified Efficiency Vermont as the name of an organization that provides energy efficiency services in Vermont. Eighty percent of the engineers, half the designers and one third of the contractors reported using one or more services from Efficiency Vermont (Vermont Department of Public Service, 2003).

(Hamilton, Dworkin, 2004)

The Oregon ETO has taken somewhat longer that the EVT to get started since a whole new organization was authorized. The ETO is now (2004) in its first full year of operation with all but one program up and running. Response from trade allies is very strong and staff is generally in place. The fact that the ETO is serving both natural gas and electric customers appears to be creating significant opportunities in combined heat and power (CHP) applications as well as in more traditional efficiency measures. Since ETO is also charged with administering renewable energy programs for both small and large-scale applications, the potential for synergies among efficiency, on-site generation, load control and renewable energy are significant.

The Final Draft 2004-5 Two Year Action Plan of the ETO sets out five goals:

1. By 2012, deliver programs to save consumers 300 Average MW (2.6 million annual MWh) of electricity and 19 million annual therms of natural gas from long-lasting energy efficiency measures,
2. Provide 10% of Oregon's electric energy from renewable resources by 2012,
3. Extend energy efficiency and on-site renewable energy programs and benefits to underserved customers
4. Contribute to the creation of a stable environment in which businesses that promote energy efficiency and renewable energy have the opportunity to succeed and thrive.
5. Encourage and support Oregonians to integrate energy efficiency and renewable resources into their daily lives. (ETO Final Draft Plan, 2003)

The 2003 Annual Report of ETO reflects the first year of independent operation in which almost all of its electric efficiency programs were started and its implementation of DSM for one gas utility began. At the end of 2003 ETO reported meeting about 15 % of its 2012 electric savings goal of 2,628,000 MWh; 2% of its savings goal of 19 million annual therms of natural gas; and approximately 3% of its goal of 3,942,000 MWh of renewable generation.

Over 250 trade allies have helped deliver incentives to nearly 5,000 homes and 200 businesses. 100 solar projects have been installed and 41 new wind turbines have begun generating power.

ETO reports a cost of 1.4 cents per saved kilowatt, as opposed to 3.9 cents a kilowatt for generating electricity. Conserving one therm of gas cost 23 cents, as opposed to a production cost of 53 cents. (ETO Annual Report, 2003)

3.5 New Opportunities

In addition to demonstrating progress in starting programs and delivering savings and other benefits, initial experience with these two IASs is making it clear that success in creating program consistency and responsiveness, reducing bureaucratic and regulatory complexity and creating stable funding and direction opens the doors to new implementation strategies and opportunities.

3.5.1 Coordination Opportunities Abound

Creation of a statewide entity in Vermont has not only dramatically advanced the goals of improved program efficiency, uniformity and customer-friendliness; it has opened possibilities for advancing program effectiveness that were only guessed at previously.

Customers all over the state are offered efficiency services with the same "look and feel." Trade allies have only one set of program designs to work with and as a result program participation is up among retailers, designers, engineers, contractors, etc. Regulatory effort and cost by utilities, the DPS, the PSB and interveners has been dramatically reduced. Responsiveness to program design flaws, and (more positively) to new products and opportunities has increased dramatically.

Specific areas in which there have been additional improvements include:

- Creation of a statewide database of customers and trade allies has improved reporting, data precision, reliability of contact information and reporting of program impacts to utilities and regulators. Planning efforts benefit from this improved information, as do evaluation activities.
- Multi-utility delivery increases the efficiency and effectiveness of monitoring and evaluation efforts as all customer groups, trade allies, and technology opportunities are treated in a single set of statewide evaluation efforts. Geographic and regional differences can be understood and addressed as part of statewide or regional "patterns." In contrast to the adversarial or defensive relationships that prevailed in prior evaluation of utility DSM programs, EVT treats evaluation efforts as a form of useful market research to help it improve its knowledge of markets and its program performance.
- Marketing efficiency is dramatically increased as unified campaigns (which can be targeted and adapted regionally) with a very focused message become possible. Outreach to organizations (business groups, trade groups, etc) that are often statewide in nature are now easily integrated into service offerings. (EVT meets regularly, for example, with Architects, American Society of Heating and Refrigeration and Air-conditioning Engineers (ASHRAE), with the Vermont [School] Superintendents' Association, etc.)

- Coordination with supportive state, regional and national programs is dramatically improved. EVT has become a statewide partner with the Department of Energy (DOE) Energy Star program, with the Home Energy Rating System (HERS) and with the regional market transformation initiatives of the Northeast Energy Efficiency Partnership (NEEP). EVT supports energy code upgrades by providing training and technical assistance and expert testimony in the code upgrade process. It helps promote appliance standards and other complementary legislative initiatives.
- Partnerships that are statewide in nature are facilitated: State buildings, schools, financing institutions, DOE, Environmental Protection Agency (EPA) and other grant programs for innovative approaches can be incorporated into program strategies. SBC funds qualify as "matching funds" for many federal programs, providing valuable leverage. When pilot programs prove successful they can be readily incorporated into service offerings.
- EVT has for 4 years sponsored a remarkable annual Builders Conference that has grown each year and now attracts nearly 1000 attendees. It addresses all aspects of building design, technology, building performance, and financing. It has become both a marketing opportunity for EVT and a powerful tool in building trade ally partnerships, and enlisting more savings opportunities. The conference is both an opportunity for partner education and for feedback from program participants.

In talking with ETO staff, it is clear that many of the same dynamics are emerging in Oregon. Trade allies are eagerly participating in ETO programs. Coordination with other statewide agencies such as the Oregon Office of Energy, which is the state's Department of Energy (DOE) Energy Office and administers complementary programs such as the state's energy tax credit program, are being actively pursued.

ETO is providing funding for and working in close cooperation with the Northwest Energy Efficiency Alliance (NWAlliance) which works on a regional basis to promote and increase the market share of efficient products (appliances, lighting, equipment, and other "best practices"). (Harrington, 2003)

3.5.2 Resource Acquisition and Market Transformation

The Vermont EEU model provides important information in the ongoing discussion about DSM "resource acquisition" efforts relative to "market transformation" efforts. EVT has contract incentives in both areas: very clear savings goals and societal benefit targets, as well as performance incentives that target levels of market acceptance for certain technologies.

The conventional wisdom is that "resource acquisition" goals that focus on securing measurable savings from specific installations customer by customer can be in tension with "market transformation goals" that focus on educating trade allies, increasing stocking levels of efficient products and improving customer acceptance of efficient appliances and strategies. EVT is demonstrating that a sustained commitment to resource acquisition in combination with strong performance incentives *and* significant flexibility

in program design and implementation can begin to overcome the apparent tension between these two approaches to DSM.

While EVT's performance contract weighs "acquired energy savings" most heavily, the effort to understand its markets better and respond to market forces intelligently is beginning to have long-term effects. Increasingly, outreach to trade allies; presentations to professional associations and business groups; and maintaining a strong network of retail stores through use of circuit riders can accomplish both educational *and* marketing goals at the same time.

What the Hamilton/Dworkin paper suggests is that a sustained, responsive customer-oriented presence in energy efficiency markets can begin to move those markets toward significantly higher levels of acceptance of efficient measures and products.

3.5.3 New Approaches to Markets

The differing regulatory history, mandates and range of programs to be offered have led to different administrative designs for the Vermont EEU and the Oregon ETO, and are likely to lead to differing structures as each evolves.

This will be true in any state that adopts an IAS approach. The discussion in this section provides an illustration of the kind of new approach that can emerge through adoption of an IAS. It is not proposed as a specific recommendation for the structure of any new IAS that might be implemented. It is intended to illustrate that an IAS should be given flexibility to modify its initial structure to respond to the markets it is serving.

As it negotiated its second three-year cycle of DSM implementation, EVT requested, the DPS supported and the Vermont PSB approved a significant change in the approach of the EEU to efficiency markets. In its first cycle of operation EVT was charged with conducting seven "Core" DSM programs targeted at fairly conventional definitions of markets (Commercial/Industrial and Residential; new construction/renovation and "retrofit; low income).[13]

What EVT learned in its first three years of operation was that the organizational structure defined by "programs" tended to hamper some of EVT's efforts to be fully responsive to customers. Examples of the tensions encountered were:

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[13]The EEU Core Programs initially required were:

- Commercial and Industrial Market Opportunities Program
- Commercial and Industrial New Construction Program
- Low-income Multifamily Program
- Dairy Farm Program
- Residential New Construction program
- Residential Low-Income Program
- Efficient Products Program

- Many builders and trade allies worked with customers in ways that were covered differently by multiple programs. (A low-income housing developer working with low-income multi-family housing also built market-rate housing, but the "program" was different. He wanted access to consistent services.)
- Technologies were not limited to the programs that most frequently used them (compact fluorescent lights were marketed predominantly in residential programs, but were also used intensively in small commercial and multifamily housing. Incentives could be very different or non-existent for identical technologies).
- Program administrators were sometimes not familiar with technologies that were not predominant in their program, but nevertheless applicable in some situations (commercial measures in mixed housing that also had commercial space.)

Chiodo and Hamilton describe this change as a movement away from "program" definition of how services are offered to a more customer-oriented approach to markets. The "market approach" to energy efficiency is described by Chiodo and Hamilton as follows:

> A market approach to structuring the delivery of energy efficiency integrates internal development and delivery of services to produce a seamless set of messages and services in the market. The internal integration transcends the boundaries created around programs, applying the best ideas across markets and customizing services and approaches to meet specific customer or trade ally needs. (Chiodo and Hamilton, 2004, p. 3)

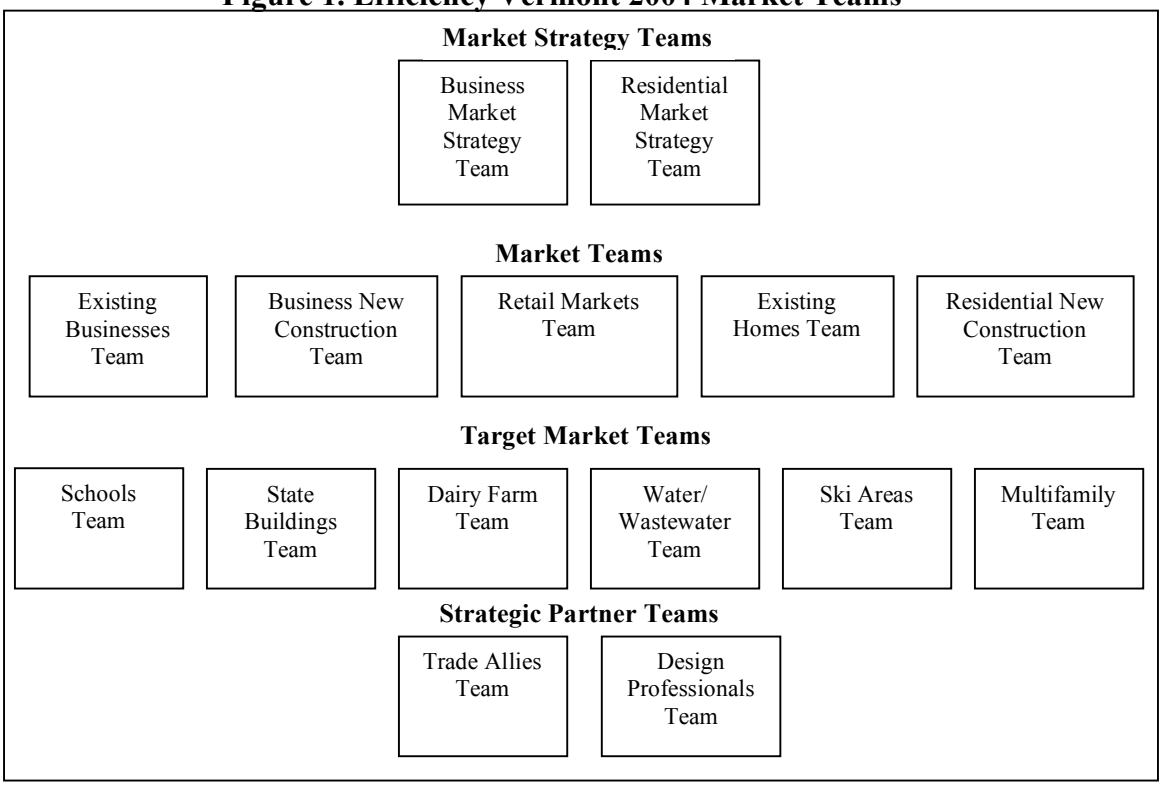
EVT has adopted a "team" approach to delivering DSM services, generally shifting from the internal organization focused on implementing predefined "programs". Figure 1 illustrates the new organizational structure being put into place.

Two major market strategy teams—Business Market Strategy and Residential Market Strategy—maintain a focus on the two major markets, and each includes market, operations, business development, marketing and planning staff. There is some shared membership across the strategy teams to promote coordination.

Market teams work at the tactical level across broad segments of the market, such as new construction or existing buildings. They include operations, business development staff and draw on technical and information technology and marketing staff as needed.

Target Market Teams are designed around either a specific segment or cross-cutting definition of the market to provide services in a comprehensive manner to that component of the market. An interesting Vermont example is ski areas that include everything from residential development to commercial applications and large industrial motors. Ski areas can now relate to a single program contact person who will facilitate provision of all appropriate services from residential new construction assistance to sophisticated snowmaking expertise.

Figure 1. Efficiency Vermont 2004 Market Teams



An illustration of how markets overlap and intersect is provided in Figure 2, which shows the overlap in New Construction Markets. Architects in Vermont work on a wide variety of projects, as do builders and engineers. The new EVT approach means that a single point of contact can help provide assistance in all categories of design and new construction projects.

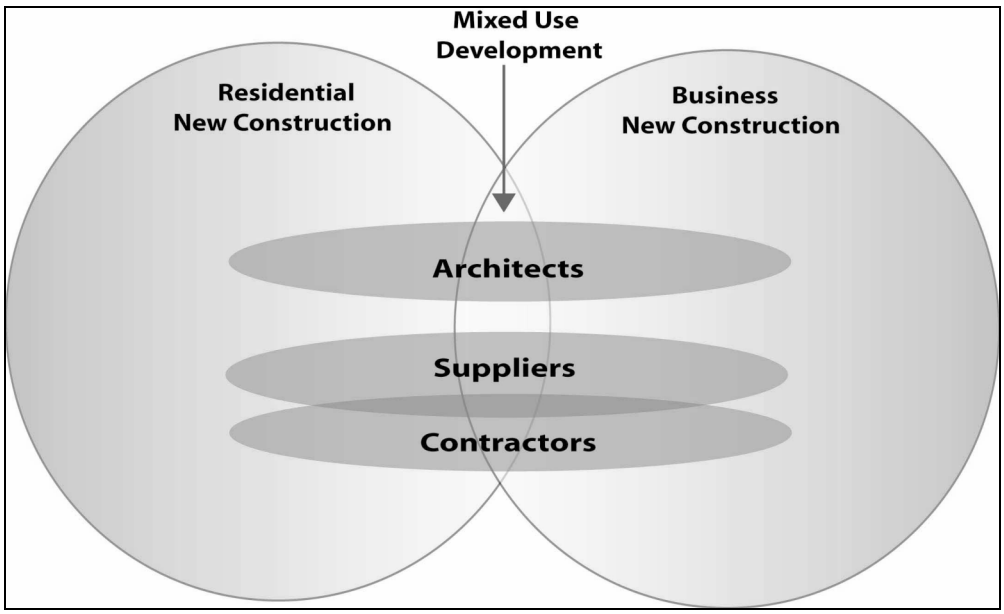
What is most important about the new EVT service delivery approach is not the particular structure adopted, but that it grew out of the need on the part of the EEU to serve its customers more effectively. These changes required significant shifts in the internal configuration of EVT and may represent the first time that DSM organizational change was driven not primarily by regulators, legislators or administrators, but by the needs of the market.

The change introduced by EVT confirms the notion that understanding markets and responding to them creatively may overcome the apparent tension between resource acquisition and market transformation in an innovative single more sophisticated effort.[14]

[14] The EVT approach also develops long-term working partnerships with customers that can increase the comprehensiveness of efficiency services. As investment decisions, remodeling, equipment replacement and other decisions are made by customers, increasingly EVT is high on the "who ya gonna call" list.

EVT has retained its ability to allocate and report savings acquired by more traditional program categories. This allows EVT and regulators to compare savings claims over time on a consistent basis, and to determine whether various equity goals are still being met.

Figure 2. Overlap in the New Construction Market



3.5.4 Incorporation of New Service Offerings

With its broad mandate to deliver gas and electric efficiency and renewable energy programs, Oregon's ETO offers a unique opportunity to have one administrative system deliver integrated efficiency and distributed resource services to customers.

One of the tensions in traditional electric and gas efficiency programs has been that they tend to focus only on measures providing savings to the form of energy provided by the program sponsor. From the utility and regulatory perspective this seems logical, as using electric ratepayer funds to provide thermal efficiency measures (for instance) in a gas-heated building may represent an inappropriate cross-subsidy. From the customer's perspective, however, this regulatory concern simply creates another barrier to capturing comprehensive efficiency resulting in potentially significant lost benefits to both the customer and society.

Vermont regulators and EVT have tried to address this tension in five ways:

- Partnering with gas efficiency programs where service territories overlap,

- Partnering with Vermont's low income weatherization program (which normally provides thermal efficiency measures) to provide integrated thermal and electric efficiency services,
- Supporting codes and standards that address *all* energy-using technologies,
- Wherever possible, providing a "whole building" approach to efficiency (new construction, renovation) in program and incentive design so that increased total efficiency is both rewarded by the electric efficiency incentives, *and* makes the project more attractive by improving the customer's savings and cash flow.
- Providing a performance incentive to EVT for societal benefits that includes the value of fossil fuel savings as well as electric savings.

The ETO has the potential to make comprehensive delivery of efficiency services a *priority* of program design. The interactive savings between efficient HVAC equipment and thermal efficiency, for instance, can become a significant enhancement to efficiency services offered. Opportunities for CHP (which can be considered an efficiency measure on its own) will be significantly advanced.

In addition, since the ETO offers renewable energy programs, efficiency programs can begin to interact with customer-sited renewable energy generation. Efficiency savings from (for instance) a lighting retrofit may be packaged with small ETO incentives for customer-sited photovoltaic generation. Solar hot water installations could be funded in part by their reduction of electric and gas consumption, and their affordability enhanced by other efficiency measures installed as part of a "package" of measures.

4. Conclusions and Recommendations

4.1 Lessons Learned

An IAS should be an important component of any effort to increase the effectiveness and comprehensiveness of efficiency and other public benefit programs. An IAS can:

1. Provide consistent program services across otherwise distinct utility service territories;

2. Effectively reduce or avoid utility resistance to provision of efficiency services;

3. Lower the level of regulatory effort and review, while improving actual service delivery of efficiency services.

4. Provide significant improvements in trade ally partnerships;

5. Provide dramatically improved coordination with other regional, statewide, and national efficiency efforts and initiatives;

6. Provide an opportunity for DSM and other customer-oriented services to become truly responsive to market forces and opportunities.

7. Provide new opportunities for coordinated efficiency efforts between gas and electric measures, and new opportunities for inclusion of renewable energy systems.

It is possible that an IAS will be selected as an outgrowth of a long history of IRP and continuing commitment to DSM and renewable energy implementation as is the case in Vermont and Oregon.

It is equally possible that states that are beginning to consider (or reassess) the benefits of efficiency, or improve the effectiveness of their program delivery may turn to the IAS as a new strategy for designing and providing DSM services.

4.2 Recommendations

This paper has focused on the evolution of independent administrative systems in two very different states: Vermont and Oregon. The IASs in both states have many features in common, but there are some distinct differences in the administrative structure, the legislative mandate, and the management structure of each.

The creation of an IAS in any new jurisdiction can be expected to encounter a unique history, a somewhat different set of participants, differing regulatory schemes, and differing energy resource needs and opportunities. The following recommendations should all be considered in the light of those unique circumstances, and it can reasonably be expected that the details of design for any IAS will be informed by these differences. These recommendations therefore focus on the key principles and strategic issues that are critical to the success of an IAS.

4.2.1 Clarity, Consistency, Consensus

Harrington correctly emphasizes the "three fundamental cornerstones" of any effective DSM program approach. Without these basic components solidly in place *any administrative structure* will have difficulty becoming and remaining effective over time. They must be kept in focus as any experiment with an IAS proceeds:

> *Clarity* of stated purpose at every level (from overarching goals to individual program design and evaluation metrics). Clarity begins with the policy reasons for pursuing energy efficiency found in underlying legislation and PUC orders. The PUC needs to know when to step in forcefully and when to step aside. Once an administrative structure has been designed and put in place, it needs some time to prove its operative abilities.
>
> *Consistency* of policy over time. Energy efficiency programs take time to implement and savings are realized over time. Frequent changes in goals, program design or commitment to purpose does great harm to achieving

efficiency results.[15] Further, efficiency policy requires ongoing political support and regular supportive public policy pronouncements from policy makers.

Consensus of key stakeholders as to goals and structure, as well as program design, measurement metrics, performance based regulation. At a minimum, key stakeholders include the utilities and the regulators. Ideally, it includes all major interveners, customer classes, environmental and low-income stakeholders. The broader the consensus, the more successful programs and energy savings results will be. (Harrington, 2003, p. 6)

The importance of these principles cannot be overemphasized. Building an efficiency capability is a long-term project. It will not survive constant shifts in budget, mandate, and regulatory treatment. This means that the IAS, whatever the details of its structure must have a very clear and broadly supported mandate. It must have the ability to "build a constituency" through successful program implementation. It must be given time to build successful strategies and relationships. It is important that the policy goals be as broadly defined as possible. Goals should address market transformation and resource acquisition; they should include consideration of societal benefits such as environmental improvement and economic development benefits and the long-term benefits of DSM and distributed resources to utilities and customers.

It is not guaranteed that either Vermont or Oregon has assured the longevity of its IAS, but the ETO's 10-year contract and the Vermont contract option for 6-year cycles help provide an unprecedented platform of support for DSM implementation.

4.2.2 Performance Requirements and Implementation Flexibility

Both the EEU and the ETO have an unusual combination of specific performance objectives and "freedom of motion" in the actual implementation of programs. Advisory boards and public input are important to IAS performance, but they pale next to the importance of this unique combination of performance mandate and flexibility.

The contracting entity (which in both Vermont and Oregon is the PUC for the state) should have the ability to adjust and tailor performance requirements (consistent with underlying mandates) to direct the efforts of the IAS by providing the right economic and regulatory rewards.

Vermont and Oregon differ in the specifics of their IAS contract arrangements. Vermont operates through a competitive bid process and retains approximately 3% of contract funds as a performance incentive. So far this has worked well. A critical event in the life of the EEU will be the "re-bidding" of the EEU contract for 2006.

[15] We want to stress that the *policy* consistency discussed here is not to be identified with *program rigidity*. In fact, as we have emphasized, flexibility of implementation is essential, but must be guided by a consistent policy direction.

Since the ETO is a special-purpose entity created only to deliver the public benefit programs in Oregon a performance contract may be less critical, although time is needed to understand how performance of the ETO will be evaluated. The authors believe that any competitively bid IAS should have a performance contract with an incentive system.

In both the EEU and the ETO, it is clear that the *only* purpose of the organization is to implement effectively the programs it is hired to deliver. This makes the structuring of the performance contract, and the granting of flexibility far easier to do than it would be for utilities with many other publicly mandated and internal performance objectives.

The choice between creating an independent, not-for-profit entity and contracting with a firm through a competitive bidding process should be based on the circumstances of each regulatory jurisdiction. In Oregon, the ETO was created instead of selecting a state agency to implement programs. In Vermont it was clear that there were more than one firms interested in bidding to be the EEU. If there are not one or more credible potential bidders, then it may be best to consider creating a new entity such as the ETO.

4.2.3 Utility Incentives to Support DSM Implementation

The issue of the utility relationship to DSM is a complex one and can be determinative in whether or not an IAS will be successful.

In Vermont and Oregon, special ratemaking treatment of DSM was abandoned as part of the transition to an IAS.

In Vermont this change was acceptable to utilities in part because the level of funding for EEU activities was specified in the stipulation among parties and in Vermont law. Utilities shed the regulatory risk and continued scrutiny associated with their implementation of DSM, and felt they had some assurance that the level of DSM activity will be limited over time.

In terms of implementation effectiveness the creation of the IAS addressed the problem by contracting with an organization whose mission was clear and focused, and guided by direct performance requirements and significant rewards (and loss of rewards for failure to perform).

In other words, Vermont dealt with the issue of utility disincentive for DSM by "separation of function". It is not clear that utility hostility to DSM will remain in abeyance in light of political changes, or that it would not resurface abruptly should a proposal to dramatically increase the level of DSM effort be made. It is likely that a similar dynamic has taken place in Oregon. The ETO has relieved utilities of some functions and risks, and in the context of "restructuring" that may have been more desirable for utilities redefining their corporate missions. In both cases a long history of firm regulatory insistence on DSM helped make the current arrangement acceptable to utilities.

In the long run some form of revenue-cap performance-based regulation of utilities would probably provide the most stable environment for an IAS to function in constructive partnership with utilities. This kind of change should not, however, be considered necessary or a pre-requisite to adoption of an IAS.

4.2.4 Make the Mandate Broad

As the potential for developing distributed resources in addition to efficiency gain economic credibility and their environmental and system reliability benefits are more widely recognized it will be important for the IAS to facilitate the inclusion of those options into its service offerings.

In this regard, the ETO, which has a broader mandate and funding that permits provision of more services, offers greater potential than the Vermont EEU as currently configured. It is not essential, or necessarily even preferable, that all these services start being delivered by the IAS at once, but the flexibility to add them as capability grows and opportunities emerge is important.

4.2.5 Partnerships With Key Players

In both Vermont and Oregon, responding to the concerns of large industrial (and, potentially, large commercial) customers needs to be an important part of an IAS strategy. Vermont created a special program for self-implementation for one large customer class that also allowed for EEU oversight and partnership. In Oregon, large customers (over 1 MW) have the option to "self-direct" their energy efficiency funds to some degree. Staff reports from ETO indicate that these customers are increasingly satisfied with the services and incentives offered through ETO programs and are not choosing the self-direct option in great numbers.

The important point is that in negotiating the structure of an IAS special accommodations to the concerns of large customers may need to be made. Special provisions of this sort should be structured to provide incentives for substantial cost-effective efficiency investment by large customers. The IAS should be provided the flexibility to develop partnerships with those same customers that might provide them even greater benefits, and thus create an incentive for closer working relationships over time.

4.2.6 Allow the IAS to Develop Support for its Services

This may seem a subtle point, but the IA will be operating in an environment that always has a significant political component to it. The IA should *not* be authorized to engage in political activity; it should be technically competent, economically efficient, not wedded to specific technologies or products.

On the other hand, one of the strongest assets an IA can develop, and one that will help it survive to deliver its services, is the ability to build (primarily through effective performance) a reputation as a valued public resource. It should thus be authorized, in addition to public education and marketing outreach some level of name-recognition marketing, so that it's work is known and its function understood and valued.

To the extent that it can be put in place with broad support from utilities, public advocates, industrial and commercial customers and regulators, this objective will be advanced as well.

4.2.7 Pay Attention to All Players

As stated above, each IAS will be developed in a unique context. The roles of the state PUC and any energy public advocacy organization and/or Energy office will be very important to define carefully, and in a manner that enhances the opportunity for cooperative efforts and minimizes the risk of jurisdictional or "turf" battles.

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