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November 15, 2013

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 TEPF Modeling Assumptions

Dear Mrs. Hudson:

The Public Service Board (“Board”) invited comments as a follow up to the October 31, 2013 workshop in this proceeding on the Thermal Energy and Process Fuel (“TEPF”) modeling assumptions filed on October 15, 2013 by Vermont Energy Investment Corporation (“VEIC”) and City of Burlington Electric Department (“BED”). The Department of Public Service (“Department”) offers the following comments:

This filing is comprised of two parts. First, the Department offers comments on the TEPF modeling assumptions filed by VEIC and the subsequent discussion at the related workshop. Second, this memo summarizes the Department’s TEPF modeling assumption recommendations in tabular format. The Department notes that, as with the electric modeling assumptions, documentation of assumptions and model inputs may be useful in the current as well as future Demand Resource Plan (“DRP”) TEPF modeling efforts.

Part One: Department Comments on VEIC’s Recommended Assumptions

1. Sector Split (VEIC Assumption 3) - VEIC recommends a 70% residential and 30% commercial sector split. The Department largely agrees with this assumption. However, as discussed at the workshop, it may be appropriate to include an estimate for residential wood heat consumption when determining the appropriate TEPF “sector split” modeling assumption. Subsequent to the workshop, the Department has confirmed its recent thermal impact evaluation did not attempt to assess the MMBTU wood heating load or savings from wood heat as a result of thermal efficiency program participation. However, the study does confirm a significant amount of wood use as a heating source for Vermont residents. For example, the study estimate approximately 20% of those surveyed use wood as a primary heat source and approximately 50% surveyed use wood for either primary or secondary heat¹.

¹Public Service Department Impact Evaluation of Home Performance with Energy Star completed in 2013. Cited at http://publicservice.vermont.gov/sites/psd/files/Topics/Energy_Efficiency/EVT_Performance_Eval/EVTImpactEvaluationFinalReport2013.pdf



2. Wood as a residential thermal fuel source is certainly present in the sector and should not be excluded from the sector split analysis. However, given the limited amount of sufficient quantifiable data available on this topic at this time the Department recommends a modest increase in the residential share of the sector split relative to that proposed by VEIC. In order to qualitatively recognize wood as a fuel source in the residential sector for VEIC the Department recommends increasing the residential portion by 5%.

Therefore, the Department recommends a TEPF resource acquisition modeling assumption for spending be modeled by VEIC based on a sector split of 75% to the residential sector and 25% commercial sector. Wood use is certainly present in BED territory as well; however due to the unique footprint of BED, its customer base for the TEPF market being predominantly residential, and the significant weighting proposed by BED for the residential sector the Department supports the sector split of 95% residential and 5% commercial proposed by BED.

3. Low-income Spending Level to Model (VEIC Assumption 4) - VEIC recommended that 17% of TEPF spending be modeled for low income customers because this was the assumption used in the last Demand Resource Plan proceeding. The Department notes the importance to differentiate a low-income spending minimum requirement and a target level of spending for low-income programs in the DRP TEPF modeling process. The Department recommends 17% of TEPF resource acquisition dollars be used as a low-income *minimum spending requirement*, rather than as a low-income spending target assumption for modeling purposes. The Department recommends the following approach, which is similar to that use to develop the electric low-income modeling assumption, be used to determine the target for modeling low-income TEPF spending and associated benefits.

Assume approximately one third (33%) of statewide (non-BED) residential customers are low-income and the residential sector split is 75% of the dollars allocated to TEPF resource acquisition modeling. Also assume that a minimum spending requirement for the low-income sector is 70% of full equity. In addition, the difference between the low-income spending minimum requirement (17%) and full equity for the low-income sector (25%) is split equally ($[25\% - 17\%] / 2 = 4\%$) and the result added to the minimum requirement to safeguard against modeling low-income programs at the bare minimum level.

- Full equity for Low-income
 - o $33\% \times 75\% = 25\%$
 - Low-income Minimum Spending Requirement
 - o $25\% \times 70\% = 17\%$
 - Full Equity less Minimum Spending Requirement (divided by 2)
 - o $(25\% - 17\%) / 2 = 4\%$
 - Recommendation for Low-income Spending for Modeling
 - o $17\% + 4\% = \underline{21\%}$
4. TEPF Measures (VEIC Assumption 7) – VEIC recommends modeling measures that are expected to be cost effective and produce a net reduction in total thermal and/or process energy consumption. The Department supports this recommendation and understands that some new measures such as heat pumps and measures related to behavior change may be part

of the TEPF measure mix. However, the Department has some concerns about new measures including behavior measures. For example, while typically viewed as cost effective, behavior measures are short lived (typically one year) and effects do not persist the same way as traditional installed energy efficient “hardware”. While some behavior change programs may have education and marketing value for driving customer uptake of energy efficient hardware, the Department questions behavior measures’ ability to produce a long-term resource than can have a material impact on cumulative savings separate from their impact on hardware uptake. As with electric behavioral measures, the Department is in the process of discussing acceptable savings methodologies, verification practices, and treatment of “persistence” with VEIC and BED and a number of issues remain unresolved.

In order to assist this effort the Department recommends that if VEIC and BED elect to model costs and savings associated with behavioral measures, that the model results be presented in two ways; 1) TEPF resource acquisition model results with behavior costs and savings included and 2) TEPF resource acquisition model results with behavior costs and savings removed.

Part Two: Table of TEPF Modeling Assumptions

A table of policy assumptions and model inputs are documented below. The categories and values are intended to reflect the Department’s TEPF model assumption recommendations as well as those made by VEIC and BED. To the extent possible the format and assumption categories reflect electric model assumption categories filed in this proceeding by the Department on October 7, 2013.

TEPF Policy Assumptions

<i>TEPF Funding Sources</i>	
VEIC & BED	Separate VEIC and BED budgets including Forward Capacity Market income and reasonable allocations of estimated net RGGI income. No additional sources of revenue assumed.
<i>Estimation of TEPF Resource Acquisition Budgets</i>	
VEIC & BED	2012 – 2021 DRP approved annual efficiency utility specific Non-Resource Acquisition budgets for years 2015 - 2021 deducted from the annual estimated 2015 – 2024 efficiency utility specific TEPF total budgets.
<i>Low-Income Sector Equity</i>	
VEIC	21% of TEPF resource acquisition budget modeled annually for forecast period
BED	NA
<i>Residential Sector Equity</i>	
VEIC	75% of resource acquisition budget annually for forecast period
BED	95% of resource acquisition budget annually for forecast period
<i>Commercial Sector Equity</i>	

VEIC	25% of resource acquisition budget annually for forecast period
BED	5% of resource acquisition budget annually for forecast period
<i>High Efficiency Biomass Heating Systems</i>	
VEIC & BED	TEPF initiatives will satisfy the statutory requirement of VSA 209 5.(e) (1) (A)

TEPF Modeling Inputs

<i>Impacts of Changes in Codes and Standards</i>	
VEIC & BED	Treated in the individual measure characterizations within the Technical Reference Manual (TRM) - TRM available upon request from DPS
<i>Avoided Costs</i>	
VEIC & BED	Most recent Board approved avoided costs
<i>Measure Decay</i>	
VEIC & BED	Treated in the individual measure characterizations within the Technical Reference Manual (TRM) - TRM available upon request from DPS
<i>Base Equipment Energy Efficiency Levels, Free Rider and Spill Over Rates and Measure Life</i>	
VEIC & BED	Treated in the individual measure characterizations within the Technical Reference Manual (TRM) - TRM available upon request from DPS
<i>TEPF Measures - Behavioral and Other New Measures</i>	
VEIC & BED	TEPF Measures - all measures assumed to screen and be cost effective
VEIC & BED	Behavioral Measures - (no specific measures at this time) if modeled then results is reported with and without behavioral costs and savings
VEIC & BED	Other New Measures - all measures assumed to screen and be cost effective

Thank you for your consideration,

For the Department of Public Service

Brian Cotterill
Energy Program Specialist

Jeanne Elias
Special Counsel

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