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Report for

**Vermont Public Service Department
Energy Savings Account Program
Process Evaluation**



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Table of Contents

I.	Introduction	1
A.	Report Organization.....	1
II.	Methodology.....	1
III.	Background	2
A.	Statutory Requirements and Objectives.....	2
B.	Procedural History to Date: Program Design Considerations and Participation Limitations	3
IV.	Operational Review of ESA Program.....	4
A.	EEU Roles and Responsibilities	4
B.	EEU Input on ESA Program Design.....	7
V.	Review of ESA Program Participation	10
A.	Review of ESA Participant Account Histories.....	10
VI.	Prospective ESA Participant Review	12
VII.	Review of Best Practices for ESA-Type Programs	13
VIII.	Recommendations	14
A.	Administration	14
B.	Program Design.....	14
C.	Evaluation	17
IX.	Conclusion.....	18

I. Introduction

This report presents the findings of the process evaluation of the State of Vermont's Energy Savings Account (ESA) program. This process evaluation report fulfills a statutory requirement for the Vermont Public Service Board (PSB) to evaluate "participation and experience with the ESA option,"¹ and fulfills one evaluation component included in the Department of Public Service's (DPS) Board approved EEU evaluation plan². The scope of this evaluation includes an investigation of the ESA program statutory requirements to date, an operational review of the ESA program administration by Efficiency Vermont (EVT), an assessment of the experiences of ESA program participants, and elicitation of insights from potential program participants. The perspectives of non-participants, participants, and EVT were gained through stakeholder interviews. The interview findings informed the development of the recommendations for the ESA program.

A. Report Organization

Following this introduction is a description of the methodology employed for the evaluation. The next section provides background information on the ESA program, including the program's statutory requirements and objectives, the procedural history to date, and program design considerations and participation limitations. Section IV presents an operational review of the ESA program, a description of EVT roles and responsibilities, and an assessment of challenges and opportunities for the program. Section V is a technical review of past and current ESA program participation, including a review of ESA participant account histories. Section VI presents a review of insights from prospective ESA participants. Section VII provides a high-level review of best practices for ESA-type programs. The report concludes with a presentation of recommendations for improving the ESA program design and administration.

II. Methodology

This ESA program evaluation included the following key elements:

1. Research into the ESA program statutory requirements and program design,
2. High-level review of best practices for ESA or other similar program implementation in other states,
3. In depth interviews with:
 - a. Program participants
 - b. Non-participants that are qualified to participate
 - c. Efficiency Vermont (EVT) personnel responsible for ESA program management and implementation
4. Review of ESA program documentation including customer level tracking and reporting documents

The EVT interviews and data reviews provided insights into EVT roles, processes, challenges, and opportunities for the success of the ESA program. The participant and non-participant interviews were designed to elicit perspectives on the ease of participation, barriers to entry, the overall value of the

¹ State of Vermont Public Service Board, "Energy Savings Account Option for Customer Self-Administration of Energy Efficiency," Attachment A. 12/22/2009.

² State of Vermont Public Service Board, "Vermont Department of Public Service Electric Energy Efficiency Evaluation Plan, 2012-2014." 4/1/2011.

program, and recommended program design modifications. The research findings were summarized and synthesized into recommendations for improving the ESA program design and administration.

III. Background

This section provides a review of ESA program statutory requirements and objectives, and the procedural history to date, including program design considerations and participation limitations.

A. Statutory Requirements and Objectives

The Vermont Energy Savings Account (ESA) program is a self-administered³ efficiency incentive program for improved energy efficiency among Vermont energy utility customers that are required to pay the state Energy Efficiency Charge (EEC). The State of Vermont Public Service Department (PSD) is responsible for evaluating the ESA program as part of the PSD's overall authority to protect the public interest in state-wide energy efficiency. The ESA program was established on December 31, 2009 through Public Act 45, § 14a. (Vermont Energy Act of 2009) and Vermont Statute Title 30 V.S.A. § 209. The program is funded by ratepayers via the state EEC, which is designed to serve several important state objectives⁴:

- Reducing the size of future power purchases;
- Reducing the generation of greenhouse gases;
- Limiting the need to upgrade the state's transmission and distribution infrastructure;
- Minimizing the costs of electricity;
- Providing efficiency and conservation as a part of a comprehensive resource supply strategy;
- Providing the opportunity for all Vermonters to participate in efficiency and conservation programs; and
- Targeting efficiency and conservation efforts to locations, markets or customers where they may provide the greatest value.

Per Vermont Statute Title 30 V.S.A. § 209, Vermont Public Service Board (PSB) is charged with ensuring participation in efficiency programs, which is in-line with the state's objectives for the EEC. Specifically, the PSB shall:

“Ensure that all retail consumers, regardless of retail electricity, gas, or heating or process fuel provider, will have an opportunity to participate in and benefit from a comprehensive set of cost-effective energy efficiency programs and initiatives designed to overcome barriers to participation.”⁵

To that end, the statute requires the PSB to:

“Promote program initiatives and market strategies that address the needs of persons or businesses facing the most significant barriers to participation.”⁶

The stated intent of the Vermont ESA program recognizes “that certain large business customers already may be committed to, and possess considerable expertise regarding energy efficiency.”⁷ The creation of

³ Although categorized as “self-administered”, EVT administers the program and provides support to participants.

⁴ State of Vermont Statutes: Title 30 V.S.A. §209(d)(4)

⁵ State of Vermont Statutes: Title 30 V.S.A. §209(e)(1)

⁶ State of Vermont Statutes: Title 30 V.S.A. §209(e)(4)

⁷ State of Vermont Public Service Board, “Energy Savings Account Option for Customer Self-Administration of Energy Efficiency,” Revised Attachment A. 1/28/2011.

the ESA Program is an alternative path to participation designed to increase flexibility for larger commercial and industrial (C&I) customers.

B. Procedural History to Date: Program Design Considerations and Participation Limitations

The ESA program has been executed through orders issued by the Vermont PSB, notably the “Order Establishing an Option for Certain Business Customers to Self-Administer Energy Efficiency through the Use of an Energy Savings Account” (12/22/2009) and its attachment “Energy Savings Account Option for Customer Self-Administration of Energy Efficiency.” These program design documents specify eligibility and application requirements for participants; define “Qualified Expenses” and “Available Funds” for participants; define the roles of the PSB, the PSD, the energy efficiency utilities (EEUs) and the participants; as well as provide guidance for termination of participation and dispute resolution. Energy and demand savings achieved through ESA projects count toward EEU contractual performance goals and all Quality Performance Indicators (QPI) and minimum QPI..

Vermont utility customers who pay an average annual EEC of at least \$5,000 (preceding 12 month period or the average of the preceding 3 year period) may apply to the Public Service Board to self-administer energy efficiency through the ESA⁸. The “Available Funds” for ESA program participants are limited to 70 percent “of the EEC that the customer has paid since its ESA start date, or is projected to pay to its distribution utility through the EEC, for a three-year maximum period, net of taxes”⁹. The remaining 30 percent of EEC funds are to be used by the EEU to achieve system wide benefits¹⁰. Participants may request an increase in their available funds upon completing at least four ESA projects with verified savings after at least two three-year ESA periods. Available Funds not utilized by a participant within a 24 month period will be forfeited back to the EEU for other purposes authorized by the PSB.

Eligible customers apply to the ESA program by submitting a written request to the PSB, PSD and EEU. Once participation is authorized, the ESA participant can submit projects for review by the EEU. Proposed efficiency measures/projects must have a simple payback period greater than or equal to 18 months to receive incentives. All ESA measures/projects must pass the cost-effectiveness screening requirements established by the PSB for all Vermont EEUs. The EEU reviews the application for cost-effectiveness (up to 60 days). ESA funds are disbursed to participants as reimbursements, following notification to the EEU that the project is complete and pending final review by the EEU of project costs and estimated energy savings.

Since the time of establishment in 2009, the ESA program has been subject to several proposed modifications. These modifications include:

- Proposed and Accepted:
 - Allowing participants to receive technical assistance from EEUs¹¹

⁸ State of Vermont Statutes: Title 30 V.S.A. §209(d)(4).

⁹ State of Vermont Public Service Board, “Energy Savings Account Option for Customer Self-Administration of Energy Efficiency,” Attachment A. 12/22/2009.

¹⁰ State of Vermont Public Service Board, “Order Establishing an Option for Certain Business Customers to Self-Administer Energy Efficiency through the Use of an Energy Savings Account.” 12/22/2009.

¹¹ State of Vermont Public Service Board, “Order Modifying the Option for Certain Business Customers to Self-Administer Energy Efficiency through the Use of an Energy Savings Account.” 1/28/2011.

Energy Savings Account Process Evaluation Report for PSD

- *Proposed by DPS, EVT, Burlington Electric Department (BED), and Associated Industries of Vermont (AIV) on 10/22/2010.*
- *Accepted by PSD on 1/28/2011.*
- Allowing EEUs to review project costs for reimbursement, thereby eliminating duplicate effort of EEUs' Fiscal Agents¹²
 - *Proposed by DPS, EVT, BED, and AIV on 10/22/2010.*
 - *Accepted by PSD on 1/28/2011.*
- Proposed:
 - Relaxing the 18 month minimum payback period for project screening
 - *Proposed by Champlain Water District (CWD) on 5/29/2013.*
 - Adoption of a third ("Prescriptive") category of measures for the ESA program, in addition to "market opportunities" ["market-driven"] and "retrofit". The intent is to reduce EEU screening efforts and to advance simplicity and transparency¹³
 - *Proposed by CWD on 7/5/2013.*

In response to the stakeholder-proposed modifications that have not yet been accepted, and in fulfillment of its evaluation plan and program requirements, the PSD has outlined the following items for evaluation¹⁴:

- "Whether prescriptive measure incentives currently offered by an ESA participant's EEU should serve as a not-to-exceed limit for reimbursing participant investments in the these same measures;
- The appropriateness of relaxing or waiving the '18 month payback' requirement for these prescriptive measures;
- Whether the 18 month payback should be modified for other measures; and
- Other program design modifications as deemed necessary."

IV. Operational Review of ESA Program

This section provides an overview of the interviews conducted with Efficiency Vermont (EVT) personnel who are actively engaged in managing the ESA Program and managing the ESA customer accounts. Efficiency Vermont is the only EEU with ESA participants. The ESA is available to customers of the Burlington Electric Department, but there are no participants with that EEU. The interviews investigated the reporting and technical functions of EVT with respect to the ESA program. This section summarizes EVT roles, processes, challenges, and opportunities for the success of the ESA program.

A. EEU Roles and Responsibilities

As an energy efficiency utility (EEU), the primary roles and responsibilities of EVT with respect to the ESA program are to:

¹² Ibid.

¹³ Vermont Energy Investment Corporation, correspondence: "Re: EEU-2013-02 ESA Limitation on Qualified Expenses." 7/5/2013.

¹⁴ State of Vermont Department of Public Service, correspondence: Re: EEU-2013-02 ESA Limitation on Qualified Expenses." 7/5/2013.

Energy Savings Account Process Evaluation Report for PSD

- 1) Educate eligible customers of program opportunities;
- 2) Assist customers with the identification of energy efficiency investment opportunities¹⁵;
- 3) Review customer applications for energy efficiency funding; and
- 4) Administer customer-level and program-level tracking, reimbursement, and reporting of expenditures

The Board Order creating the EEU allows for the EEU to claim savings generated under the ESA and states that those savings count toward the EEU's goals.¹⁶ The Board Order also includes a provision to renegotiate goals for the EEU should the amount in the fund exceed 1% of the EEU's annual budget.¹⁷

The following is a discussion of relevant insights into each of these roles and responsibilities. At the conclusion of this section is a summary of the challenges and opportunities associated with EVT's roles and responsibilities in the ESA program

1) Educate eligible customers of program opportunities

At the time of the ESA program's establishment, EVT executed an initial outreach to customers about the ESA program opportunities and processes via a mass mailer, and via in-person meetings between interested customers and EVT account managers. EVT account managers were internally trained on outreach to ESA participants. The training and subsequent initial outreach was focused primarily on the content of the "Comprehensive Guide for Energy Savings Accounts" document. This 16-page "Comprehensive Guide" refers to ESA program documents, and augments these documents by providing an outline of application rules, requirements, and examples. The "Comprehensive Guide" is also available on EVT's ESA program website¹⁸. Both the EVT's website and the PSD's website¹⁹ contain a link for the "Agreement to Terms and Conditions for Energy Savings Account Participation." The "Terms and Conditions" document provides a succinct, 2-page outline of the roles, responsibilities, and rules for both the applicant and the EEU.

EVT account managers have established relationships and dialogue with customers throughout the state, and discussion of ESA program opportunities will occasionally arise out of customer interest. EVT engages customers with ESA program assistance once customers apply for the program and their eligibility has been approved by the PSB. EVT does no ongoing promotion of the Program. If they receive an inquiry from a potential participant, they respond by sending out a packet of information. The Account Manager will follow up with a one-on-one discussion if desired by the customer. There so far have been very few direct inquiries from customers to EVT regarding the ESA program.

2) Assist customers with the identification of energy efficiency investment opportunities

Although the ESA program is designed to allow customers to independently identify and develop energy efficiency opportunities, EVT actively assists ESA customers in identifying opportunities using the same methods and processes as are used for non-ESA customers including:

- EVT maintains an account manager who works with the participants on a periodic basis to identify potential opportunities.

¹⁵ This is a voluntary role that is not required under the Board Order.

¹⁶ *Order Establishing an Option for Certain Business Customers to Self-Administer Energy Efficiency Through the Use of an Energy Savings Account*, Vermont Public Service Board, 12/22/2009, p5

¹⁷ While the language in the Order is temporally specific it seems clear to the evaluation team that should the trigger of 1% EEU funding in the ESA be met, that a renegotiation of EEU goals would be appropriate.

¹⁸ http://www.encyvermont.com/about_us/energy_initiatives/ESA.aspx

¹⁹ http://publicservice.vermont.gov/topics/energy_efficiency/esa_program

- EVT personnel perform a “walk-through” at a customer’s facility to help identify opportunities with the customer.

In general, ESA participants mostly identify “market opportunity” measures for systems and equipment that are near the end of their useful service life and are in need of replacement. EVT assistance generally spurs the identification of “retrofit” opportunities for efficiency upgrades. Additionally, EVT may assist customers to engage specialized engineering consultants for process-specific efficiency analyses/studies.

In some cases an outside engineering or vendor study may help to support investment into a retrofit. Such studies are a common part of the non-ESA programs. In one case, an outside vendor promoted services typically available to non-ESA customers to an ESA customer, presuming the same level of EVT incentive would be available for the engineering study as was provided for non-participant projects. EVT has no record of the study proceeding under the ESA rules which prohibit any upfront payment for engineering or vendor studies. No measures on the affected system were pursued under the ESA indicating that the study may not have proceeded.²⁰

3) Review customer applications for energy efficiency funding

ESA program participants pursuing funding for energy efficiency projects must submit their project applications to their EEU for review. EVT performs a technical review of project applications and evaluates projects per the requirements of the ESA program (e.g. 18 month payback threshold and cost-effectiveness). EVT personnel regard cost-effectiveness as the pre-eminent criterion for evaluating efficiency measures across all energy efficiency programs.

Each efficiency project implemented under the ESA is counted towards EVT’s system-level tally of kWh savings, summer kW savings, and resource benefits. There are no energy or demand savings goals for the ESA program, and there has so far been no goal setting performed with ESA program participants. Nevertheless, capacity reductions count toward EVT statewide goals and applicable Geographic Targeting (GT) goals, and are bid into Forward Capacity Market (FCM) savings.

The EVT technical review process for applications is typically iterative. Upon initial review of ESA projects, there is typically a need for additional supporting information or revisions to the estimates, which the Account Manager pursues with the participant. EVT account managers do not view the ESA review process as onerous or inefficient relative to other programs. They do indicate that a considerable amount of “hand-holding” is required and provided throughout the application process to bring projects to implementation.

The interviews with EVT account managers included a high level review of the tracking database documenting the extensive communication with ESA participants regarding their submitted projects and culminating in the issuance of a rebate check.

4) Administer customer-level and program-level reporting of expenditures

EVT reports the expenditures of ESA program funds at both the customer-level and program-level. Customers are responsible for reporting expenses to the EEU. EVT provides monthly reporting of participant expenditures and available funds to the PSD and the participants. Review of the monthly

²⁰ The evaluators attempted to investigate the study directly with the customer, but the participant was unavailable to participate in an interview.

customer reports indicated that in general the reports include the necessary data to determine the expenditure and availability of the customer's ESA funds. The review found a data entry error and an error regarding the point at which ESA funds would be forfeited. Neither of these issues had any direct impact on the customer accounts. Upon notification of the issues, EVT corrected the reports and the revised reports were verified as correct by the evaluators. EVT expenditures for the ESA program including staff time and incentives are not tracked separately from other programs. There are no separate invoices or reports for the ESA at the program level²¹.

B. EEU Input on ESA Program Design

The interviews with EVT personnel investigated ESA program design elements that are of particular interest to our process evaluation:

- 1) Appropriateness of the 18 month payback threshold
- 2) Appropriateness of a "prescriptive" option
- 3) Reimbursement amount and timing for engineering studies

The following is a synthesis of the interviews with EVT. The recommendations of the evaluators are presented in Section VIII.

1) Appropriateness of the 18 month payback threshold

The 18 month payback threshold for "retrofit" projects is designed to encourage larger, more capital intensive projects that may not otherwise be completed. Additionally, the 18 month payback threshold may help to reduce free-riders in the ESA program. Since the 18 month threshold applies only to "retrofit" projects, it does not apply to "market opportunity" projects. The ESA program is the only efficiency program to employ an 18 month screening requirement. Non-ESA projects, notably those under custom programs, employ other screening considerations such as time and labor to implement and capital cost. ESA and non-ESA projects are all subject to a cost-effectiveness criterion (i.e. the State Screening Tool), and cost-effectiveness effectively serves as a universal criterion for project evaluation.

The 18 month payback threshold can have the effect of either disqualifying cost-effective projects from receiving incentives²², or providing an overly generous incentive for projects with a longer payback period. EVT notes that relaxing or eliminating the 18 month payback requirement could stimulate more participation in the ESA program. An increase in the number of participants would consequently increase the administrative burden (i.e. accounting and reporting tasks) of the EEUs.

2) Appropriateness of a "prescriptive" option

EVT personnel regard a "prescriptive" option within the ESA program as an opportunity to significantly reduce management/administrative costs for EVT/EEUs while increasing the ability of customers to participate. There was discussion of how such an option might work as it would be infeasible to include an 18 month payback criteria with prescriptive rebates and deemed savings measures.

²¹ ESA-specific expenditure tracking, reporting, and invoicing are not required by the PSB.

²² EVT claims savings for projects that do not receive incentives due to a payback of less than 18 months. This is because EVT provides a significant level of customer engagement. Should ESA participation increase significantly or other EEU customers engage in the program, future evaluations should investigate this practice in more depth.

3) Reimbursement amount and timing for engineering studies

It is suspected that the 25% reimbursement limit for engineering studies may impact ESA program participation and/or project development. EVT suggested that a participant's risk of 0% reimbursement for studies of projects that are not implemented may present another barrier for participants. It is known that at least one engineering study was contracted (a compressed air system study) for a measure that ultimately was not implemented. It should be noted that other EVT efficiency programs do not carry a 25% limitation on engineering study reimbursement, and that custom programs typically provide 25 – 100 percent reimbursement for such studies. EVT reportedly has more engagement in determining the focus of these studies and expressed the need to ensure that initiated studies are focused on efficiency, as opposed to industrial process improvements in general.

Pros and Cons of Increased Participation

The interviews with EVT investigated the potential impacts of significantly increasing participation rates in the ESA program that could result from potential redesign of the Program. The following is a synthesis of the impacts on EVT that were identified by EVT:

- *Increased administrative costs.* The tracking of ESA funds is manual – customers report their charge to EVT on a monthly basis based on their actual electric utility bill; EVT maintains a spreadsheet in which they record the monthly EEC data and any ESA qualified expenditures which have been paid out. These spreadsheets are updated and sent to the customers and PSD on a monthly basis. Handling this tracking and reporting on a manual basis is viable for the EEU with a small number of ESA participants. If the number of participants increased significantly the administrative burden would be significant and an automated tracking and reporting mechanism would likely need to be developed.
- *Potential for higher participation for currently non-engaged customers.* EVT indicated that there are a limited number of customers with managed accounts who are not actively engaged with their account managers. It is possible that relaxing the ESA program requirements could result in these customers enrolling in the ESA program and undertaking measures on their own.
- *Potential for an increased number of smaller customers to enroll.* Smaller C&I customers often don't have the capacity to self-administer which could result in lack of savings both for the customer and the EEU.
- *Lack of control over project completions and achievement of savings goals.* If a large number of customers enrolled in the ESA, the EEU would have a reduced ability to manage performance relative to spending, energy savings goals, and other QPIs (Quality Performance Indicators)²³.

While relaxing the program requirements could increase participation in the ESA, it was unclear that the benefits would outweigh the potential negative impacts on the EEU²⁴. These questions were further investigated through interviews with both active and potential participants.

Findings

The interviews with EVT personnel revealed significant challenges and opportunities for EVT processes, and for the ESA program as a whole. The following is a synthesis of the discussions with EVT and are not

²³ Cx Associates and the PSD note that if a large number of customers enrolled in the ESA program, it would give individual customers more control and EEU performance may positively impact EEU performance.

²⁴ Cx Associates and the PSD note that the primary goal of the program is to provide an opportunity for participation in energy efficiency incentives. Impacts on the EEU are a secondary consideration which could be addressed by not linking ESA project performance to EEU performance goals.

recommendations of the evaluators. The recommendations of the evaluators are presented in Section VIII:

1. Delayed notification from the PSB to EVT regarding approval of participant eligibility in the ESA program can delay administration of EVT processes.
 - The engagement of EVT with the customer has in at least one instance been delayed by several weeks. Such delays may impact project planning and momentum.
2. EVT noted that accounts associated with new construction projects have not yet paid an EEC, and are therefore ineligible for participation in the ESA until a year or two after completion. A review by the PSD revealed that customers in a new building may in fact be deemed eligible based on projected EEC payments. This option should be reviewed with EVT account managers.
3. From an administrative perspective, the ESA program tracking and reporting presents an additional burden on EVT/EEU resources. However, because of the current low participation rate, this burden is relatively small.
4. The requirement for customers to compile their EEC information in order to apply for eligibility in the ESA program may have the effect of discouraging enrollment. This can be especially burdensome for customers that have a large number of utility meters.
 - Utility assistance in compiling this data on behalf of the applicant may help to facilitate program participation. Currently, utilities provide EVT with only demand and consumption data (no billing data).
5. Cx Associates observed that the EVT website²⁵ could be updated with the more recent, revised PSB “ESA Order” documents, and a link to the PSD’s ESA website. The EVT website’s content mirrors the PSD’s ESA website²⁶, which could also benefit from an update of document links. The online source of the latest program documents is currently the Board’s website²⁷, which is not directly linked to either the PSD or EVT website.
6. Higher available incentive amounts in non-ESA custom programs may be a barrier to participation.
7. The length of time available for customers to use funds may be a barrier to both participation and project funding.
8. The level of engineering study funding and the requirement that the project be implemented prior to any incentives being provided likely limits investment in engineering studies and likely the identification of cost effective opportunities.
9. Although approximately 300²⁸ customers may qualify for eligibility in the ESA program, very few customers reportedly have the resources/staff to self-manage energy efficiency projects. Only a handful of customers have energy efficiency managers on staff.

²⁵ http://www.encyvermont.com/about_us/energy_initiatives/ESA.aspx

²⁶ http://publicservice.vermont.gov/topics/energy_efficiency/esa_program

²⁷ <http://psb.vermont.gov/projects/eeu/selfadministeredeficiency>

²⁸ EVT interviews revealed a range of estimated number of participants and or sites from 300 – 5,000. Because many larger customers have multiple meters, the lower limit is used in this report.

10. EVT personnel suggest that raising the eligibility threshold above \$5,000 could help ensure that the participants have enough financial resources available to implement projects through the ESA and that they are more likely to have the capacity to develop and implement projects more independently.

V. Review of ESA Program Participation

The past and current participants in the ESA program were contacted for interviews, with the purpose of assessing ease of participation, barriers to entry, the overall value of the program, and recommended program design modifications. There have been only two active ESA participants and only one participant was available to provide their firm's perspective.

A. Review of ESA Participant Account Histories

In addition to the participant interview, the account histories of both participants were reviewed to assess the pace of fund accrual in accounts compared to implementation of projects. As noted above, the review identified some errors which were resolved by the EEU. One additional issue is that both participants indicated that they did not always receive a monthly account statement. One participant indicated they had not received an account update since May of 2013²⁹.

Table 1 below summarizes the ESA program participation in terms of number of participants, number of energy efficiency projects, total program energy savings, and energy savings per year of program participation. We have also provided reported savings from the Efficiency Vermont 2012 annual report which shows a lower cost per MWh for the entire Business Existing Facilities offerings, than was claimed for all ESA projects completed since program inception, including any ESA projects that completed in 2012. Data is reported in kWh due to the relatively small scale of the ESA participant projects. Because of the very small number of participants and projects, there is limited data on which to base any conclusions regarding program performance. The magnitudes of savings are reasonably consistent with the size of firms that are participating in the program.

²⁹ The evaluators were unable to determine if there was in fact a hiatus in EVT issuing the reports or whether there was an issue with the transfer of the reports within the participant's operations. However, both participants independently reported a lapse in reporting by the EEU.

Table 1: Overview of ESA Program Participation

ID	No. of Projects	Gross Annual Savings (kWh) ¹	Savings per Year of Participation (kWh/yr)	Total Incentive Cost	Incentive Cost per kWh ¹	Total Customer Investment	Customer Cost per kWh
1	4	51,317	23,685	\$12,611	\$0.25	\$23,648	\$0.46
2	1	14,762	4,662	\$4,800	\$0.33	\$2,571	\$0.17
ESA Program ²	5	66,079	28,347	\$17,411	\$0.26	\$26,220	\$0.40
Business Existing Facilities Program ³		50,395,000	NA	\$9,788,637	\$0.19	\$13,400,590	\$0.27

1. Includes project claimed by EEU that did not receive incentives due to short payback period
2. ESA numbers are since inception; first participant enrolled in October 2010 (38 month period)
3. Efficiency Vermont Annual Report 2012 (12 month period) provided for reference. Includes any qualifying ESA projects completed in that year.

The evaluators conducted a census review of the Comprehensive Analysis Tools used by EVT to quantify savings, costs and incentives for the ESA projects. This review indicated that incentives were appropriately calculated to provide an 18 month payback and the measures were typically lighting which would have qualified as prescriptive, and in most cases, would receive lower incentives under a prescriptive program.

There is no requirement for the EEU's to track overhead costs associated with administering the ESA separately, therefore overall program administrative costs could not be assessed. However, as noted above, EVT has chosen to provide a higher level of customer engagement and support for ESA participants than is typical of a "self-direct" program which likely increases the cost of administration.

Program Participant Findings

The following is a summary of the findings from the participant interview and review of the account histories.

1. Communication with EVT is prompt, efficient, and helpful.
2. Customer account reporting could be more consistent (some monthly reports not received).
3. One participant has forfeited funds from their ESA accounts.
4. Application process could be improved by providing applicants with immediate acknowledgment of application submission and a timeline for review/approval.
5. It is helpful to have outside technical consulting for developing project details, and then bring in EVT for project screening.
6. A prescriptive incentive format can make project applications much easier.

7. It has been difficult to develop project concepts within the time period available for fund expenditure. There is concern that eventually the firm will not be able to come up with project concepts and will forfeit subsequent funds.
8. Reduction of the 18 month payback period criterion would help to support lighting retrofit projects.
9. Up front reimbursement for engineering studies could be helpful for developing projects.

VI. Prospective ESA Participant Review

Senior facility management personnel from several industrial firms who are eligible to participate in the ESA, but are not participating (potential participants) were interviewed to gain insights in opportunities from improving the ESA program. The firms include both firms that have expressed interest in entering the ESA program, but have not applied and firms that are eligible, but have not necessarily expressed interest in the program.

Prospective Participant Findings:

The following is a summary of the findings from the non-participant interviews. The interviews with non-participants of the ESA program revealed challenges and opportunities for serving the needs of potential ESA program participants:

1. The reimbursement limitation for engineering studies (25% of total project cost), may be restrictive for low-capital projects and therefore smaller-scale facilities and organizations.
2. One customer had no knowledge of the ESA prior to be contacted for the interview. Additional communication regarding the Program would be helpful for business managers.
3. A “cheat-sheet” with side-by-side comparison of ESA program vs. other program(s) may help organizations evaluate their participation in the ESA program.
 - a. It is difficult to tell how the administration of project design and implementation compares between ESA and non-ESA programs.
4. More clarity on the participant exit process would be helpful for evaluating participation.
5. It is possible for customers active in non-ESA programs to receive more incentive dollars than are they pay into the EEC on an ongoing basis.
6. Firms familiar with the ESA program believe that non-ESA programs offer more incentives and administrative support.
7. The state could/should be able to directly obtain billing data for administrative/application purposes, rather than requiring applicants to gather and submit such data.
8. In some cases, an 18 month payback period is an acceptable requirement, since some non-ESA programs/projects utilize a 24 month payback period. A 2-year payback is a common, corporate screening requirement for efficiency investments.

9. The requirement to spend funds within a 24 month period is unattractive. Large projects take several years to plan and implement.
10. Most large efficiency projects are multi-year projects, so the limit on using ESA funds for projects that have already received efficiency program funds is perceived as a barrier to participation in the ESA program.
11. The payment structure for engineering study reimbursement is generally unattractive, given how long it takes to receive funds and given the risk of no funding.
12. Some firms have not seen measurable energy savings resulting from their participation under the non-ESA programs. Thus, there may be a need for clearer communication of project/account performance.
13. One firm indicated that their annual charge is so large that it is infeasible for them to invest 70% of that money and the additional capital required to fund efficiency projects on an annual basis in their facility. This customer indicated that they have worked with EVT, and their total energy use per unit of production has not decreased and together they have been unable to identify projects that cost even close to 70% of their EEC charge.

VII. Review of Best Practices for ESA-Type Programs

A review of the ACEEE (American Council for an Energy Efficient Economy) meta-study of ESA-type programs was conducted to identify best practices. The findings from this review were used to guide the investigation and subsequent recommendations for the VT ESA program. The following are best practices which are either currently incorporated into Vermont's ESA program or may have bearing on any potential modifications to the program³⁰:

- Setting energy savings goals with participants can help to improve the working relationship between the customer and the program administrator.
- Give CFOs a reason to care about EECs and programs: "A good self-direct program moves the fee [EEC], and energy efficiency funding generally, out of the O&M budget and into the capital expenditures budget. It does this by separating the fee [EEC] from the rest of the utility bill and showing the customer that the self-direct-able portion of the CRM [cost-recovery mechanism] fee is a dedicated amount of money specifically able to fund energy efficiency projects."³¹
- "Use it or lose it" arrangements and competitive bid arrangements can help to encourage investments, particularly those with a low IRR. For example, Puget Sound Energy uses a competitive bid process to award any remaining, non-committed funds at the end of their 5-year program cycle. This practice has reportedly dramatically increased participation.
- It is generally recommended that the following data be collected from program participants: the type of investments, the cost of each investment, the overall cost of the energy saved, the amount of energy saved by each individual measure, and the overall amount of energy saved.³²
- Strong relationships and direct communication can be helpful for participation. For example, Xcel Energy engages customers early in the process and requires pre-installation energy monitoring.

³⁰ American Council for an Energy Efficient Economy, "Follow the Leaders: Improving Large Customer Self-Direct Programs," Report No. IE112. October, 2011.

³¹ Currently part of EEC process.

³² Currently part of EVT process.

- Program success may be more directly measured by energy savings rather than expenditures or number of participants.

VIII. Recommendations

The following recommendations have been developed out of the evaluation interviews and research into efficiency program best practices. These recommendations encompass improvements to both the program design and program administration. The recommendations are organized under the following categories: Administration, Program Design and Evaluation. In each section, the recommendations are organized with the highest priority recommendation first.

A. Administration

1. Finding: Participants don't always receive ESA statements
 - *Recommendations: Ensure the statements are sent to the correct person and investigate the viability of providing online access to ESA account information to eliminate the need for mailed or emailed statements.*
2. Finding: potential participants were not fully aware of the ESA and those that were aware found it difficult to compare ESA and non-ESA program benefits.
 - *Recommendation: Provide customers with more frequent and accessible information regarding the ESA option including:*
 - *A side-by-side comparison between the ESA and other incentive programs.*
 - *Annual outreach from EEU's explaining the ESA option, similar to the initial outreach communication at the program inception.*
3. Finding: There is no ESA specific reporting of customer or program savings.
 - *Recommendation: enhance the monthly statement to ESA customers to include project information including project costs, savings, incentives and net payback. This will help customers understand the benefits they are receiving through the ESA and will support future evaluations.*
4. Finding: Monthly reporting is onerous for the participants and the EEU's.
 - *Recommendation: Investigate the feasibility of automated electric utility reporting of monthly ESA charges to the customer and the EEU to streamline access to the EEU of the monthly EEU charge and minimize impact on customers.*

B. Program Design

1. Finding: In order to effectively "self-direct" funds, customers need to invest money in planning and include projects in their capital budgets to ensure funding is available to overcome the 18 month investment threshold for ESA funds. Two years is inadequate

for the development and funding of large projects; planning would support longer term assessment and funding for efficiency investments.

- *Recommendation: Support the integration of ESA project funding and energy savings with participant's capital budgeting by allowing ESA fund expenditure for the development of a customer specific Energy Efficiency Investment Plan (EEIP) that can be incorporated into the business capital budget.*
 - *Earmark a percentage of participant's ESA funds for developing the EEIP documenting fund expenditures and capital investments necessary to procure energy savings.*
 - *The EEIP should be conducted soon after approval of eligibility in the program and should provide an opportunity for a participant to assess continuation of participation.*
 - *Require plans to be completed within first year of ESA participation.*
 - *Tie funds available to support planning costs to both a reasonable threshold that will support planning and the customer specific ESA contribution.*
 - *Use filed EEIPs to guide customer specific modifications to the 2 year period for expenditure of ESA funds.*
 - *Under this process, a modification of the 18 month payback is not recommended.*
- 2. Finding: There was mixed feedback regarding whether the 18 month payback criteria represents a barrier to participation. Review of participant projects indicates that the one submitted project that did not receive funding had a payback of about four months; easing the payback threshold would be unlikely to result in incentives for such projects. Other programs outlined in the ACEEE paper have thresholds of 12 months.

The intent of the ESA program is to support relatively large and complex efficiency projects for larger customers. The largest customers interviewed reported internal investment criteria consistent with or greater than the 18 month threshold.

- *Recommendation: The evaluation team recommends retaining the 18 month payback requirement in the ESA program design at this time. The 18 month payback criterion is not perceived as a barrier to participation by larger, more sophisticated firms/facilities that would be most suited to take advantage of the ESA. The ESA projects to date are less cost effective than the comparable programs implemented by Efficiency Vermont and reducing the payback criteria would further reduce the comparative cost effectiveness of the ESA savings.*
- 3. Finding: EVT provides a higher level of support and assistance to ESA participants than is typical for this type of program. Enabling ESA participants to maximize their incentives by choosing between custom analysis and prescriptive incentive programs with deemed

savings could reduce the cost efficiency that is intended to result from a self-direct type program and introduce more complexity in program administration. For instance, one lighting project that received significant incentives under the ESA would have received significantly lower incentives under a prescriptive option and another did not qualify for any incentives due to a quick payback. Introducing a prescriptive option would result in the need to choose which option applies for each project, increasing costs and the likelihood of disagreement between the participant and the program administrator.

- *Recommendation: Maintain the ESA as a custom self-direct program with no access to prescriptive incentives. Enabling ESA participants to participate in prescriptive incentive programs blurs the lines of participation - The ESA is intended to be a self-direct program in which the participants identify and implement cost effective efficiency measures that meet the program criteria.*
4. Finding: customers are not encouraged and may not undertake engineering studies to help identify opportunities for savings due to the lack of reimbursement under the ESA.
 - *Recommendation: For engineering studies, provide a percentage of funds up-front and a percentage of funds for reimbursement after measures are implemented, similar to the reimbursement strategy for non-ESA programs. The up-front funding would help to reduce the funding risk for projects that do not screen or are not undertaken for other reasons and may help to increase project development and participation.*
 5. Finding: Customers in Vermont are small relative to those in other states and may not have the internal capacity to manage ESA funds effectively.
 - *Recommendation: Consider developing a mechanism to fund a position such as an energy manager within a customer facility using ESA funds. This would support job growth as well as energy efficiency and potentially enable some of Vermont's largest customers to take a more proactive role in energy efficiency investments.*
 6. Finding: Restrictions regarding participation in the ESA for projects that may have received prior funding from the EEU are unclear. Specifically the following requirement: "Customer projects that have received incentive payments from an EEU prior to the initiation of a customer's ESA shall not be projects that are eligible for reimbursement as a qualified expense." It is unclear whether this pertains to projects that received EEU funding for an engineering study, new buildings that received EEU incentives and then wish to participate in the ESA, etc.
 - *Recommendation: Clarify or modify this criteria to ensure that participants in the new construction program and those with multi-year, multi-phase projects that have received past support from the EEU can participate in the ESA Program.*
 7. Finding: Active participants receive significant support from EVT, but are challenged in using their available ESA funds in efficiency investments.

- *Recommendation: Consider raising the threshold for minimum firm size, which is currently defined as customers that have made payments to the EEC of at least \$5,000 per year. Small firms have much fewer funding resources to apply toward projects and face a greater difficulty in utilizing ESA funds. A higher, minimum firm size may help to improve the overall success rate of the program and enable customers to engage independently in implementing efficiency as is typically the protocol for self-direct programs.*
- *Recommendation: Investigate setting-aside forfeited funds for competitive bidding between participants. This could help to motivate more participation and put more funds to productive use within the ESA program.*

C. Evaluation

1. Finding: The lack of ESA goals and reporting results in qualitative program evaluation against subjective criteria.
 - *Recommendations: Develop/define program goals for ESA program. This will provide a basis against which to assess program performance and will help guide future enhancements to the program design. Currently, the stated objectives of the ESA program are generic to all incentive programs, which is to encourage participation in energy efficiency programs and provide access to cost effective incentives. The only discernable objective that is unique to the ESA program is the leverage the knowledge and expertise of customers.*
 - *One potential goal is to increase customer awareness of the ESA program. Progress toward this goal could be measured via a brief EEU-administered survey as part of regular communications with clients.*
 - *Another possible goal from the best practice research is a program savings goal. Establishing savings goals requirements for participants could be useful for both participants and the EEU.*
2. Finding: Efficiency Vermont claims savings for projects that did not receive incentives under the ESA. This evaluation did not perform in depth investigation of the basis for the EEU's claiming these savings; however the research did indicate a significant level of engagement with the customer that could likely justify the savings claim.
 - *Recommendation: Future evaluation scope should include research into the appropriateness of the EEUs claiming savings under the ESA for measures that do not receive incentives under the Program. This should include requiring the EEU to identify such projects up front and providing supporting documentation regarding the practice. The evaluator should verify the EEU's reported engagement and influence on the measures with the participants.*
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IX. Conclusion

This process evaluation has revealed opportunities for improving the success of the ESA program. The recommendations of this report highlight opportunities that should be considered by the PSD/PSB. It is anticipated that the development and refinement of these recommendations, and other findings, into ESA program design elements may warrant additional study.