STATE OF VERMONT
PUBLIC SERVICE BOARD

EEU-2013-01

2013-2014 Demand Resources Plan Proceeding)

Order entered: 3/24/2014

ORDER RE REQUEST TO RE-RUN SCENARIO MODELING AND REVISED SCHEDULE

I. INTRODUCTION

On December 6, 2013, Vermont Energy Investment Corporation ("VEIC") filed modeling results for three different electric resource acquisition scenarios. In today's Order, the Public Service Board ("Board") declines to adopt the Vermont Department of Public Service's ("Department") recommendation that the Board order VEIC to re-run the modeling with no savings or costs attributed to non-hard-wired initiatives (also known as behavioral or conservation measures).

II. BACKGROUND AND PROCEDURAL HISTORY

On August 1, 2013, the Board issued an Order that established a schedule for this proceeding.

On August 15, 2013, the Department and VEIC separately filed proposed scenarios to model. The Department also proposed, on behalf of itself, VEIC, and the City of Burlington Electric Department ("BED"), a set of policy and model input assumptions (the "August 15th Proposals").

On August 27, 2013, Board staff convened a workshop to discuss the August 15th Proposals.

On September 10, 2013, the Conservation Law Foundation ("CLF"), Vermont Electric Power Company, Inc. ("VELCO"), VEIC, the Department, Associated Industries of Vermont

("AIV"), and Green Mountain Power Corporation ("GMP") filed comments on the August 15th Proposals.

On September 18, 2013, the Department filed reply comments regarding the August 15 proposals.

On September 30, 2013, the Board issued an Order determining that three electric resource acquisition scenarios should be modeled in this proceeding. The Board also approved the set of policy and model input assumptions jointly proposed by the Department, VEIC, and BED.

On December 6, 2013, VEIC filed its modeling results for the three Board-ordered electric resource acquisition scenarios.

On January 16, 2014, the Board convened a workshop to discuss the modeling results, and on January 31, 2014, VEIC filed additional information regarding its modeling, as was requested at the workshop.

On February 10, 2014, the Department filed comments on VEIC's scenario modeling results. The Department recommended that the Board order VEIC to re-run the modeling with no savings or costs attributed to non-hard-wired initiatives in the resource acquisition estimated budgets and savings for three and twenty years. The Department recommended that the non-hard-wired savings and costs modeled by VEIC instead be re-attributed to installed hardware measures. In addition, the DPS requested additional information regarding VEIC's heat pump penetration assumptions and the potential impacts of changes in penetration rates on VEIC's modeling results.

On February 21, 2014, VEIC replied to the Department's comments.

On March 3, 2014, the Clerk of the Board issued a memorandum requesting additional information and comment on the Department's comments and VEIC's reply (the "March 3rd Memorandum").

On March 10, 2014, CLF and Vermont Public Interest Research Group ("VPIRG", and jointly "CLF/VPIRG"), VEIC, and the Department each responded to the March 3rd Memorandum.

No other comments have been filed.

III. Participants' Positions

The Department

The Department recommends that the Board order VEIC to re-run the three scenarios with no savings or costs attributed to non-hard-wired initiatives in the electric resource acquisition estimated budgets and savings for three and twenty years. The Department believes that this additional information is necessary for the Board to make budget and savings decisions that are in the best interests of the State and its ratepayers. The Department states that, by estimating the savings impact from non-hard-wired initiatives and conservation efforts, VEIC has conceptualized a potentially fundamental shift in efficiency resource acquisition strategies, which to date have overwhelmingly relied on hard-wired measures.

The Department does not support VEIC's inclusion of non-hard-wired initiatives with savings directly recognized as a resource in the resource acquisition forecast for multiple reasons. The Department contends that short-lived, non-hard-wired measures such as those modeled by VEIC are not the optimal resource to best advance the public interest, and that other modeled programs that target hard-wired measures create more net benefit. The Department argues that seeking non-hard-wired savings is the wrong emphasis when attempting to deliver long-term value. In addition, the Department states that the actual savings levels that would result from residential, commercial and industrial behavioral programs are open to question, and that basing projections of annual and cumulative savings over the 3- and 20-year planning periods on indefinite information exposes the State to a significant risk of over- or under-budgeting for efficiency. The Department contends that directing VEIC to re-run the scenario models without directly attributing savings to behavioral initiatives will reduce that risk and provide the Board and stakeholders with a more accurate and complete set of data upon which to base budget and savings recommendations.

In addition, the Department maintains that VEIC has incorrectly analyzed and forecasted societal benefit from residential behavioral programs in the scenarios by including forecast reduction in non-electric consumption. The Department states that there is no evidence to support a conclusion that informing residential customers about their electric energy use through behavioral programs such as those modeled by VEIC will result in conservation behaviors that will save non-electric energy. If this alleged analytical error is corrected, the Department contends that the residential behavioral programs, while still cost effective, perform poorly relative to the rest of the modeled residential portfolio. Based on what the Department characterizes as the marginal cost-effectiveness of behavioral programs, the Department argues that there may be better investments in better-established measures.

Finally, the Department contends that behavioral savings add minimal cumulative savings over twenty years due to the one-year measure life and the need to reinvest annually in order to realize the benefits. Therefore, the Department argues that a disproportionate focus on first-year savings would leave significant cumulative benefits from installed measures unclaimed. The Department states that a plan to achieve more than one quarter of annual first-year MWh savings from a one-year measure whose performance is not yet measured in Vermont would be premature.

The Department states that it has performed a "simple (and admittedly imperfect)" calculation that reallocates the $18 million in present value measure cost from the residential behavioral measure programs into the average of the rest of the modeled Scenario 2 residential retrofit portfolio. The results of that calculation indicate a doubling and more of the net societal benefit delivered from these funds, while increasing the net societal benefit of residential retrofit programs as a whole by 5%. The Department explains that it does not have the expertise to accurately reallocate these resources, which has lead to its recommendation for such an analysis by VEIC.

In response to the Board's March 3rd Memorandum, the Department advises that there may be a way to obtain the necessary information without a large expenditure of VEIC's resources. The Department proposes that VEIC comprehensively re-run Scenario 2 with the Department's proposed parameters, including the reallocation of funds from behavioral measures to hard-wired measures. Subsequently, after VEIC has identified the mix of hard-wired measures in Scenario 2, the Department proposes that VEIC apply these results to Scenarios 1 and 3, whose behavioral initiatives were budgeted at nearly the same amount as in Scenario 2. The Department contends that, while less precise than a comprehensive re-run of Scenarios 1 and 3, this approach would cost less and would provide information sufficient to reliably make a budget recommendation. Absent a Board-ordered re-run of the scenario models, the Department states that it is confident that it could make a budget recommendation, yet the associated savings recommendation could be significantly less accurate.

VEIC

VEIC agrees with the Department that a re-run of the modeled scenarios with a new set of assumptions would add to the body of knowledge in this proceeding. However, VEIC disputes many of the comments made by the Department in support of its recommendation.

VEIC contends that even if hard-wired measures are more cost-effective and have greater cumulative benefit, the comprehensiveness of the portfolio and the ability of behavior measures to reach more ratepayers at a relatively low per-measure cost warrant the inclusion of behavior measures. VEIC further notes that the comparison of cost-effectiveness is skewed in favor of non-behavior-based measures, as VEIC used the full residential behavioral cost per participant, including incentive and non-incentive costs, whereas typically only direct measure incentive costs are used when comparing the cost-effectiveness of measures. Finally, VEIC notes that when the residential behavioral program was initially modeled it was not clear what the total costs for the first year of its contract were.[1] VEIC has since finalized its cost structure, and the current contract cost of $8.50 per household, rather than the previously modeled $11.50 per household, brings the benefit-cost ratio up from 1.42 to 2.04.

VEIC argues that behavior-based initiatives directly address legislative priorities, as they are an effective component of a comprehensive strategy and they allow the opportunity for all Vermonters to participate. Further, with respect to the Department's concerns regarding the risk of over- or under-budgeting for efficiency based on indefinite information, VEIC contends that this is similar to the risk in accepting other emerging technologies—such as heat pumps, solid-state lighting, and consumer electronics, for example—into modeling scenarios, as has been done historically. Finally, VEIC rebuts the Department's statement that VEIC's modeled scenarios disproportionately focus on first-year savings. VEIC notes that its three modeled scenarios include total portfolio (residential, commercial and industrial) behavioral measure costs ranging

1. VEIC has a contract with oPower that will begin around July, 2014, and last for twelve months.

from 4.7% to 5.2% of total costs, and argues that these amounts do not represent a disproportionate focus on first-year savings.

VEIC estimates re-running the three modeled scenarios as initially recommended by the Department would cost $72,500 and would add approximately five weeks to the schedule for this proceeding. This estimate is based on VEIC's stated need to compose a different set of measures; work with modelers to revise the scenarios; review the new models internally; revise reporting to outline changes and impacts; meet with the Department to review the new models and obtain the Department's input; re-create portfolio screening tools and review the results for accuracy; prepare for and attend a Board workshop; and subsequently reply to comments after the workshop.

In response to the Board's March 3rd Memorandum, VEIC states that it could produce a more limited re-run of the modeled scenarios, through a comprehensive re-run of Scenario 3 and mathematically manipulated Scenarios 1 and 2, at an estimated cost of $58,000 in a time period of three weeks. VEIC notes that the resulting modeling results for Scenarios 1 and 2 would have less supporting detail and greater uncertainty surrounding the savings estimates than a comprehensive re-run of these scenarios. VEIC states that absent a re-run of the scenario models, it would not be able to make informed budget and savings recommendations under a scenario from which behavior-based costs and savings are excluded.

CLF/VPIRG

CLF/VPIRG contend that the additional cost and delay in this proceeding of adopting the Department's recommendation is not justified. CLF/VPIRG argue that all participants had the opportunity to identify and provide comment on the scenarios that should be modeled, and note that the Department collaborated with VEIC in developing model inputs. CLF/VPIRG observe that the Board's September 30th Order determining scenarios and policy and model input assumptions noted that behavioral measures would be part of the modeling.[2] CLF/VPIRG maintain that any concerns that the Department had regarding behavioral measures should have been raised when the scenarios and models were being developed.

---

2. *2013-2014 Demand Resources Plan Proceeding*, EEU-2013-01, Order of 9/30/13.

CLF/VPIRG further state that the Department has the opportunity to develop, run and present its own modeling results, that the schedule provides various opportunities for stakeholders to present information and recommendations, and that in other Board proceedings the Department undertakes its own evaluations.

With respect to behavioral measures themselves, CLF/VPIRG contend that a number of other states and utilities rely on these measures to reduce energy use, that they have a proven track record in a variety of markets, and that they represent a fairly mature and proven resource measure that is appropriate for use in Vermont.

Regarding the Board's March 3rd Memorandum, CLF/VPIRG state that stakeholders can make informed recommendations based on the models that have already been presented, and that while the Department's recommended re-run of the models would provide additional information, they would not provide additional value in terms of making a budget recommendation.

IV. Discussion and Conclusion

We find that it is appropriate at this time to rule on the Department's recommendation that the Board direct VEIC to re-run its scenario modeling, as described above, but not decide at this time on the appropriateness of including non-hard-wired measures in Vermont's energy efficiency portfolios. As the Department noted in its argument in support of its recommendation, the measure program mixes used to create the various scenario model results for this process must be distinguished from any implementation plans for the future. Having considered the comments and recommendations, we conclude that the precision that would result from requiring VEIC to re-run the scenario models with the set of assumptions recommended by the Department is not warranted in light of the associated costs. Accordingly, for the following reasons, we decline to adopt the Department's recommendation.

First, we are concerned that participants may be placing too great an emphasis on the precision of the models at this point in this proceeding. The estimates of budgets and savings produced by the scenario models are used primarily to assist the Board in its decision regarding electric efficiency budgets. Budget-setting is not an exact science; reasonable efforts to acquire relevant information are important, but the understandable desire to acquire more information and further reduce uncertainty must be tempered by an awareness of the cost of that additional information. In this instance, we are not persuaded that the value of the additional information that would result from re-running the scenarios without behavioral measures would justify the estimated additional $72,500 cost to ratepayers, or even the $58,000 cost of re-running only one scenario and extrapolating the effects on the other two scenarios based on those results. Instead, we encourage participants who are concerned about the inclusion of behavior measures to perform their own reallocations of the non-hard-wired costs,[3] even though such reallocations would yield less precise results than re-running the models. To the extent that any participant's budget and savings recommendation is based on this type of calculation, that participant should submit the results along with the participant's budget and savings recommendation.

Second, it is important to note that the forecasted scenario model results, while providing a significant set of data for the Board and stakeholders to consider, are unlikely to be adopted by the Board exactly as presented. The Board's decision on energy efficiency utility budget levels must take into consideration the recommendations of participants in this proceeding as well as a number of regulatory and policy priorities as set forth in statute. This consideration will lead to budget and savings levels based on the Board's own judgment, which may differ from the precise modeling results. Once the Board makes its decision on EEU electric efficiency budget levels, this proceeding moves to a new phase in which EEU-specific performance goals will be established. At that point, because of the need for greater specificity when establishing performance goals, we would anticipate that one new model would be run reflecting the Board's budget decision.

Finally, the Board relied on the joint proposal of the Department, VEIC, and BED, when it approved the set of policy and model input assumptions, including behavior measures, in the September 30th Order. If the Department was concerned about including behavior measures in the scenario modeling, the Department could have recommended at that time a different set of scenarios to be modeled, including scenarios that both did and did not include non-hard-wired

3. We note that the Department described one possible method for reallocating costs in its February 10th comments. Another approach might be to use the Department's updated potential study (which is focused on maximum achievable savings), in concert with the previously modeled Scenario 3 results, as the basis for informed recommendations regarding aggressive budgets and savings levels.

measures. Alternatively, as CLF/VPIRG observed, the Department had the opportunity to perform its own scenario modeling with its own set of model input assumptions. Therefore, we decline to adopt the Department's recommendation.

Schedule

The Department, VEIC, and CLF/VPIRG have each provided proposals on how best to amend the schedule in this proceeding to reflect the additional time required for the Board to consider the Department's recommendation. An amended schedule, which has taken these proposals into consideration, is hereby adopted, and is attached to this Order. When participants file their budget and savings recommendations, they are also encouraged to comment on whether, and to what extent, it is appropriate for non-hard-wired measures to be including in the savings portfolio of a Vermont energy efficiency utility. To the extent that any participant's comments on the Department's recommendation to re-run the scenario models exclusive of such measures also represent that participant's recommendation regarding the appropriateness of non-hard-wired measure inclusion in Vermont energy efficiency portfolios, that participant does not need to reiterate those comments.

SO ORDERED.

Dated at Montpelier, Vermont, this 24th day of March, 2014.

s/James Volz	)	PUBLIC SERVICE
	)	
s/John D. Burke	)	BOARD
	)	
	)	OF VERMONT
s/Margaret Cheney	)	

OFFICE OF THE CLERK

FILED: March 24, 2014

ATTEST: s/Judith C. Whitney
Deputy Clerk of the Board

NOTICE TO READERS: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Board (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: psb.clerk@state.vt.us)