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February 21, 2014

Ms. Susan Hudson, Clerk
Vermont Public Service Board
112 State Street
Montpelier, VT 05620-2701

Re: EEU-2013-01 VEIC Response to Department's Scenario Modeling Results Comments

Dear Ms. Hudson:

On February 10, 2014, the Public Service Department ("Department") filed comments with the Public Service Board ("Board") on Vermont Energy Investment Corporation's ("VEIC's") analysis of three electric efficiency scenarios for the Demand Resources Plan Proceeding. In its comments, the Department recommended that the Board order VEIC to re-run the scenarios with different assumptions, re-allocate several budgeted expenses in the scenarios, and provide additional information regarding heat pump penetration assumptions.

VEIC filed a request with the Board on February 12, 2014, for additional time to respond to the Department's recommendations. No party objected to VEIC's request for additional time. Therefore, on February 14, 2014, the Board issued a continuance until February 21, 2014, for VEIC to file a response. VEIC appreciates the additional time to develop a response to the Department's comments and presents the attached information for the Board's consideration.

Attached are two documents:

1) Response to Request and Comments from the Vermont Public Service Department Regarding the Analysis of Three Scenarios Demand Resources Plan Proceeding
2) Attachment A: Estimated Additional Costs and Recommended Time Adjustments

VEIC appreciates the opportunity to comment on this matter. Thank you.

Sincerely yours,

Michael Wickenden
Director of Regulatory Affairs

cc: Demand Resources Plan e-mail distribution list

Vermont Energy Investment Corporation

RESPONSE TO REQUEST AND COMMENTS FROM THE VERMONT PUBLIC SERVICE DEPARTMENT REGARDING THE ANALYSIS OF THREE SCENARIOS DEMAND RESOURCES PLAN PROCEEDING

FEBRUARY 21, 2014

CONTEXT OF THIS FILING

On December 6, 2013, the Vermont Energy Investment Corporation (VEIC) filed its *Analysis of Three Electric Energy Efficiency Scenarios for the 2015 – 2034 Demand Resources Plan.* This document was pursuant to the Vermont Public Service Board's *Order Determining Electric Resource Acquisition Scenarios to Be Analyzed and Electric and Thermal Energy and Process Fuel Quantitative Performance indicator Framework* (September 20, 3013). In February 2014, the Vermont Public Service Department submitted a summary of requests and comments about the document. This response addresses the items contained in the summary, in the order in which they appeared.

APPROACH OF THIS RESPONSE

In its Summary of Comments on VEIC's scenario modeling analysis, the Public Service Department recommends that

> the Board order VEIC to re-run the DRP model with no savings or costs attributed to non-hard-wired initiatives in the resource acquisition estimated budgets and estimated savings for three and twenty years (with savings and costs appropriately re-attributed to installed hardware measures.[1]

In addition, the Department requested information regarding "VEIC's heat pump penetration assumptions and the potential impacts of changes in penetrations on VEIC's modeling results." Both of these matters are addressed below, with the heat pump penetration information following VEIC's comments on the Department's recommendation to re-run the DRP scenario models.

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[1] February 10, 2014 Department letter to Susan M. Hudson, Clerk re: EEU 2013-01 Department of Public Service Comments on Vermont Energy Investment Corporation Scenario Modeling Results, page 1.

RE-RUNNING THE DRP SCENARIO MODELING

VEIC agrees with the Department that a re-run of the three modeled DRP scenarios with a new set of assumptions would add to the body of knowledge in the DRP Proceeding. VEIC provides an estimate of its additional costs to perform that analysis and a recommended DRP timeline adjustment[2] if the Board chooses to order VEIC to perform that additional analysis.

However, VEIC does not agree with many of the comments that the Department makes in support of its request for an order to have the three scenarios analyzed with a new set of assumptions. VEIC addresses each of the Department's comments in the order in which they were presented.

1. *VEIC forecasts a ramp-up of non-lighting measures and miscellaneous non-hard-wired initiatives in the residential sector to make up for reduced savings available from compact fluorescent lighting associated with federal policy changes that will take effect in 2020.* (page 2)

VEIC's choice of its portfolio measure mixes is not guided by the objective to "make up" for reduced savings due to changes in measure baselines. Instead, VEIC's objective is to examine the entire suite of cost-effective measures, and after thoughtfully weighing pre-determined Board-ordered assumptions, adjust those measure mixes to comprehensively address cost-effective opportunities. VEIC's December 6, 2013, filing in EEU-2-13-01 Re: Analysis of Three Electric Energy Efficiency Scenarios for the 2015-2034 Demand Resources Plan, 4. Modeling Methods (page 8) provides a detailed description for both Residential and Commercial and Industrial (C&I) modeling approaches.

2. *… greater potential benefit over the long term [compared to designing programs for and claiming savings from, non-hard-wired measures] lies in using data proactively to identify new opportunities and to market hardware measures.* (pages 4-5)

The Department provides no data to support its underlying assumption that significant potential long-term benefits accrue from the proactive use of data to identify new opportunities and to market hardware measures. VEIC agrees that the availability of increased volumes of energy consumption data offer new opportunities with significant potential. VEIC further intends that its expenditures on behavior-based programming will not be tied to a single set of activities in Residential and C&I programming over the 20-year period. That is, VEIC assumes that it will continue its long-standing practice of being responsive to new insights and advances in intelligent energy efficiency. Instead, VEIC has taken an approach that aligns with industry knowledge and practice. VEIC uses the American Council for an Energy-Efficient Economy (ACEEE), among other industry sources, as a context for this alignment. For example, ACEEE recently concluded that

[2] See Attachment A, Estimated Additional Cost and Recommended Time Adjustments.

> … efficiency measures that support intelligent efficiency tend not to be devices, at least of the sort that utilities are accustomed to supporting-rather, the efficiency is gained from a utility customer installing software or subscribing to an outside service (for example, cloud computing). Utilities' method of paying for the implementation of an efficiency measure does not capture the full efficiency benefits of intelligent efficiency systems.[3]

VEIC respectfully remains mindful of the opportunities presented by the proactive uses of energy data, but prefers not to use that awareness as a basis for the implied single approach across the next 20 years.

3. *Data driven efforts may increase the effectiveness of VEIC's existing or new marketing programs,* (page 5)

VEIC agrees that a wealth of data supports the increased use of Home Energy Reporting (HER) in Residential programs. This activity further reinforces VEIC's understanding of the value that this service provides to all residential customers. However, this "uplift" value is not captured in the current cost-effectiveness analysis of the HER Initiative. Thus, the cost-effectiveness of the HER Initiative in the Scenario Analysis document is understated. Please also see VEIC Response Item 18 for additional data concerning the cost-effectiveness of this measure.

4. *...innovative marketing programs using AMI data could require a change in VEIC's marketing budgets, while still allowing VEIC to redirect funds identified in this modeling exercise to instead be used for programs that lead to installed hardware measures.* (page 5)

Please see VEIC's Response Item 6, which applies not just to this comment, but to the next two as well.

5. VEIC *would reallocate the funds identified for behavioral programs to other measures.* (page 5)

Please see VEIC's Response Item 6.

6. *costs for initiatives such as innovative education and marketing (such as those enabled by advanced meter data) could reasonably be included in VEIC's non-incentive costs for resource acquisition.* (page 5)

The Department's proposal recommends allocating behavior-based initiative costs to Resource Acquisition (RA; marketing) and Non-Resource Acquisition (NRA; education) categories, and using any remaining funds to support hard-wire measures. It is unclear to VEIC that this approach would actually result in any additional available resource acquisition investment.

[3] Rogers, Ethan A., R. Neal Elliott, Sameer Kwatra, Dan Trombley, and Vasanth Nadadur. Intelligent Efficiency: Opportunities, Barriers, and Solutions. Research Report E13J. Washington, DC: American Council for an Energy-Efficient Economy, ix-x.

That is, allocating costs of the behavior initiatives in different cost categories in budget-constrained Scenario 1 and Scenario 2 does not free up funds for other investments. In Scenario 3, the suggested approach would raise the total required funding. VEIC is concerned that without the benefits being attributed to behavior-based initiatives, and other cost-benefit elements being held equal, the Department's recommendation degrades the cost-effectiveness of each of the scenarios.

7. *Given current knowledge and information, short-lived non-hard-wired measures such as those modeled by VEIC are not the optimal resource to best advance the public interest.* (page 5)

Please see VEIC Response Item 27, which addresses this and other related comments.

8. *Other modeled programs targeting hardwire measures create more net benefit*. (page 5)

Measure screening in the Portfolio Screening Tool shows that behavior has a lower benefit-cost ratio and a lower net benefit than many other measures. To the extent that hard-wired measures are more cost-effective and have greater cumulative benefit, VEIC also respectfully suggests that comprehensiveness of the portfolio and the ability of the behavior measure(s) to reach more ratepayers at a relatively low per-measure cost, warrant their inclusion. That is, a cumulative benefit can also be seen in the context of wider adoption of behavior measures.

VEIC agrees that one could model a program with differing assumptions that would create more benefits. However, the critical issue in any determination of net benefits is the accuracy of behavior-based initiatives benefit and cost quantifications. VEIC has assumed that in addition to the direct energy savings and associated benefits that flow from the measure analysis, using Vermont's Portfolio Screening Tool, there are other, un-quantified benefits. Those un-quantified benefits involve significant and well-documented market uplift, as well as the educational value that results from broad, residential ratepayer engagement. In addition, the comparison of cost-effectiveness is negatively affected by the inaccurate quantification of comparative measure costs. For the initial HERs measure cost-effectiveness screening, VEIC used the full $11.50 cost per participant. This full cost included what is characterized in the portfolio screening tool (PST) as *incentive* and *non-incentive costs*. Typically, only direct measure costs, referred to here as *incentive costs,* are used when one compares the cost-effectiveness of measures in the PST. Non-incentive costs are included on the program level, and not on the measure level. Thus, measure level comparisons are skewed in favor of non-behavior-based measures.

The behavior-based initiatives are a valuable tool to help satisfy the Board's scenario guidelines and assumptions. In addition, the initiatives directly address legislative priority objectives.[4] They are an effective component of a comprehensive strategy to provide efficiency and conservation as a part of a comprehensive resource supply strategy. They help provide the opportunity for all Vermonters to participate in efficiency and conservation programs.

[4] Title 30, 209 (d)(4)

9. *… using AMI data and other continuing advances in VEIC's capabilities will enable better marketing and uptake of these [hardwire] measures.* (page 5)

Please see VEIC Response Item 3.

10. *The success of the Home Energy Reports rests on non-hardwire measures, which we believe is the wrong emphasis when seeking to deliver long-term value*. (page 5)

VEIC respectfully disagrees, and refers to ACEEE's December 2013 assessment contained in its *Field Guide to Utility-Run Behavior Programs,* which supports the contention that non-hard-wired measures can and very likely will deliver short-term results with long-term value. The extent of the value is becoming less speculative as we all gain experience with such technologies. The Department's comments about the role of behavior measures imply a misplaced confidence by VEIC in these measures' likely long-term value. However, ignoring the effect of behavior in a rapidly emerging era of technology-driven devices that encourage personal and real-time responses seems short-sighted. The *Field Guide* takes this observation a step further and concludes: [5]:

> We offer the following suggestion to increase the effectiveness and cost effectiveness, of utilities' behavior-based efficiency programs. We have examined over 40 different types of behavioral programs, a diverse group that makes it possible for any utility—large investor-owned, medium sized public service, or small rural cooperative—to include behavioral elements in its energy efficiency portfolio. But, despite the vast opportunities, utilities are not maximizing their efforts in this direction…
>
> Despite a natural focus on energy savings, we should also be interested in the outcomes of behavioral energy efficiency programs as they relate to market effects and market transformation. Behavior programs contribute to long-term structural shifts in how people use energy and make decisions about energy consumption, shifts that are important beyond the simple kilowatt[-hour]s saved.

11. *…what we know about the modeled [non-hardwire] programs is highly uncertain* (page 5)

Please see VEIC's Response Item 10.

12. *CEI, as modeled, is based on a set of hypotheses that have not been tested at the program scale* (page 5)

See VEIC's Response Item 10. It is true that Continuous Energy Improvement (CEI) has not been in existence long enough to know its long-term effects. However, VEIC knows from its own experience—not just in Vermont, but with other utility scale programs it operates—that the primary hypothesis driving the CEI approach is sound for approximating long-term value. VEIC can point to its experience with its C&I Energy Leadership Challenge (2010 – 2012) as a well-

[5] Mazur-Stommen, Susan, and Kate Farley, *ACEEE Field Guide to Utility-Run Behavior Programs.,* Research Report B132. Washington, DC: American Council for an Energy-Efficient Economy, December 2013, 32, 34.

tested and successful venture in Account Management—and a precursor to CEI. That is, Account Management, Energy Consulting and Coaching, and other person-to-person contact with building owners reduce energy use. This has already been proven. From the standpoint of counting CEI as a legitimate model for inclusion in scenario testing across a 20-year period, VEIC prefers not to ignore it for lack of program scale hypothesis testing. If it were a model that had no precursors that had been proven already in two different markets (Vermont and the District of Columbia), VEIC would agree with the Department's statement.

13. *The actual savings in Vermont from Home Energy Report-type measures is also open to question* (page 5)

The Department's concern about actual savings from new measures, especially non-hard-wired ones, is understandable. However, this comment is similar to that cited in Comment 10, and VEIC's response to it is the same as that made in Response Item 10.

14. *VEIC characterizes its 1.5% annual savings per home as conservative, however, in informal discussions with VEIC and OPower it has been noted the forecasted savings for the Vermont based program in 2014 has a lower weighted average savings per participant of 1.3% and is based on Massachusetts households that have higher average household consumption than Vermont as well as a higher penetration of air conditioning use. These considerations indicate to the Department that VEIC's estimate of a l.5%average reduction in consumption per home may be overstated.* (*page 9).*

VEIC has received several evaluations from OPower relating to its experience in Massachusetts. Whereas it is true that Massachusetts households as a whole use more air conditioning than do Vermont households, the OPower evaluations indicate a range of savings in Massachusetts between 1.25% and 2.06%. VEIC chose a number close to the lower end of that range because of the likely reduced use of electricity for air conditioning in Vermont, compared to Massachusetts. Rather than relying on informal discussions with OPower, VEIC has used the company's actual evaluations as a basis for its estimate. The difference between 1.3% and 1.5% for first-year savings amounts to 14 kWh. VEIC still contends that the 1.5% estimate is defensible, and that a 0.2% difference in first-year savings is not likely to have an appreciable effect on overall savings estimates across the 20-year forecast period.

OPower's program uses a randomized control trial design to determine how much less energy a household uses because of the program. This clearly defined scientific approach to measurement and verification has been recognized by the U.S. Department of Energy as the gold standard of program evaluation (DOE's State and Local Energy Efficiency Action Network).[6] Specifically, a group of statistically equivalent customers are selected and then randomly allocated into either a test group or a control group. The test group receives the

[6] Todd, Annika, E. Stuart, S. Stuart, Steve Schiller, and Charles Goldman. *Evaluation, Measurement, and Verification (EM&V) of Residential Behavior-Based Energy Efficiency Programs: Issues and Recommendations.* Berkeley, Calif.: Lawrence Berkeley National Laboratory. May 2012. http://behavioranalytics.lbl.gov).

paper home energy reports; obtains access to the Home Energy Reports web portal; and in instances where customer e-mail addresses are available, they receive monthly e-mails. The control group receives no communication whatsoever. This randomization process creates two sets of households that are statistically equivalent *except* for one factor: whether they receive Home Energy Reports. This isolation allows OPower to identify that any difference in energy use is directly attributable to the behavior-based program. Savings are determined by measuring the difference in energy use between the test and control groups. OPower's results have also been verified by leading industry experts[7].

15. *To base projections of annual and cumulative savings over 3, much less 20, years on such indefinite information exposes the state to a significant risk of over- or under-budgeting for efficiency* (page 5)

    and

    Not enough is known about the performance of behavioral measures in Vermont to allow for accurate and reasonable planning. (page 9)

Please see VEIC Response Item10. VEIC suggests that the risk of over- or under-budgeting for efficiency because of "indefinite information" is similar to the consideration of risk in accepting other emerging technologies into various modeling scenarios in the previous iteration of the DRP: heat pumps, various types of solid-state lighting, and consumer electronics, for example.

16. *…the introduction of one-year measures, such as Behavioral measures under discussion here, [raises a] conflict between the greatest net societal benefit.* (page 6)

Please see VEIC's Response Item 27.

17. *VEIC has incorrectly analyzed and forecasted societal benefits from residential home Energy Report programs in the three and twenty-year scenarios by including forecast reductions in non-electric consumption.* (page 6)

[7] Examples: "Puget Sound Energy's Home Energy Reports Program: Three Year Impact, Behavioral, and Process Evaluation." *KEMA Energy & Sustainability, April 2012;* Gunn, Randy. "Energy Efficiency / Demand Response Plan: Plan Year 4 (6/1/2011-5/31/2012), Evaluation Report: Home Energy Reports." *Navigant Consulting,* November 2012; Allcott, Hunt. "Social Norms and Energy Conservation." *Journal of Public Economics*, Vol 95 (9-10), pp. 1082 – 1095; October 2011. Allcott, Hunt. "Social Norms and Energy Conservation." *Working Paper ,Massachusetts Institute of Technology*'s *Center for Energy and Environmental Policy Research,* February 2010. Ayres, Ian, et al. "Evidence From Two Large Field Experiments That Peer Comparison Feedback Can Reduce Residential Energy Usage." *NBER Working Paper,* September 2009. Todd, Annika, Steven Schiller, and Charles Goldman. "Analysis of PSE's Pilot Energy Conservation Project: "Home Energy Reports." *Lawrence Berkeley National Laboratory,* October 2011.

VEIC disagrees that there would be zero thermal savings attributable to the behavior programs that were included in the DRP over the next 20 years (until 2034). Although we acknowledge that a case can be made about the validity of the studies to date that VEIC cited to support its estimate of 1% thermal savings, we also note that these relatively new programs have indirect impacts that are quickly being addressed in the literature.[8]

Further, the Department contends: …*there is no evidence that informing residential customers about their electric energy use through Home Energy Reports will result in conservation behaviors that will save non-electric energy. (page 6)*

The behavioral programs are designed to engage customers about their energy use. Far beyond the single peer-comparison of electricity consumption, behavioral programs include many other systems and tools such as dynamic and data-driven targeted messaging, and a web-based application energy portal that will be a comprehensive (both thermal and electrical) and integral part of the offering.

Although an important aspect of the engagement relates to providing information on a customer's consumption compared to that of the customer's neighbors, the delivery of specific and relevant energy saving tips and recommendations that can be performed in the home is clearly another important aspect. The latter looks at all aspects of the home's energy use and not just the electrical loads. By engaging customers in looking at their home's total energy use, these measures have consistently shown in studies a significant "program lift" where participation in other utility programs is significantly increased. Likewise, VEIC believes that some participants would perform simple thermal saving actions without the direct thermal consumption comparison data.

A recent Energy Market Innovations study[9] found that through a simple pledge card commitment and without any consumption data, with limited program follow up, and no financial incentives, 53% of respondents changed their thermostat setting and 29% used a clothesline instead of a clothes dryer (which would result in electric or gas savings depending on the unit's fuel). The study also found that both of these types of action increased over the 18 months of the study (significantly, in the case of the thermostat). VEIC provided other studies of natural gas programs where customers have the benefit of both the comparative

[8] See, for example, U.S. Department of Energy, SEE Action: *Evaluation, Measurement, and Verification (EM&V) of Residential Behavior-Based Energy Efficiency Programs: Issues and Recommendations*, May 2012. http://www1.eere.energy.gov/seeaction/emv_behaviorbased_eeprograms.html. See in particular p. 12, footnote 39: *However, additional spillover effects such as workplace behavior or gas-related efficiency behaviors if only electricity is measured are not included.* The literature now contains multiple evaluation reports from EM&V practitioners. Among them: Igneizi, Patrice, Jane Peters, Katherine Randazzo, Anne Dougherty, Linda Dethman, and Loren Lutzenhiser. *Paving the Way for a Richer Mix of Residential Behavior Programs*, May 31, 2013. http://www.cadmusgroup.com/wp-content/uploads/2013/11/Cadmus-Residential-Behavior-DSM-White-Paper.pdf

[9] Energy Market Innovations, ICF International; "*Persistence of Energy Efficiency Behaviors over Time; Evidence from a Community-Based Program."*

consumption and the efficiency tips and VEIC maintains that the impact of the Home Energy Reports (which include feedback and targeted electric and thermal messaging) and the energy portal would result in a thermal savings impact greater than zero.

The Department also states that: …*the statistical methods used to identify and verify savings from such non-hard-wired measures depend on regular and accurate billing data. As the Department and VEIC learned from the recent evaluation of the Home Performance with Energy Star program; acquiring and utilizing deliverable fuel billing data for this purpose would be practically impossible given the relative seasonality and "bulk" nature of unregulated fuel deliveries.* (page 6)

Several different methodologies could measure fossil fuel use in the unregulated fuels market, in addition to data from bulk fuel deliveries. Smart meters have the potential to measure the duty cycle of heating equipment, and therefore potentially estimate fuel consumption. Additionally, communicating thermostats could also be used to validate the meter-based approach to runtime changes, and further enhance savings assessments with more specific information about home heating patterns.[10] Further, metered natural gas customers who participate could be used as a proxy for customers with other non-gas heated homes. Although VEIC acknowledges that there would be challenges in measuring the impact of behavior programs on homes with unregulated fuels, we believe there are multiple paths to overcoming these challenges. Through careful evaluation, we also believe thermal savings could be measured and verified for the behavior program.

In developing an estimate for the thermal impact of behavior programs over the 20-year forecast period, VEIC reviewed several studies that found savings ranging from 0.4 to 1.5%, with an average of about 1.1%. We decided 1% was a reasonable and defensible proxy.

There are data that suggest that thermal savings increase after Year 1 of a behavior program.[11] Consequently, first-year thermal savings may be overstated. However, this has little impact on measure cost-effectiveness in Year 1, and no effect on program years 2-20. For additional information on measure cost-effectiveness, see VEIC Response Item 18.

As noted in VEIC's January 31, 2014, supplemental filing, VEIC modeled an increasing proportion of the thermal savings to be electric, as more homes install heat pumps for space heating. Regardless of the fossil fuel complexities discussed above, we believe that including electric thermal savings is appropriate, since the same guidance and comparative consumption that would have been provided in the referenced gas studies would produce similar thermal savings for electrically heated homes.

[10] See VEIC; *Are Thermostats the New Energy Audits?*

[11] See Opinion Dynamics; "Estimating Measure Life from Behavioral Programs" and Energy Market Innovations, ICF International; "*Persistence of Energy Efficiency Behaviors over Time; Evidence from a Community-Based Program"*

18. VEIC's corrected cost-effectiveness analysis presented in the supplemental filing…, *clearly shows that such measures, while cost effective, are quite poorly-performing relative to the rest of the modeled residential portfolio.* (page 6-7)

In terms of cost effectiveness, the DRP model evaluates many measures across multiple markets and initiatives. One could easily pick and choose any energy model of this kind and evaluate each measure individually. If this approach were the criterion for measurement (that is, measure by measure, versus a portfolio approach), then it would make sense to invest only in high-yield measures such as lighting products. Efficiency Vermont, however, is tasked with a **comprehensive approach** to delivering energy savings. The behavioral / conservation component is but one of **many measures** in the model.

In addition, the comment considers cost effectiveness on the behavioral component only, and not on the market lift component (driving participants to purchase hard-wired technology). At the request of the Department, VEIC also performed additional cost-effectiveness sensitivity analyses of the projected residential behavior-based program, using only the benefits provided by reductions in electric load. This analysis demonstrated that the program was cost effective when cost per participant was as high as 140% of those estimated in our scenarios. The program was modeled at a cost of $11.50 per home. The program screens up to a cost of just over $16.00 per home. When Efficiency Vermont undertook the DRP model for behavior / conservation, it was not clear what the total costs were. Now that the full program costs have been finalized for one year, the following benefit-cost ratio comparison of the original DRP and the finalized and negotiated cost structure with OPower is presented below.

Analysis Comparision - O Power Behavioral Measure - DRP Estimate versus actual

Measure Name	Analysis Period	Installed Cost (2014$)	kWh (annual) or	TRB	PV of Measure Benefits	PV of Measure Costs	Benefit-Cost Ratio	PV of Net Benefits	% savings of household	Notes
Behavior Measure no MMBtu Savings	**1**	**$11.50**	**103**	$7.36	$13.56	$9.52	1.42	$4.04	1.50%	**DRP Modelled Cost**
Behavior Measure no MMBtu Savings, actual cost	**1**	**$8.01**	**103**	$7.36	$13.56	$6.63	2.04	$6.93	1.50%	**Actual Costs**
Behavior Measure no MMBtu Savings, actual cost, reduced savings	**1**	**$8.01**	**51**	$3.65	$6.71	$6.63	1.01	$0.08	0.74%	**Actual Costs**

This table reflects the substantial improvements in cost effectiveness with the reduced cost per participant. Based on the current costs negotiated with OPower, the cost per household has been reduced from $11.50 to $8.01, bringing the benefit-cost ratio up to 2.04 from 1.42. The last row in the table shows the point at which the measure is no longer cost effective.

19. HER cost-effectiveness analysis, *includes benefits associated with avoided transmission and distribution infrastructure and non-energy benefits* of questionable value *based on a measure with only one year of measure life.* (page 7)

Given the plan to continue to deliver behavioral services each year, avoided transmission and distribution benefits will continue to exist. There is a growing body of valid and reliable studies

showing that savings persist year over year when behavior programs continue, as well as initial results indicating that savings persist even after behavior program delivery stops.[12]

20. *…some categories of non-energy benefits ….such as comfort and health, could be compromised.*. (page 7)

The adder for non-energy benefits is not dependent upon every measure producing the same proportion of each category of non-energy benefits. VEIC agrees that while HERs might not equally address all categories of non-energy benefits, such as health and safety, there are other categories that they do address, and thus, applying the non-energy benefit adders is appropriate.

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21. *…costs do not account for what would likely be a relatively expensive evaluation and monitoring program to verify savings.* (page 7)

VEIC appreciates the Department's concern about evaluation costs. VEIC's examination of this matter shows that to keep EM&V costs down, evaluation planning should start at the same time as program planning. This maximizes the opportunities for integrating participant data collection seamlessly into the program design and operations. It also reduces evaluation costs, compared to costs involved in evaluations begun after program implementation. Efficiency Vermont has discussed this with Opower, and will be inviting the Department to participate in OPower's initial sampling design approach to ensure "front end" collaboration and to minimize costly back-end reworking.

The 2014 – 2015 behavior program will cost Efficiency Vermont $801,246.00. A recent discussion with OPower indicates that third-party EM&V costs are likely to range from $25,000 to $40,000 per year. These evaluations typically cover the following high-level activities:

Statistical Design Validation

- Program savings estimation
- Double counting analysis

It is interesting to note that Massachusetts is considering scaling back on the frequency of the evaluation, given the level of certainty realized in previous third-party evaluations they have undertaken. The table below estimates EM&V costs as a percentage of program costs.

EM&V costs - Behavioral Program

Cost Options	Program Costs	% EM&V Costs
$40,000	$801,246	4.99%
$30,000	$801,246	3.74%
$25,000	$801,246	3.12%

[12] Impact & Persistence Evaluation Report: Sacramento Municipal Utility District Home Energy Report Program, Integral Analytics, Inc., Nov., 2012; Puget Sound Energy's Home Energy Report Program: Three year impact, behavioral, and process evaluation, DNV KEMA Energy & Sustainability, 2012.

In terms of EM&V costs, the Regional Energy Efficiency Database maintained by the Northeast Energy Efficiency Partnerships (NEEP) supports the following 2011 table as a reference point and benchmark.

2011: Evaluation costs as a percentage of overall program costs

Jurisdiction	Research and Evaluation Costs	Total Expenditures	%
Maryland	$4,909,935.07	$138,749,382.20	3.54%
Massachusetts	$11,181,683.31	$389,729,736.99	2.87%
New Hampshire	$1,151,239.70	$23,288,265.27	4.94%
Rhode Island	$580,627.97	$41,251,700.93	1.41%
Vermont	$1,097,016.00	$39,185,771.00	2.80%
New York	$11,573,857.04	$466,640,010.10	2.48%

The table shows the percent of EM&V costs for a behavioral evaluation are well within the range of hard-wired measure cost evaluations. It is anticipated that after the Department and its third-party evaluator have established certainty about the behavior program, this EM&V cost will begin to decrease, given that it might not be necessary to evaluate this program each year.

22. …*the very marginal cost-effectiveness of this program suggests that there may be better investments in better established measures.* (page 7)

For more information of the cost-effectiveness of the program, see VEIC Response Item 18.

23. It is questionable that residential HERs measures are *worthy of inclusion in a portfolio aimed at delivering maximum net societal benefits per dollar invested over the course of a strategic program to acquire all reasonably available cost-effective efficiency.* (page 7)

The Department suggests that the policy objective for the EEU's DRP is "a portfolio aimed at delivering maximum net societal benefit per dollar invested over the course of a strategic program to acquire all reasonably available cost effective efficiency." The Department has introduced a new criterion for judging the economic performance of statewide demand-side resource investment that is in conflict with established policy and practice of cost-effectiveness analysis of EEU efficiency program and portfolio alternatives.

According to Policy 1029, developed by Efficiency Vermont in 2011,[13] the EEU Order of Appointment calls for the portfolio administrator to maximize the amount of cost-effective electric efficiency savings achieved with the ratepayer funds with which it is entrusted. The EEU conducts cost-effectiveness analysis at the measure, project, program, and portfolio levels. This analysis is hierarchical—that is, measure analysis is subordinate to project analysis; project analysis is subordinate to program analysis; and program analysis is subordinate to portfolio analysis. Because cost-effectiveness of the portfolio is the primary objective, cost-effectiveness of any one component of the portfolio is secondary.[14]

Since the Board's stated goal of efficiency investment is to maximize net benefits, the decisive "test" under each perspective is the size of the net benefits—that is, the difference between the present worth of benefits and the present worth of costs. It is important to note that the benefit-cost ratio is not decisive because seeking to maximize it would be a prescription for "cream-skimming," and would result in a systematic forfeiture of cost-effective savings opportunities.

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The following table shows the approach VEIC has followed in constructing and comparing the three DRP scenarios, as demonstrated in its presentation at the January 16, 2014, workshop.

Cost-effectiveness of DRP scenarios

	Societal Net Benefits in 2015 $		
	Scenario 1	Scenario 2	Scenario 3
Costs	$893,367,889	$994,897,423	$1,461,509,963
Benefits	$2,408,845,731	$2,613,606,108	$3,427,088,646
Net Benefits	$1,515,477,842	$1,618,708,685	$1,965,578,683
Benefit / Cost Ratio	2.70	2.63	2.34

	Electric Net Benefits in 2015 $		
	Scenario 1	Scenario 2	Scenario 3
Costs	$640,419,878	$762,554,598	$1,232,582,723
Benefits	$1,518,490,264	$1,646,981,457	$2,174,169,528
Net Benefits	$878,070,385	$884,426,859	$941,586,805
Benefit / Cost Ratio	2.37	2.16	1.76

[13] *Policy 1029: Efficiency Cost-Effectiveness Analysis Policy and Practice* was presented and discussed in the Board's workshop process on cost-effectiveness screening that resulted in the February 7, 2012 Order Re Cost-Effectiveness Screening of Heating and Process-Fuel Measures and Modifications to the States Cost-Effectiveness Screening Tool.

At that workshop, VEIC quantified and ranked the three scenarios in terms of the magnitudes of net societal benefits each yields. Also displayed were the ratios of societal benefits to costs of each alternative scenario. The scenario with the most net benefits is also the one with the lowest ratio of benefits to costs. Under the Department's criterion, the preferred scenario would be the one with the highest benefit-cost ratio.

VEIC therefore contends that EEU portfolios should be designed to minimize the ratio of net societal benefits to costs.[15]

24. *the inclusion of non-electric conservation savings makes the performance of the modeled behavior measures look much better than it actually is…* (page 7)

VEIC respectfully offers two points for consideration. First and fundamentally, we believe thermal savings will accrue to HERs participants. Second, VEIC's support for including non-electric conservation benefits parallels the Board's policy decision supporting the adoption of a 10% risk adder, and the 15% non-energy benefit adders for use in cost-effectiveness screening. Although there is a high degree of uncertainty surrounding the magnitude of non-electric thermal savings, it is clear that the value of zero is incorrect.

25. …*the DRP process is weaker for not having a scenario under analysis that more closely approaches the [Department's updated potential study] costs and benefits of achieving that potential.* (pages 7-8)

VEIC agrees that the additional analysis recommended by the Department would add knowledge and provide more scenario options. VEIC provides Attachment A to help inform the cost-benefit analysis of requiring that additional analysis.

26. *A disproportionate focus on first year savings would leave significant cumulative benefits unclaimed from installed measures*. (page 8)

VEIC agrees in concept with the Department. However, VEIC does not agree that the proposed scenarios represent a disproportionate focus on first-year savings. The following table illustrates the financial resource annually allocated to the Residential and Business sectors.

[15] Total Net Societal Benefits (NSB) is an EEU QPI for the CEED Fund (2013-2017) administered by GMP. NSB is an appropriate gauge in the unique objective of these portfolios, which was and is to yield a specific target level of net societal benefits from a fixed budget. The entire purpose of considering alternative levels of resource acquisition to select a 20-year DRP scenario precludes imposition of a fixed budget, and therefore precludes seeking to maximize the NSB ratio.

Financial resource allocated to Behavior Programs in Residential and Business Sectors

All Budgets are in Nominal Dollars **2% Inflation**

Scenario 1				
Residential Sector	2015	2016	2017	Total
Residential Behavior Measure Costs	$1,196,460	$1,220,389	$1,244,797	$3,661,646
Total Residential Costs	$14,227,078	$15,363,240	$16,106,432	$45,696,750
% Behavior to Total Costs	**8.4%**	**7.9%**	**7.7%**	**8.0%**
Commercial & Industrial (C&I) Sector	2015	2016	2017	Total
C&I Behavior Measure Costs	$531,156	$1,006,488	$1,404,062	$2,941,706
Total C&I Costs	$27,609,564	$27,238,006	$27,384,367	$82,231,938
% Behavior to Total Costs	**1.9%**	**3.7%**	**5.1%**	**3.6%**
Total Portfolio	2015	2016	2017	Total
Behavior Measure Costs	$1,727,616	$2,226,877	$2,648,859	$6,603,352
Total Costs	$41,836,642	$42,601,246	$43,490,800	$127,928,688
% Behavior to Total Costs	**4.1%**	**5.2%**	**6.1%**	**5.2%**

Scenario 2				
Residential Sector	2015	2016	2017	Total
Residential Behavior Measure Costs	$1,200,609	$1,276,072	$1,347,729	$3,824,411
Total Residential Costs	$14,227,805	$16,250,393	$17,917,235	$48,395,433
% Behavior to Total Costs	**8.4%**	**7.9%**	**7.5%**	**7.9%**
Commercial & Industrial (C&I) Sector	2015	2016	2017	Total
C&I Behavior Measure Costs	$531,156	$1,025,377	$1,502,529	$3,059,062
Total C&I Costs	$27,609,564	$28,812,612	$30,473,089	$86,895,266
% Behavior to Total Costs	**1.9%**	**3.6%**	**4.9%**	**3.5%**
Total Portfolio	2015	2016	2017	Total
Behavior Measure Costs	$1,731,765	$2,301,449	$2,850,259	$6,883,473
Total Costs	$41,837,369	$45,063,006	$48,390,324	$135,290,699
% Behavior to Total Costs	**4.1%**	**5.1%**	**5.9%**	**5.1%**

Scenario 3				
Residential Sector	2015	2016	2017	Total
Residential Behavior Measure Costs	$1,578,274	$1,612,028	$1,670,202	$4,860,504
Total Residential Costs	$20,890,610	$23,074,475	$25,499,481	$69,464,566
% Behavior to Total Costs	**7.6%**	**7.0%**	**6.5%**	**7.0%**
Commercial & Industrial (C&I) Sector	2015	2016	2017	Total
C&I Behavior Measure Costs	$550,523	$1,136,613	$1,834,202	$3,521,339
Total C&I Costs	$31,598,271	$36,036,727	$41,656,274	$109,291,272
% Behavior to Total Costs	**1.7%**	**3.2%**	**4.4%**	**3.2%**
Total Portfolio	2015	2016	2017	Total
Behavior Measure Costs	$2,128,798	$2,748,642	$3,504,404	$8,381,843
Total Costs	$52,488,881	$59,111,202	$67,155,755	$178,755,838
% Behavior to Total Costs	**4.1%**	**4.6%**	**5.2%**	**4.7%**

27. *… rate class and income equity are not achieved.* (page 8)

The lower long-term net benefits postulated by the Department do not logically or automatically follow from one class's having cumulative net benefits with a shorter average measure life than another's. The proposition ignores the fact that the first cost of efficiency measures increases with measure lifetime. Requiring the residential portfolio to have a longer lifetime will require measures with higher societal costs, and disproportionately higher budgets, since incentive levels will be higher for **all** participants in order to recruit more of them.

Requiring a higher residential average savings lifetime also defies Vermont's long history of planning and accepting residential savings lifetimes, well short of non-residential savings, in which residential lighting predominated. For example:

Weighted Average Lifetimes		
Year	BES	RES
2000	15	14
2001	16	13
2002	16	13
2003	15	14
2004	17	10
2005	15	8
2006	14	9
2007	14	8
2008	13	7
2009	13	8
2010	13	8
2011	13	8
2012	13	8

28. *Because of greater investment longevity, more cumulative benefits, and superior durability the Department supports focusing on how to best deliver the mix of measures with greater rather than lesser weighted average measure life…*(page 8)

Please see VEIC Response Item 27.

29. *VEIC's estimate of 1.5% average reduction in consumption per home may be overstated.* (page 9)

VEIC based its modeled behavior savings on average annual electric consumption for the Vermont residential sector, which includes a representative mix of single-family, multifamily, and low-income households.[16] VEIC accounted for the fact that HERs for multifamily

[16] http://www.eia.gov/electricity/sales_revenue_price/ Table 5A. Residential average monthly bill by Census Division, and State 2011

customers might lead to lower savings than for single-family customers by reducing the savings for the behavior measure by 35% for multifamily households. Multifamily customers represent just 11.5% of modeled behavior measures for each DRP scenario, minimizing the impact of this effect. Savings results for behavior programs—including those from Massachusetts and other states—have been provided for reference (VEIC Response Item 14). However, the savings estimates contained in the DRP are based on average annual electric consumption for Vermont homes, and the savings percentage assumptions are in line with evaluation findings from other programs.

30. *Disproportionate investment in non-hard-wired initiatives has the potential to undermine the value of energy efficiency as a[n] [FCM] resource.* (page 9)

ISO New England has published no public statements as to the specifics of the underlying issues supporting the current exclusion of behavioral savings from eligibility in the FCM. Further, ISO staff decline to confirm that the reason given by the Department represents their thinking.[17] VEIC has been invited to submit a project description, M&V plan, and supporting documentation for qualification, which will then be reviewed to determine whether it comports with the resource type. ISO-NE has offered to review and discuss the behavior M&V work with VEIC in the coming months.[18] We have confidence that with the number of efficiency programs in the region offering large-scale, random control trial (RCT) programs based on AMI data, the overwhelming evaluative evidence supporting the experimental and statistical designs and verifiable savings from such programs, and a growing body of studies identifying applicable load shapes to the savings,[19] these discussions will result in such behavioral savings becoming FCM-eligible in the near future.

31. … *to plan to achieve more than a quarter of annual first year Mwh from a one-year measure whose performance is not yet measured in Vermont would be premature.* (page 9)

The Department cites the annual savings estimated in 2034. VEIC's research supports the ramp-up of investment as modeled. For example, ACEEE estimated that the industrial sector could save between $7 and $25 billion in energy costs per year by 2015, whereas the commercial sector stands to save $30 to $60 billion. A recent McKinsey & Company study indicates "there is a significant opportunity in 'non-lifestyle impacting' behavioral energy efficiency," estimating an opportunity of 16 to 20% of U.S. non-transportation residential energy use.[20] A recent paper by Opower finds that deployment of behavioral programs, at their full economic potential, could generate 19,000 GWh nationally in annual electricity savings and

[17] E-mail from Eric Winkler (ISO New England Project Manager for Demand Resource Qualifications) to Cheryl Jenkins, Feb. 13, 2014.
[18] Ibid.
[19] Stewart, J. Peak-Coincident Demand Savings from Residential Behavior-Based Programs, presentation for ACEEE BECC Conference, November 2013.
[20] Frankel, D., et al., Sizing the potential of behavioral energy efficiency initiative in the US residential market. McKinsey & Company, November 2013.

$2.2 billion in end-consumer savings per year, with annual electric savings in Vermont of 608 GWh and 6.1 MW of capacity reductions.[21]

32. *…lost FCM revenue opportunities could exceed $300,000 per year on average for the next 5 years.* (page 10 – note 4)

Please see VEIC Response Item 30.

Heat Pump Penetration Assumptions and Potential Impacts of Changes in Penetrations

Vermont's *Comprehensive Energy Plan* has established a goal of 90% renewable energy sources across all sectors by 2050. To reach this goal in the thermal sector, it is likely that Vermont will need to begin shifting buildings away from fossil fuels, employing a strategic electrification of the state's heating loads. New, cold-climate heat pumps are one of the primary tools by which we will ensure that this process is done as efficiently as possible. These systems have demonstrated seasonal COPs of 3.0+, much higher than was previously available for this technology, making them a cost-effective alternative to fossil fuel heating for Vermont homeowners.

In the new construction market, air source heat pumps (ASHPs) are offsetting the installation of new fossil fuel systems, with many new ENERGY STAR homes (supported by Efficiency Vermont) being built with ductless heat pumps, without a backup heating source. The Existing Homes market also represents a huge opportunity for ASHPs in "displacing" fossil fuel or electric resistance heating. In most cases, the home's existing central system is maintained as backup for extreme cold-weather events, and the heat pump works to supply the baseload and as much of the total consumption as the system permits. This can result in heating costs being halved and total energy consumption reduced by 60% or more.

Ductless heat pumps are very well suited for retrofits because they are non-invasive and inexpensive installations. Given the cost-effectiveness of new cold-climate heat pumps, VEIC anticipates major growth in this technology in the coming years. VEIC also anticipates that over the 20-year period, there will be additional funding for thermal efficiency that will further increase the penetration of air source heat pumps in the Vermont market.

The Department provided evidence for the growth in this market in their response to VEIC's scenario modeling results,[22] underscoring VEIC's belief that the VELCO forecast under-states long-term energy and capacity use coming from this end use.

[21] Unlocking the Potential of Behavioral Energy Efficiency: Economic Potential of Residential Behavioral Energy Efficiency in the U.S., OPower, White Paper #9, 2013.
[22] EEU 2013-01 Department of Public Service Comments on Vermont Energy Investment Corporation Scenario Modeling Results. Filed with the Public Service Board February 10, 2014 by the Vermont Public Service Department, 3.

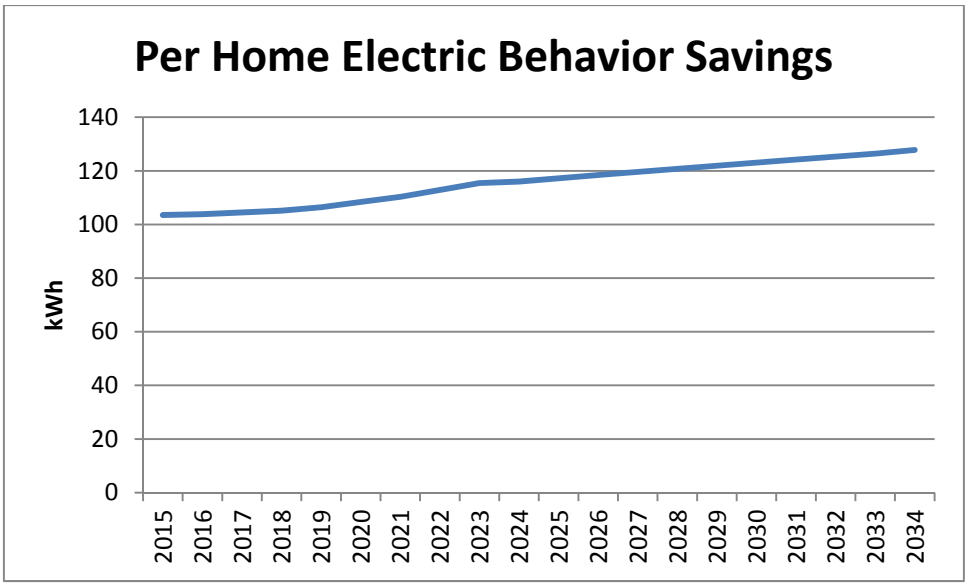
The Department's comments on the scenario modeling results ask that VEIC address two points relating to the modeling of air source heat pump measures for space heating:

1. *A derivation of the 40% penetration assumption (including any scenario-specific changes to that assumption)*

In its Scenario Analysis document of December 6, 2013, VEIC cited the impact that this anticipated growth in heating electrification would have on savings from behavior measures. In that document, VEIC noted that "[t]he indirect impacts [of growth in heating electrification] are that electricity savings from behavior measures assume that the thermal portion of the savings will increasingly come from electric heating. The base assumption is that by 2034, 40% of homes in Vermont will be electrically heated via heat pumps."[23]

The assumption that 40% of homes will be heated by air source heat pumps was based on the professional judgment of VEIC's DRP modeling team. Although this assumption did have a large impact on residential behavior-based electric savings, it did not drive the penetration rate (measures / year) assumptions for the air source heat pump measures modeled for the Existing Homes and Low-Income Retrofit markets.

As demonstrated in its January 31 supplemental filing, VEIC modeled increasing electric savings for the residential behavior measure, assuming that growth in electric heat would translate to increased savings potential from changes in behavior related to thermal load. The annual electric savings estimates for the behavior measure are illustrated in the figure.



Expected electricity savings from behavior across the forecast period.

[23] Analysis of Three Electric Energy Efficiency Scenarios for the 2015 – 2034 Demand Resources Plan EEU-2013-01. Filed with the Public Service Board December 6, 2013 by Vermont Energy Investment Corporation, 13.

First-year electric savings for the residential behavior measure were modeled at 103 kWh / year (1.5% of the average annual residential electric consumption for Vermont homes based on Energy Information Administration data), and these savings were increased to 128 kWh / year in 2034 (1.85% savings) based on the 40% assumption.

2. *An explanation of the impact on VEIC's model results if heat pump penetrations were to be significantly lower (e.g.l0% of households by 2034) or higher (e.g. 60% of households).*

The penetration rates for ASHPs modeled by VEIC do reflect a ramp-up in the adoption of this technology; however, the number of measures modeled represents much less than a 40% share of Vermont homes. It is noteworthy that for the DRP, VEIC did not model how many heat pumps would be installed, but rather how many incentives for heat pumps would be issued. Therefore, the number of measures is beyond the baseline adoption of heat pumps that do not go through the program.

The total number of ASHPs modeled in each scenario and the portion of residential accounts that each represents is shown in the next table. Assuming only one heat pump measure is installed per home, the 20-year total of measures ranges from 5.5% of residential accounts in Scenario 1 to 13.3% in Scenario 3.

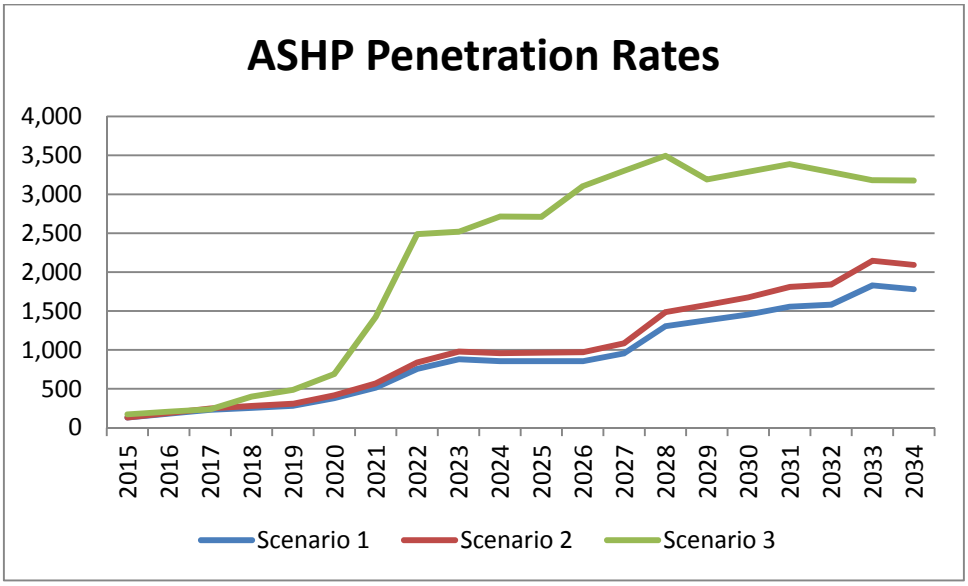
Total ASHP penetrations as a percent of residential accounts

	Total ASHPs	% of Residential Accounts
Scenario 1	18,010	5.5%
Scenario 2	20,554	6.3%
Scenario 3	43,447	13.3%

Total Residential accounts, 2012: 326,965

Since the average measure life for home heating systems approximates the 20-year forecast period, it could be assumed that a majority of heating systems in Vermont's 326,965 homes (excluding homes served by BED) will be replaced during the 20-year period. Assuming a 20-year measure life for heating systems, 5% (or approximately 16,350) of the heating systems in the state are replaced each year. Given that ASHPs are often installed in retrofit situations where they augment or displace existing fossil fuel heat systems, the market potential for the technology would likely be higher than that for just replacement on burn out.

The next figure illustrates the annual penetration rates modeled by VEIC in each scenario, with a maximum of 3,494 units installed in 2028 in Scenario 3.



Annual ASHP penetration rates by scenario.

Given the strong market potential for this technology, VEIC believes that the penetration rates modeled in each scenario are reasonable, even if the market share for heat pump space heating does not reach 40% by 2034.

VEIC further addresses the Department's comments regarding uncertainty of the need for EEUs to intervene to accelerate the adoption of heat pump technology.[24] The Department has provided evidence of the demand for this technology by referring to an interview with an HVAC contractor and the success of Green Mountain Power's heat pump rental program. However, neither reference represents a large share of the potential market, given the opportunity previously discussed. Furthermore, GMP's rental program should be considered a customer incentive, since it drives down first costs and reduces the barrier for customers in moving forward with heat pump installations. It should also be noted that VEIC modeled ASHP measures as the installation of higher-efficiency heat pump equipment and not simply as fuel switching or displacement. VEIC's investment strategy is to capture these retrofit and market opportunity installations, offering incentives to homeowners to install higher-efficiency equipment than they would have done, without EEU intervention.

[24] Ibid.

Vermont Energy Investment Corporation

Attachment A

Estimated Additional Costs and Recommended Time Adjustments

Additional Costs

The budget below indicates the additional costs associated with re-running the DRP model:

- With no savings or costs attributed to non-hard-wired initiatives in the Resource Acquisition budgets and estimated savings
- Substituting with savings and costs re-attributed to installed hardware measures.

Revising the three scenarios for the 20-year period will require the following steps:

1. Strategize on a different composition of measures
2. Work with modelers to revise scenarios
3. Review new models internally
4. Revise Residential and Commercial and Industrial narratives to contain a variance report outlining changes and impacts
5. Meet with the Department of Public Service to review new models, impacts of changes and to obtain DPS input
6. Re-create COMBO Portfolio Screening Tools and review results for accuracy

We also anticipate a Board workshop, which will require preparation of an updated slide presentation, time to prepare for workshop, attend the workshop, and subsequently, reply to comments after the workshop.

VEIC's estimate of total costs to re-model each of the scenarios, leaving out behavior measures:

Cost Category	Hours	$/Hour	Total
Sam Dent			$5,500
Optimal Energy			$14,900
VEIC staff - Scenario work	600	$75	$45,000
VEIC staff - Workshop related *	94	$75	$7,100
TOTAL Additional Costs			$72,500

*VEIC hourly rate is a fully loaded average rate (includes indirect costs and fringe)

Schedule Adjustments

The current *EEU – 2013-01 Adjusted Schedule, Phase 3 – Budgets* lists the next scheduled events as follows:

> Mar. 14 Deadline for DPS, EEUs and other stakeholders to file budget and savings recommendations, including: (1) electric resource acquisition budgets and savings; (2) TEPF resource acquisition budgets and savings; (3) non-resource acquisition budgets (split between electric and TEPF) and descriptions; (4) EEU compensation (QPI award and operations fees) rates and budgets; (5) DPS evaluation plan and budget; (6) EEU Fiscal Agent and EEU Fund audit budgets; and (7) impact of budget recommendations on electric consumers' rates and bills

If the Board orders VEIC to re-analyze the three scenarios, VEIC recommends the following proposed schedule adjustments to the items due on March 14. All dates would be subsequent to the date of such a Board Order requiring the re-analysis.

1. VEIC to file revised scenarios (5 weeks from date of Order)
2. Board Workshop to present findings/answer questions (Week 6 from date of Order)
3. Comment period (Week 7 from date of Order)
4. Reply comment period (Week 8 from date of Order)
5. Parties file budget and savings recommendations (Week 11 from date of Order)
    A. Electric Efficiency Charge (EEC) DRP
    B. Thermal Efficiency Process Fuels (TEPF) DRP
    C. Non-Resource Acquisition (EEC and TEPF) budgets and descriptions
    D. Impact of budget recommendations on electric consumers' rates and bills

Additional schedule amendments would need to be reflected in all currently planned events scheduled after March 14.