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March 10, 2014

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

Re: EEU 2013-01 Department of Public Service Comments on Board Questions regarding Vermont Energy Investment Scenario Modeling Results

Dear Mrs. Hudson:

In comments filed in this matter on February 10, 2014, the Department of Public Service (DPS) requested that the Board order Vermont Energy Investment Corporation (VEIC) to re-run the Scenario Model to exclude behavioral measures. VEIC responded to this request on February 21, 2014, stating, among other things, that a re-run of the modeling would cost $72,500. In response, the Public Service Board issued a Memorandum on March 3, 2014 asking a series of questions of VEIC, the Department, and other stakeholders. In this letter the Department provides responses to those questions, proposing an alternative method to re-run the model that should be less costly than the VEIC estimate and also proposes a revised schedule for the proceeding. The questions from the Board's March 3, 2014 Memorandum are set forth below, followed by the Department's replies.

1. *Is there a way to analyze the DPS's proposed re-attribution of costs and savings from behavioral measures to installed hardware measures without the need to re-run the scenario modeling entirely, presumably in a manner that would cost less than VEIC's estimate of $72,500?*

Yes. While VEIC's estimated cost of $72,500 appears to represent a comprehensive approach to re-running the scenario modeling, the Department believes there is a way to obtain the necessary additional information without such a large expenditure. We surmise that that Scenario 3 represents a significant portion of the scenario re-run cost estimate because the re-attribution of costs and savings from behavior measures needed to meet the "3% of sales" target in this scenario is likely to require exploration and analysis of new measures and/or programs that were not employed in the initial modeling analysis. As a compromise, the Department offers the following alternative approach that could provide sufficient information to enable the Department and other stakeholders to make informed budget and savings recommendation, in a manner that would cost less than VEIC's estimate.

The Department proposes that VEIC comprehensively re-run only Scenario 2 with the parameters suggested in our previous filing. Subsequently, after VEIC conceptualizes and identifies the mix of hardwired measures that replace behavioral measures in Scenario 2, the Department proposes VEIC apply these results to Scenarios 1 and 3. This proposal assumes a comprehensive re-run of only Scenario 2 to create an adequate basis for estimating re-attribution of savings in Scenarios 1 and 3. The Department concludes that this would yield VEIC revised results for the three scenarios and obviate the need to comprehensively re-run Scenarios 1 and 3 as explained below.

- Scenario 1 – The re-allocation of behavioral with hardwired measures used in the re-run of Scenario 2 could effectively be applied to Scenario 1 as a proxy because the budgets for behavior in these two scenarios are very similar[1]. While likely to yield less precise results than a comprehensive re-run of Scenario 1, this approach would cost less and provide substantially similar information to that provided in the re-run of Scenario 2 that could reliably inform a budget recommendation.
- Scenario 3 - In part, the same basis for re-allocating behavioral with hardwired measures in Scenario 2 could also be applied to Scenario 3. However, this approach alone will likely not be enough to meet the "3% of sales" target that defines Scenario 3. Over the 20 year period it may be possible to scale up certain other additional hardwired measures, tune specific modeling assumptions (the residential and commercial sector splits for example) and estimate savings from uplift[2] in order to effectively reach the 3% of sales target. While this may not provide as precise a result as could be expected from a comprehensive re-run of Scenario 3, the Department believes this approach would cost significantly less because it eliminates the need for deep exploration and analysis of new measures and/or programs that were not considered in the original modeling results.

The Department recommends that the Board request VEIC to employ the approach outlined above, as we are of the opinion that it would provide the additional information necessary to make informed budget recommendations. As the Board and stakeholders are also aware, the updated potential study, with its focus on *maximum achievable savings* will provide additional information relative to an upper boundary for cost-effective program savings achievable through investments in energy efficiency. The Department intends to file the potential study update in this proceeding as soon as it is completed.

[1] From page 15 of VEIC's February 21, 2014 reply comments in this proceeding, VEIC cites modeled costs for behavior initiatives for Scenario 1 of approximately $6.6M and for Scenario 2 approximately $6.9M.
[2] Uplift is energy efficiency savings attributable to increased customer adoption of hardwired measures driven, in this case, by increased marketing and education made possible by investments in non-hardwired (behavioral or conservation) initiatives.

2. *Would stakeholders be able to make informed budget and savings recommendations absent a re-run of the scenario models, as recommended by the DPS? Participants are reminded that savings estimates will need to be updated anyway once the Board has made a budget determination.*

   Yes, the Department is confident that it could make a budget recommendation; however, the associated savings recommendation could be significantly less accurate absent any re-run of the scenario models. Thus the Department suggests that all stakeholders would be able to make better informed recommendations if they are provided with access to the modified scenario re-run results that re-allocate behavioral costs and savings to hardwired measures as described above.

3. *Has the VEIC Response adequately addressed the DPS's questions regarding heat pump measure assumptions? How does not having heat pumps in the VELCO forecast affect the modeling results? On page 19 of the VEIC Response, VEIC states that it assumes "40% of homes will be heated by air source heat pumps." However, on page 20 of the VEIC Response, there is a table showing "[t]he total number of ASHPs modeled in each scenario and the portion of residential accounts that each represents," ranging from 5.5% to 13.3%. Please clarify what percentage of Vermont households were assumed to have adopted heat pumps in the modeled scenarios. Does the table on page 20 of the VEIC response reflect the number of residential air source heat pump incentives that VEIC has modeled in each of the three scenarios?*

   The Department offers comments on the following portions of the Boards question #3.

   - *"Has the VEIC Response adequately addressed the DPS's questions regarding heat pump measure assumptions?"*

     Yes, the VEIC Response has addressed the DPS questions regarding heat pump measure assumptions.

   - *"How does not having heat pumps in the VELCO forecast affect the modeling results?"*

     Not having heat pumps in the VELCO forecast yields model results that distort the scenario outcome because that outcome is expressed in savings as a percent of sales. If a significant amount of heat pumps are assumed in the modeling results, then the energy consumption associated with those heat pumps would increase electricity sales, therefore increasing the magnitude of efficiency savings necessary to meet a percent-savings target. Scenario 3 is most affected by the exclusion of heat pumps in the forecast, because electricity sales under a significant penetration of heat pumps would be higher, and therefore the savings modeled in Scenario 3 would not reach 3% of sales including the load created by heat pumps. (Scenario's 1 and 2, which are budget constrained, would have the same amount of savings achieved, but those savings would be articulated as having a lesser percentage impact on electricity sales). Other measures and/or programs would need to be modeled to meet this target.

The Department notes that significant effort has been made to consistently apply Board approved modeling assumptions to the VELCO forecast and the scenario models. Further calibration at this point is not likely to yield results that would significantly contribute to the Department's budget and savings recommendation. However, additional calibration of the forecast that includes the penetration of technology that creates additional electric demand may be useful after budgets and savings goals have been determined. If more precise modeling were desired for Scenario 3, the assumed penetration of heat pumps would need to match both the forecast and the Scenario 3 model.

4. *If the Board were to direct VEIC to re-run the scenario models, would any participant recommend a different set of assumptions regarding heat pump measures? In addition to providing information and comment related to these specific questions, participants may provide any final comments regarding the DPS recommendation and VEIC Response. Because this matter has not yet been resolved, the March 14, 2014, deadline for participants to file budget and savings recommendations may no longer be tenable. Accordingly, participants are also requested to file proposals on how to best amend the schedule in this proceeding.*

The Department does not have an alternative recommendation regarding the penetration of efficiency program incentivized heat pumps at this time.

Finally, we attach a proposed amended schedule for the Board's consideration. The proposed schedule does not include a workshop on any additional modeling results, as the Department does not believe a workshop would be necessary for it to formulate its budget and savings recommendations. However, there is room in this schedule should the Board find such a workshop would be useful.

Thank you for your consideration, and please do not hesitate to contact us with any questions.

For the Department of Public Service

/s/
Brian Cotterill
Energy Program Specialist

/s/
Jeanne Elias
Special Counsel

cc: EEU 2013-01 Service List (electronic service only)