STATE OF VERMONT
PUBLIC SERVICE BOARD

Order entered: 2/7/2012

**ORDER RE COST-EFFECTIVENESS SCREENING
OF HEATING AND PROCESS-FUEL EFFICIENCY MEASURES
AND MODIFICATIONS TO STATE COST-EFFECTIVENESS SCREENING TOOL**

I. Introduction

The Public Service Board ("Board") has long required energy efficiency providers over which it has jurisdiction to make decisions regarding which energy efficiency programs and measures to implement based on the societal cost-effectiveness test.[1] Over time, a cost-effectiveness screening tool was developed based on decisions made by the Board in the context of electric and natural gas energy efficiency programs (referred to herein as the "State Screening Tool"). However, in 2008, new legislation directed Vermont's Energy Efficiency Utilities ("EEUs")[2] to use certain revenues to deliver energy efficiency services to heating-and-process-fuel customers.[3] Questions arose regarding whether the methodology and assumptions incorporated in the current State Screening Tool were appropriate when evaluating heating-and-process-fuel efficiency measures.

To address these questions, we directed Board staff to conduct a workshop process that was open to all interested persons. Participants included representatives from state government agencies, entities regulated or overseen by the Board, other heating-and-process-fuel efficiency providers who are not subject to Board oversight, and other interested persons.[4]

During the workshop process, participants identified certain areas in which they asserted it would be substantively appropriate, and administratively more efficient, to make the same changes to the screening tools used for electric and natural gas efficiency measures that they recommended for heating-and-process-fuel measures. The last workshop in this process explored whether changes in these areas should be made to the screening tools used for electric and natural gas efficiency measures.

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1. *See,* e.g., Docket 5270, Orders of 4/16/90 and 6/6/90; Docket 5980, Order of 9/30/99 at 58.

2. Vermont Energy Investment Corporation ("VEIC") and the City of Burlington Electric Department ("BED") currently serve as EEUs pursuant to Orders of Appointment issued by the Board on 12/20/10 and 4/19/11, respectively. In Docket 7676, the Board is investigating the appointment of an entity to provide natural-gas efficiency service and considering whether Vermont Gas Systems, Inc. ("VGS") should be appointed as an EEU.

3. *See*, 30 V.S.A. §§ 209(d)(7) and (8).

4. A list of those who participated in at least one workshop, or who asked to be included on the e-mail service list for this workshop process, is provided in Appendix A to this Order.

This Order contains our determinations regarding the various issues addressed in this workshop process.[5] These determinations apply only to the screening of efficiency measures by entities regulated or overseen by the Board. However, they were informed, in part, by comments offered by heating-and-process-fuel efficiency providers who are not subject to Board oversight. We appreciate the willingness of these other providers to share their expertise in this workshop process, and ask them to continue to coordinate on an informal basis with entities regulated or overseen by the Board, to the extent feasible, in order to help minimize customer confusion regarding the cost-effectiveness of heating-and-process-fuel efficiency measures.

II. Procedural History

On April 16, 2009, the Board issued a memorandum initiating this workshop process and requesting that participants file comments identifying issues to be considered in this process.

On May 7, 2009, the Vermont Department of Public Service ("DPS") and Vermont Energy Investment Corporation ("VEIC") filed comments identifying issues.

On May 12, 2009, Board staff conducted a workshop at which attendees agreed that the issues to be discussed in this workshop process could be grouped into the following three categories: (1) technical, including issues associated with avoided costs, costing periods, and discount rates; (2) policy, including issues associated with risk adjustments and environmental externalities; and (3) overall framework, including issues associated with screening electricity and natural gas savings, project-level versus measure-level screening, and all other identified issues.

Board staff conducted additional workshops on June 12, June 25, July 13 and July 24, 2009 ("2009 Workshops"). During that same time period, participants filed information on how cost-effectiveness screening was being performed at that time, as well as several sets of comments on issues discussed at the workshops.

5. This workshop process is not a formal contested case under Vermont statute; rather, it is an informal process intended to inform our determinations on issues related to cost-effectiveness screening of efficiency measures. Because this is not a contested case, the provisions of 3 V.S.A. § 811 do not apply, and there is no need for a Proposal for Decision to be circulated to workshop participants for their comments prior to the issuance of this Order.

On October 30, 2009, Board staff issued a memorandum that identified: (1) areas of apparent agreement among workshop participants, together with preliminary recommendations for steps toward resolving them; and (2) issues that required further consideration at that time (referred to herein as "Board Staff Memorandum").

On December 4, 2009, the DPS, the Vermont Fuel Dealers Association ("VFDA"), and VGS separately filed comments on the Board Staff Memorandum. On that same date, VEIC, Champlain Valley Office of Economic Opportunity ("CVOEO"), Vermont Fuel Efficiency Partnership ("VFEP"), Central Vermont Community Action Council ("CVCAC"), the City of Burlington Electric Department ("BED"), Housing Vermont, and the Vermont Housing and Conservation Board ("VHCB") filed joint comments on the Board Staff Memorandum (referred to herein as the "2009 Joint Commenters").

On September 9, 2011, Board staff issued a memorandum that, because of the length of time that had elapsed since participants last filed comments in this process, provided participants with an opportunity to indicate whether the Board should base its decision on the filings already made in this process, or whether additional written filings or workshops should be held prior to the Board issuing a decision.

On September 23, 2011, comments on next steps in this workshop process were filed separately by BED, the DPS, VEIC, VFDA, VGS, and VHCB.

On October 24, 2011, substantive comments on issues under consideration in this process were filed separately by the DPS, VEIC, VFEP, and VHCB.

On November 3 and 9, 2011, Board staff conducted additional workshops ("2011 Workshops"). At the November 3 workshop, VEIC asked whether this workshop process could result in changes to the State Screening Tool used to screen electric efficiency measures as well as heating-and-process-fuel efficiency measures. VEIC asserted that there may be some areas in which it may be administratively more efficient if the screening tool were the same for the different types of measures. Because such consideration was outside the original scope of this workshop process, notice that changes to the screening tool for electric efficiency measures would be discussed at the November 9 workshop was provided via e-mail message to all members of the entire EEU e-mail service list in addition to the e-mail service list established for this workshop process.

Subsequent to these workshops, the DPS convened a working group of interested participants to further discuss four issues without Board staff present. The issues this group discussed were: non-energy benefits, the discount rate, the risk adjustment, and low-income adders.

On December 9, 2011, the DPS and VGS separately filed comments.

On December 16, 2011, VEIC, VFEP, and VHCB separately filed reply comments. VEIC's reply comments stated that the following entities supported and concurred with its comments: BED, VHCB, Housing Vermont, VFEP, and CVCAC (with VEIC, referred to herein as the "2011 Joint Commenters").

III. Issues Affecting Only Screening of Heating-and-Process-Fuel Measures

This workshop process originally focused on whether the methodology and assumptions incorporated in the current State Screening Tool were appropriate when evaluating heating-and-process-fuel efficiency measures. As a result, most of the issues discussed related solely to the screening of heating-and-process-fuel measures. These issues can be divided into three groups: technical, policy, and overall framework. We discuss each of these in turn.

A. Technical

(1) Avoided Costs

"Avoided costs" are estimates of the future cost of heating-and-process fuels.[6] EEUs are required to use avoided costs that have been approved by the Board in determining whether it is cost-effective to invest in an energy efficiency measure that avoids the purchase of heating-and-process fuels. Historically, the DPS has periodically proposed revised avoided costs, often based on a regional study known as Avoided Energy Supply Costs in New England ("AESC") that is performed every two years. When the DPS has proposed new avoided costs, the Board has

6. Avoided costs are also estimates of what it would cost an electric or natural gas utility to purchase and deliver electricity or natural gas, respectively, in the future.

conducted a workshop and provided interested persons with an opportunity to file written comments prior to making its determination.

The 2009 Workshops were conducted at the same time as the 2009 regional AESC process in which the DPS participated. During the workshop process, participants identified areas of concern related to the determination of avoided costs for heating-and-process fuels so that the DPS, in its work in the regional process, could consider whether the regional study would address those issues or whether additional Vermont-specific work would be appropriate to address them.

The Board Staff Memorandum recommended that avoided-cost suggestions from this cost-effectiveness screening workshop process, to the extent that they were not already received and considered by the DPS in its participation in the regional AESC process, would best be addressed in either comments on the DPS proposal for new avoided costs that was based on the 2009 AESC study, or through future iterations of the AESC study.

Participants' Comments

The 2009 Joint Commenters concurred that the appropriate venue for further consideration of avoided costs for heating-and-process fuels is the EEU avoided-cost proceedings. No other participant filed comments on this issue.

Discussion

Since the Board Staff Memorandum was issued, the 2011 AESC study was completed, and we approved EEU new avoided costs for electricity, natural gas, and other heating-and-process fuels based in large part on that study.[7] We intend to continue to review EEU avoided costs every two years, and we determine that future consideration of avoided costs for heating-and-process fuels should occur in those EEU avoided-cost proceedings.

7. EEU-2011-02, Order of 10/17/11.

(2) Costing Periods

Avoided costs for electric efficiency measures vary depending upon when the electricity would have been consumed. The costing periods for electric efficiency measures are linked to the costing periods used in the regional wholesale power market. The 2009 Workshops considered what costing period or periods should be used for heating-and-process-fuel efficiency measures.

The Board Staff Memorandum concluded that there is little value in establishing costing periods for heating-and-process-fuel measures that are either seasonal or that vary with the costing periods of regulated fuels at this time. It recommended only one costing period undifferentiated by season or time-of-day, and that the issue be addressed in the future in the context of updates to avoided costs.

Participants' Comments

The DPS agreed that further investigation of costing periods should take place in the regional context, and suggested that it be flagged as an issue to consider within the context of the next AESC study.

The 2009 Joint Commenters stated that examination of the historical record for Vermont suggests that other factors appear to swamp any pattern of seasonal variation in heating-and-process-fuel prices, and that any such variation is unlikely to have a significant impact on screening. Nevertheless, the 2009 Joint Commenters recommended ongoing monitoring of this issue.

VFDA agreed that there is very little value in establishing costing periods for unregulated fuels. It added that there are hundreds of factors that lead to an increase or decrease in the cost of heating fuels, and seasonal factors are often irrelevant.

Discussion

We accept the Board Staff Memorandum's recommendations on this issue, namely, that there be only one costing period for heating-and-process-fuels, and that this issue be addressed in the future in the context of updates to avoided costs.

(3) Reliance on Annual Fuel Utilization Efficiency ("AFUE") Rating

During the workshop process, VFDA raised concerns with over-reliance by some existing screening tools on the AFUE rating. According to VFDA, the AFUE rating fails to take into consideration certain aspects of efficiency that other screening tools include.

The Board Staff Memorandum asserted that detailed technical concerns with the application of the AFUE are likely best addressed by the Technical Advisory Group ("TAG") that addresses updates to detailed technical assumptions in the Technical Reference Manual used for cost-effectiveness screening. Today, Technical Advisory Group meetings include representatives of the EEUs (both Efficiency Vermont and BED) and the DPS.[8] The Board Staff Memorandum recommended that the Technical Advisory Group invite representatives of the VFDA and VGS to meetings at which the TAG plans to review assumptions used in the cost-effectiveness screening of efficiency measures for heating-and-process fuels. The Board Staff Memorandum further recommended that the Board need not address this issue further unless disputes arise that require Board attention.

Participants' Comments

VGS, the DPS, the 2009 Joint Commenters, and VFDA agreed that it is appropriate for the TAG to invite representatives of the VFDA and VGS to meetings at which they plan to review assumptions used in the cost-effectiveness screening of efficiency measures for unregulated fuels. VGS stated that it welcomed the opportunity to participate in the TAG.

The DPS stated that the technical assumptions that create the measure characterizations used in the Technical Reference Manual often are created outside of the TAG process. According to the DPS, Efficiency Vermont often proposes draft measure characterizations which are reviewed and commented upon by the DPS. As a result, the DPS recommended that EVT solicit input from VFDA and VGS when drafting measure characterizations for heating-and-process-fuel measures used in the Technical Reference Manual.

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8. At the time the Board Staff Memorandum was written, TAG meetings also included the EEU Contract Administrator. However, the EEU Contract Administrator position ceased to exist when the Board changed the EEU program structure from a contract model to an Order of Appointment model in 2010.

The 2009 Joint Commenters asserted that much of the difficulty around the use of AFUE stems from national standards and policies. For example, AFUE is the standard used by the federal government to determine Energy Star and federal tax credit eligibility for residential heating equipment.[9]

VFDA also stated that the Building Energy Disclosure Working Group (which was established by the Vermont legislature to study whether to require disclosure of the energy efficiency of commercial and residential buildings) is discussing the limitations of AFUE and the different screening tools available when determining energy efficiency. VFDA urged the Board to delay any decision on this issue until the Building Energy Disclosure Working Group issues its final report.

At the November 9, 2011, workshop, the DPS stated that it participated in the Building Energy Disclosure Working Group, and that group was discussing rating tools, such as a new U.S. Department of Energy home score, that might be used for building energy disclosure. According to the DPS, this Working Group was not discussing screening efficiency measures.[10]

Discussion

We concur with the Board Staff Memorandum's assertion that detailed technical concerns with the application of the AFUE are likely best addressed by the TAG. Workshop participants agree that representatives of the VFDA and VGS should be invited to TAG meetings at which assumptions used in the cost-effectiveness screening of efficiency measures for heating-and-process fuels will be reviewed. We are pleased that, at the November 9, 2011, workshop, representatives of VEIC, VGS and VFDA exchanged contact information so that such invitations could easily be extended, and we expect that such invitations will occur. Similarly, we expect that, as the DPS recommended, Efficiency Vermont will solicit input from the VFDA and VGS when drafting measure characterizations for heating-and-process-fuel measures used in the

9. Both the 2009 Joint Commenters and VFDA noted that in 2009 U. S. Senator Olympia Snowe asked the U.S. Department of Energy to review this issue.

10. Tr. 11/9/11 at 64 (Launder).

Technical Reference Manual. As the Board Staff Memorandum recommended, we determine that we need not address this issue further unless disputes arise that require our attention.

(4) Assumptions Regarding the Characteristics of Liquid Fuels

VFDA asserted that the composition and quality of the liquid heating fuels that its members provide are expected to change significantly over the next 10 years. Specifically, the 2011 Vermont Energy Act created an ultra-low-sulfur biodiesel blended heating oil standard.[11] According to VFDA, a low-sulfur, biodiesel blended heating fuel will improve efficiency while reducing particulate matter and greenhouse gas emissions.

The Board Staff Memorandum stated that the composition of the liquid fuels used in home heating affects both the assumptions used in developing future projections of liquid fuel prices and the externalities associated with the liquid fuels. These detailed technical assumptions will affect avoided costs for the liquid fuels. The Board Staff Memorandum recommended that issues related to the emissions characteristics of liquid fuels be addressed first by the DPS, provided it is willing to do so. Then, any disputes regarding these characteristics could be raised by participants and addressed by the Board in the context of the Board's biennial review of avoided costs.

Participants' Comments

The 2009 Joint Commenters agreed that this issue should be addressed by the DPS at a technical level. The DPS agreed that this issue should be considered in the next iteration of the AESC study. VFDA requested that any detailed determination by the DPS on emissions characteristics of liquid fuels be done in consultation with an advisory group that includes retailers, service technicians, and equipment manufacturers.

11. 10 V.S.A. § 585 requires all heating oil sold in Vermont to have a sulfur content of 500 parts per million in 2014 and 15 parts per million in 2018. The law also includes requirements related to blending heating oil with biodiesel.

Discussion

We accept the Board Staff Memorandum's recommendation that assumptions regarding the characteristics of liquid fuels should be addressed first by the DPS in the context of the regional avoided-cost study, a step the DPS has stated it is willing to take. We encourage the DPS to consult with the VFDA and liquid-fuel retailers, service technicians and equipment manufacturers as it participates in the regional avoided-cost study, in the same manner that it consults with representatives from the electric, gas, and energy efficiency sectors during the development of the study.

(5) Screening Tools and Consistent Application of the Tools

Vermont's regulated utilities have long used the societal cost test when screening electric and natural gas efficiency measures for cost-effectiveness. Many years ago the DPS developed a State Screening Tool for such measures that has been periodically updated and continues to be used by EEUs today. When EEUs first began delivering heating-and-process-fuel efficiency measures, they used the same screening tool to evaluate such measures. However, other heating-and-process-fuel efficiency providers use different screening tools that apply different approaches, use different inputs and can lead to different results. During the workshop process, participants provided information on the cost-effectiveness screening tools they use when evaluating heating-and-process-fuel efficiency measures.

The Board Staff Memorandum concludes that consistency in cost-effectiveness screening is desirable, although the Board's role in requiring or promoting such consistency varies depending on the entities involved. The Board Staff Memorandum recommends that:

- consistency should be expected, at least to the extent reasonably practicable, of program providers in industries regulated by the Board;
- the Board should apply consistent screening standards between program providers in the regulated industries and programs for which the Board has program oversight authority, but are in industries for which the Board does not have direct regulatory oversight;
- the Board should signal its support for consistent standards for programs funded in whole or part by the state by encouraging more transparency in the screening process by the entities and program for which the Board has oversight authority, and by

encouraging the DPS to work with other state agencies to apply consistent standards in screening efficiency programs and measures; and

- the Board should encourage the development of tools that empower consumers to better understand the costs and consequences of participation in measures and programs from the individual consumer's perspective.

Participants' Comments

VGS, the DPS and the 2009 Joint Commenters supported consistency in cost-effectiveness screening. VGS supported proposed efforts to evaluate and resolve the structural differences between the avoided costs in the AESC report and those used by VGS in its screening tool so that it would use the same avoided costs as the EEUs for purposes of screening energy efficiency measures and programs.

The DPS agreed that encouraging consistency in cost-effectiveness screening should be encouraged whenever possible and practicable, and stated that it would signal this goal in its energy-planning role. However, the DPS asserted that issues of consistency may need to be addressed on a case-by-case basis, and it may not be practicable to achieve consistency with respect to screening tools that present information from the customer's perspective.

The 2009 Joint Commenters recommended that the Board convene a technical process to address consistent screening between program providers in regulated industries and programs over which the Board has approval and oversight authority, and that the DPS convene a technical process to address consistent screening in programs funded in whole or part by the State. The 2009 Joint Commenters asserted that there are both policy and technical implementation aspects regarding screening-tool consistency. They suggested that policy aspects be addressed through workshop processes, while technical issues could be addressed through the TAG process, with appropriate parties invited to participate.

VFDA contended that current weatherization and electric efficiency customer screening tools are inadequate to deal with assessing savings from heating equipment. VFDA asserted that efficiency savings occur regularly whenever a customer asks for a tune-up, adds an outdoor reset control or replaces an aging heating system. Therefore, VFDA stated that efficiency savings should be calculated using a "bottom up" approach (that is, calculated whenever they occur) rather than a "top down" approach (that is, after being hired as an EEU subcontractor). In addition, VFDA noted that Vermont provides certificates of fitness to trained oil-heat and propane technicians. VFDA recommended that these state-certified technicians should be the ones to perform an analysis of heating-system efficiency opportunities and savings.

VFEP expressed two concerns with using the State Screening Tool for thermal efficiency measures. First, VFEP noted that the State Screening Tool is based on the societal test, which is intended to include all cost and all benefits of efficiency investments. However, according to VFEP, costs are easy to identify while benefits are undercounted. This results in less comprehensive efficiency projects. Second, VFEP asserted that the State Screening Tool is inefficient and time consuming for workers in the field. To address these concerns, VFEP recommended adopting a hybrid system that would use a "threshold screening" approach in the field at the measure and project level, and use the societal cost test to screen at the program level. Under the threshold screening approach, efficiency savings would be estimated from whatever measures are installed and financial incentives to customers would be based on those savings; there would be no need to identify all the other benefits of a particular investment or to parse what portion of costs should be included (for retrofit measures).

VHCB also expressed concerns with using the societal cost test and related tests for screening efficiency investments in low-income multi-family projects. VHCB contended that ultimately the basis for determining the appropriate level of energy efficiency investment in low-income multi-family housing should be affordability – what level of energy costs can affordable housing providers afford to pay in the future. According to VHCB, efficiency investments should be made to bring per-unit energy costs down to this level.

Discussion

We agree that consistency in cost-effectiveness screening of efficiency measures is a desirable goal. With respect to those entities regulated by the Board, we are pleased that as a result of cooperation in the most recent proceeding to establish avoided costs for use by the EEUs, the EEUs and Vermont Gas now use the same natural-gas avoided costs for screening efficiency measures.[12] We expect that the entities we regulate will continue to strive for consistency in energy efficiency screening, to the extent practicable.

As noted by the Board Staff Memorandum, many heating-and-process-fuel efficiency services are provided by entities not regulated by the Board. As a result, there are limits to our ability to facilitate such consistency. At the present time, we decline to initiate the technical process requested by the 2009 Joint Commenters to address consistent screening between program providers in regulated industries and programs over which the Board has approval and oversight authority. Rather, we encourage informal coordination among the entities involved and, to the extent authorized by law, we remain willing to resolve disputes brought to us for resolution. In addition, we commend the DPS for its willingness to use its energy-planning role to support greater consistency in cost-effectiveness screening.

While we recognize the concerns raised by VFDA, VFEP and VHCB regarding using the societal cost test for screening heating-and-process-fuel efficiency investments, we decline to modify the primary test used by entities we regulate at this time.[13] Although the EEUs' delivery of heating-and-process-fuel efficiency began only a few years ago, VGS has long used the societal test to screen thermal efficiency measures. This is in part due to 30 V.S.A. § 218c which requires electric and gas utilities to provide least-cost service to their customers, including consideration of environmental externalities. The alternative screening methodologies used by VFDA, VFEP, and VHCB do not explicitly consider environmental externalities. Thus, there is a tension between consistent screening among energy efficiency providers regulated by the Board, regardless of the underlying fuel, and consistent screening among all providers of heating-and-process-fuel efficiency. At this time, we determine that it is appropriate for the energy efficiency providers we regulate to continue to screen all efficiency measures, regardless of the underlying fuel, using the societal test.

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12. EEUs use natural gas avoided costs when screening electric efficiency measures that result in either a decrease or an increase in natural gas usage.

13. Our decisions later in this Order regarding the establishment of non-energy-benefits and low-income adders do address, in part, some of VFEP's and VHCB's concerns.

In addition, we are encouraged by the conversation at the November 9, 2011, workshop regarding whether state-certified oil-heat and propane technicians or EEU subcontractors should perform an analysis of heating-system efficiency opportunities and savings.[14] We urge workshop participants, particularly VFDA, BED and VEIC, to continue those discussions on an informal basis to address any remaining issues associated with who performs the analysis of heating-system efficiency opportunities and savings. If these discussions lead to any changes in the design of an EEU's services or initiatives, the affected EEU should describe the change in its first quarterly report or annual plan filed after the change is made.

B. Policy - Environmental Externalities

Vermont regulated entities, including the EEUs, have long used Board-approved environmental externality values for fuel-consuming end-use efficiency measures. Workshop participants discussed whether these values were appropriate to use when screening heating-and-process-fuel efficiency measures. During those discussions it was noted that the then-existing environmental externality values were established in 1999, and it was suggested that they should be reconsidered.

Discussion

The Board reconsidered the existing externalities values in 2011 as part of its review of proposed new avoided costs. The new externalities values that we established applied to electric, natural gas, and heating-and-process-fuel efficiency investments. In addition, we stated that we intend to incorporate a review of externalities values as part of future biennial updates to avoided costs.[15] Therefore, there is no longer a need for the Board to take any action in this proceeding on this issue.

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14. Tr. 11/9/11 at 67-84.

15. EEU-2011-02, Order of 10/17/11 at 7.

C. Overall Framework

(1) Relationship Between Screening and Vermont Goals for Energy Efficiency

Section 581 of Title 10 establishes goals for energy efficiency in buildings, including, among others: to reduce energy consumption by the existing housing stock by 25 percent; to reduce fossil-fuel consumption by 10 percent by 2025; and to improve the energy fitness of 25 percent of Vermont homes by 2020. VEIC asserted that these statutory goals should be reconciled with the screening of efficiency programs and measures under the Board's jurisdiction.

The Board Staff Memorandum recommended no further action by the Board on this issue. It stated that responsibility for planning efforts to reconcile statutory goals for energy efficiency logically resides with the DPS in the context of its planning functions and responsibilities, and added that it was not clear how the statutory goals under Title 10 reconcile with the least-cost planning goals and directives of Title 30 that guide the Board in its actions related to energy efficiency investments under Section 209.

Participants' Comments

The 2009 Joint Commenters stated that 30 V.S.A. § 209(e)(15) requires the Board to ensure that the EEUs' energy efficiency programs are designed to make continuous and proportional progress toward attaining the overall state building efficiency goals established by 10 V.S.A. § 581. In addition, they pointed out that 30 V.S.A. §§ 209(d)(7) and 235(d)(15) (the sections that direct how revenues from the regional forward capacity market and the Regional Greenhouse Gas Initiative shall be used) contain similar references to the building energy efficiency goals in 10 V.S.A. § 581. The 2009 Joint Commenters asserted that it would be appropriate to consider these statutory sections as governing the level of investment to be made in building energy efficiency. The 2009 Joint Commenters recommended that follow-on proceedings be held, if the Board determined that the 2009 Joint Commenters' recommendations on this issue require further process.

The DPS asserted that statutory goals should inform program design and implementation, but should not be taken into account when screening for cost-effectiveness. According to the

DPS, policymakers can choose to implement non-cost-effective measures if it is deemed to be in the best interest of the State, taking into account statutory goals and other policy directives.

Discussion

We accept the DPS's recommendation that statutory goals not be taken into account when screening efficiency measures for cost-effectiveness. We recognize our statutory responsibility to ensure that the EEUs' programs are working toward attaining the State's building efficiency goals, and we consider this when reviewing the EEUs' Annual Plans. However, as noted by the DPS, many of the building efficiency goals outlined by the Legislature compete with each other. VEIC has suggested we modify cost-effectiveness screening to effectively prioritize the goal related to depth of savings in the existing housing stock. We decline to do so at this time. Given the limited funding currently available for the EEUs to implement heating-and-process-fuel efficiency, it is important for cost-effectiveness screening to be performed as objectively as possible. This does not mean that VEIC cannot choose to focus on depth of savings when implementing its heating-and-process-fuel services and initiatives; only that these services and initiatives (and measures) must be cost-effective. Accordingly, we take no further action on this issue at this time.

(2) Project Versus Measure Screening

Cost-effectiveness screening can be performed at four different levels: (1) the measure level, in which case each measure that is installed must be cost-effective; (2) the project level (a project is a bundle of measures at a single location) in which case the project as a whole must be cost-effective, but it could include some measures that, screened in isolation, would not be cost-effective; (3) the program/initiative level, which includes all project and administrative costs associated with the specific program or initiative; or (4) the portfolio level, which includes all programs/initiatives and all overhead costs that are not associated with specific programs or initiatives. Different heating-and-process-fuel providers screen for cost-effectiveness at different levels, and some screen at multiple levels.

The Board Staff Memorandum recommended that entities regulated by the Board should continue to screen measures on the basis of incremental costs and benefits, not including administrative and overhead costs. The Board Staff Memorandum also recommended that program screening should continue to include the overhead and administrative costs that are associated with the program, but should not include other overhead costs that fall outside the program. The Board Staff Memorandum further recommended that some flexibility be allowed with respect to prescriptive measures that are screened for "average" customers. In the case of prescriptive measures, it is expected that some customers will experience greater savings than others, and some customers may experience such small savings that the measure would be uneconomic for those particular customers. Nevertheless, it would be inefficient to individually screen each prescriptive measure for each customer. Therefore, prescriptive measures should be screened in the design of the overall program. Finally, the Board Staff Memorandum recommended that Efficiency Vermont continue its current standard practice of screening at all four levels, but recommended that Efficiency Vermont provide a clear statement of its screening practices in order to minimize any confusion regarding those practices.

Participants' Comments

The 2009 Joint Commenters stated that they supported the goals of clarity and transparency for screening practices.

In 2011, VEIC filed additional information describing Efficiency Vermont's screening practices. According to this information, Efficiency Vermont performs cost-effectiveness screening at the measure, project, program and portfolio levels. In addition, VEIC explained that Efficiency Vermont uses only the societal test when screening at the measure level, but that at other levels, it uses the societal test in conjunction with other cost-effectiveness tests, including the total resource cost test (which limits benefits and costs only to those resources priced in the marketplace) and the utility test (which focuses exclusively on efficiency investment benefits realized and costs incurred by utility ratepayers). VEIC also stated that Efficiency Vermont uses all three cost-effectiveness tests for planning, budgeting, and reporting purposes.

VEIC also asserted that it finds it acceptable to provide prescriptive or custom financial incentives for efficiency measures that are not cost-effective at current measure costs and savings if it concludes that doing so will increase program and/or portfolio cost-effectiveness in support of one or more of these general principles: (1) by increasing the likelihood that customers will implement other cost-effective measures; (2) by providing electric and/or heating-and-process-fuel resource benefits in excess of the incentive or other incremental program expenditures associated with them; or (3) by stimulating demand for, and supply of, emerging technologies and thereby lowering future measure costs.

Discussion

We accept the Board Staff Memorandum's recommendations regarding how entities regulated by the Board should perform cost-effectiveness screening, including the practice of screening at all four levels. In addition, we determine that the information provided in VEIC's October 24, 2011, filing regarding Efficiency Vermont's cost-effectiveness screening practices satisfies the Board Staff Memorandum's desire for VEIC to file additional information on this topic. Finally, we note that at the November 3, 2011, workshop, participants discussed at some length whether it is acceptable to provide prescriptive or custom financial incentives for efficiency measures which do not pass individual societal cost-effectiveness analysis at current measure costs and savings. Both VGS and BED stated that they have long done so on a limited basis in certain circumstances, such as those articulated by VEIC in its written comments.[16] After considering all the information provided by participants, we conclude that, given the information presented, the approach used by VEIC, BED and VGS is reasonable, and there is no need for the Board to take further action on this issue at this time.

IV. Issues Affecting Screening of All Fuels

Four of the issues discussed concerned the screening of electric, natural gas, and heating-and-process-fuel measures: the discount rate; the risk adjustment; the non-energy benefits adjustment; and the low-income adjustment. The applicability of these issues to all fuel types

16. Tr. 11/3/11 at 43-52.

was discussed at the November 9, 2011, workshop, and subsequently in discussions convened by the DPS that were open to all workshop participants. We address each of these in turn.

A. Discount Rate

Cost-effectiveness screening tests compare the net present value ("NPV") of annual costs and benefits of efficiency measures over their lifetime. To determine the NPV, the future stream of costs and benefits must be discounted back to their value in the present. Because most of the costs and only a portion of the benefits of energy efficiency measures accrue immediately, the discount rate has a significant impact on the screening of energy efficiency measures. A higher discount rate will potentially allow fewer measures to screen (as it lowers the value of future benefits) while a lower discount rate will potentially allow more measures to screen.

This issue was not addressed in the Board Staff Memorandum; it was first raised by the 2009 Joint Commenters in their comments on the Board Staff Memorandum.

Participants' Comments

In their comments on the Board Staff Memorandum, the 2009 Joint Commenters recommended that there be further process to consider the methodological determinants of an appropriate discount rate, and suggested that the discount rate should be linked to the 12-month weighted average of 30-year U.S. treasury bonds. This further process was held in 2011.

The DPS stated that, to date, the State Screening Tool has used the utility weighted-average cost of capital (currently estimated at 5.6 percent, real dollars) to discount the future costs and benefits back to present value. However, the DPS asserted that this approach is more appropriate for a utility-based screening test. The DPS contended that for an individual or a company, future preference for investment is identified directly with that individual or company's cost of capital. But, for society as a whole, the discount rate is often lower because an individual or company's investment decisions have impacts on others (such as the effects of a company's increased spending or savings on a company's customers or other local businesses). Therefore, according to the DPS, society has less of a time preference for the return on an investment than a company might; this reduced time preference manifests itself as a lower discount rate. As a result, the DPS asserted that a societal discount rate, rather than a rate based on the utility weighted-average cost of capital, should be used in energy efficiency cost-effectiveness screening. The DPS stated that it does not object to the concept proposed by the 2009 Joint Commenters of using long-term U.S. treasury bonds as a proxy for the societal discount rate. Nevertheless, the DPS recommended setting the discount rate at a firm three percent (real dollars) in order to avoid fluctuations in a discount rate based upon relatively short-term economic conditions. According to the DPS, adopting a long-term stable discount rate would allow for consistency and certainty for program planning across years and is administratively efficient.

The 2011 Joint Commenters, VFEP and VHCB supported the use of a three percent discount rate. VGS did not object to a three percent discount rate.

The DPS recommended that participants continue to monitor and examine the value, and that it should be treated as a rebuttable presumption in the future. The DPS recommended that the Board consider any new information provided by interested stakeholders at least every two years, perhaps within the biennial avoided-cost proceedings. The 2011 Joint Commenters and VGS agreed that the value should be revisited as part of the biennial avoided-cost proceedings.

<u>Discussion</u>

The DPS has made compelling arguments regarding changing the methodology historically used to determine an appropriate discount rate for energy efficiency cost-effectiveness screening. We determine that it is more appropriate to use a societal discount rate, and that three percent (real dollars) is a reasonable proxy for the societal discount rate at this time. We also conclude that the discount rate should be revisited when the next avoided-cost study is conducted, with three percent serving as a rebuttable presumption. It is good practice to periodically reexamine assumptions used in cost-effectiveness screening, and it will be administratively efficient to conduct such a reexamination of the discount rate as part of the biennial EEU avoided-cost proceedings.

B. Risk Adjustment

In the Board's April 19, 1990, Order in Docket 5270, it established a risk adjustment to be used when screening electric and natural-gas efficiency investments. This risk adjustment was a 10 percent discount to the price of demand-side options. This workshop process discussed whether it was appropriate to use this risk adjustment when screening heating-and-process-fuel efficiency measures.

The Board Staff Memorandum noted that the risk adjustment developed for regulated utilities in the screening of energy efficiency investments was intended to address system-wide risks associated with investment in supply-side resources, such as the risk to ratepayers and/or utility investors that bear the risk of supply-side investments that may be unneeded or unavailable after the investments have occurred. The Board Staff Memorandum asserted that heating-and-process fuels are associated with parallel, but distinct risks, such as those associated with short-term shortage events or declining reserves. The Board Staff Memorandum further stated that it seems reasonable to conclude that the magnitude of the risk is likely comparable for all types of fuels. Therefore, the Board Staff Memorandum recommended extending application of the 10 percent risk adjustment to the screening of heating-and-process fuels.

Participants' Comments

The DPS recommended that the Board adopt the Board Staff Memorandum's recommendation on this issue. The DPS agreed with the Board Staff Memorandum's conclusion that the types of risks associated with different fuels are different; in particular, the DPS asserted that the price volatility and infrastructure risk vary among fuel sources. Nevertheless, the DPS contended that applying the 10 percent risk adjustment when screening all types of efficiency investments is a reasonable proxy for the differing types of risk reduced by efficiency investments.

The 2011 Joint Commenters, VFEP, and VHCB supported the application of the 10 percent risk adjustment when screening all types of efficiency investments. VGS did not object to the 10 percent risk adjustment.

VFDA asserted that it is not practical to calculate an adjustment value related to reducing the nation's dependency on imported oil. VFDA stated that Vermont's heating-oil consumption represents less than two-tenths of one percent of distillate fuel consumption in the U.S., and thus any decrease in the consumption of heating oil in Vermont is statistically irrelevant from the national perspective. VFDA contended that the abundance of distillate, both on-shore and off-shore in floating storage, mitigates any short-term concerns regarding heating-oil supply. VFDA also stated that the heating-oil industry has a 75-year history of providing a reliable and safe supply of heat to a majority of Vermonters.

The DPS recommended that participants continue to monitor and examine the risk-adjustment value, and that it should be treated as a rebuttable presumption in the future. The DPS recommended that the Board consider any new information provided by interested stakeholders at least every two years, perhaps within the biennial avoided-cost proceedings. The 2011 Joint Commenters and VGS agreed that the value should be revisited as part of the biennial EEU avoided-cost proceedings.

Discussion

The types of risks associated with different fuels are different, with the most significant being the risk of price volatility and infrastructure risk. We accept the DPS's and the 2011 Joint Commenters' recommendation that the 10 percent discount to the price of demand-side options be applied when screening efficiency investments of all fuel types. We also conclude that the risk adjustment should be revisited when the next avoided-cost study is conducted, with the 10 percent adjustment serving as a rebuttable presumption. It is good practice to periodically reexamine assumptions used in cost-effectiveness screening, and it will be administratively efficient to conduct such a reexamination of the risk adjustment as part of the biennial avoided-cost proceedings.

C. Non-Energy Benefits Adjustment

Non-energy benefits are "any real or perceived, financial or intangible benefit accrued by a project and not reflected in energy savings."[17] From the customer's perspective, non-energy benefits can include increased comfort, convenience, and health. From the utility perspective, non-energy benefits can include reduction in the number of utility shut-offs and bill complaints. From a societal perspective, non-energy benefits can include increased community health and improved aesthetics related to the decreased need for generation and associated transmission infrastructure. All of an efficiency investment's costs and benefits should be considered when using the societal cost-effectiveness screening test. However, other than environmental externalities, water, and operations and maintenance savings, non-energy benefits are not currently accounted for in the State Screening Tool.

The Board Staff Memorandum recognized the existence of non-energy benefits that are not currently accounted for in the State Screening Tool, and noted that they include factors that may be subjective, difficult to quantify, and variable (from person to person). The Board Staff Memorandum stated that it was difficult to place a clear value on non-energy benefits without more and better information. As a result, the Board Staff Memorandum recommended the temporary use of a five percent adjustment factor to building-shell and related improvements that are likely to produce such non-energy benefits. In addition, the Board Staff Memorandum recognized the need for further research in this area but, due to the potential cost of such research, declined to recommend that EEU funds be used to sponsor further research in this area.

Participants' Comments

The 2009 Joint Commenters, the DPS, VGS and VFDA filed comments on the Board Staff Memorandum's recommendations on this issue. However, this is an area in which significant updated information was provided during the 2011 workshops, and in which most of these participants filed updated recommendations. Therefore, there is no need to describe their 2009 comments.

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17. VEIC 10/24/11 Comments, citing "BC Hydro Discussion Paper on Counting Participant Non-Energy Benefits in the Total Resource Cost Test," BC Hydro, Vancouver, BC, April 15, 2008.

Prior to the 2011 workshops, VFDA stated that it saw value in calculating certain non-energy benefits, but that there should be a greater discussion of what these values are and how they impact the cost-effectiveness screening procedure.

During the 2011 workshops, VEIC provided copies of new research on non-energy benefits, as well as information on how some other states are incorporating non-energy benefits into their energy efficiency screening practices. After reviewing this additional information, the DPS recommended that a 15 percent non-energy-benefits adder be applied to the energy benefits in cost-effectiveness screening in Vermont to account for the hard-to-quantify benefits that factor into participant decision-making. The DPS acknowledged that the non-energy benefits that accrue to participants from electric and thermal fuels may differ; nevertheless, the DPS recommended applying the non-energy-benefits adder equally across all fuels. The DPS also recommended that the Board direct energy efficiency providers that it regulates to limit the incentives they pay to participants to the value of the lifetime energy savings (except for low-income customers, discussed in the following section). The DPS also asserted that water and operations and maintenance savings should continue to be directly quantified, where appropriate, separate from the 15 percent adder. Finally, the DPS did not recommend that Vermont ratepayers fund primary research on this subject in Vermont at this time.

The 2011 Joint Commenters agreed with the DPS's recommendation that a 15 percent non-energy-benefits adder should be used in cost-effectiveness screening of energy efficiency measures. The 2011 Joint Commenters asserted that they consider 15 percent to be at the low end of the appropriate set of values for this adjustment in that it almost certainly substantially underestimates the full range of impacts. However, because the inclusion of a non-energy-benefits adder is new, the 2011 Joint Commenters supported the use of a "modest" non-energy-benefits adder.[18]

VGS did not object to a 15 percent non-energy-benefits adder; predicated on VGS's understanding that incentives will be limited to no more than the direct energy benefits.

VFEP and VHCB supported the 15 percent non-energy-benefits adder.

18. Joint Commenters' December 16, 2011, Comments at 4.

The DPS recommended that participants continue to monitor and examine the value of the non-energy benefits adder, and that the 15 percent value should be treated as a rebuttable presumption in the future. The DPS recommended that the Board consider any new information provided by interested stakeholders at least every two years, perhaps within the biennial avoided-cost proceedings. The 2011 Joint Commenters and VGS agreed that the value should be revisited as part of the biennial avoided-cost proceedings. VGS noted that non-energy-benefits have not been previously quantified and included in the cost-effectiveness screening of energy efficiency measures in Vermont. Therefore, according to VGS, it will be particularly important to review whether their inclusion in this manner has had any unintended consequences.

Discussion

The societal test is intended to include all costs and benefits associated with a particular energy efficiency investment. The Board has long recognized that some difficult-to-quantify costs and benefits, such as environmental externalities and comparative risk, should be included in cost-effectiveness screening. Recently, the energy efficiency industry has begun to focus on energy efficiency's non-energy benefits, and how to incorporate those into cost-effectiveness screening. We found the updated information presented in 2011 on this subject to be particularly helpful in understanding what non-energy benefits encompass, their potential magnitude, and the uncertainties associated with those estimates.

We determine that it is appropriate for non-energy benefits to be incorporated into cost-effectiveness screening of energy efficiency investments in Vermont. Furthermore, we accept the DPS's recommendation that a 15 percent non-energy-benefits adder should be applied to the energy benefits, across all fuels.[19] While there is a high degree of uncertainty surrounding the magnitude of non-energy benefits, it is clear that the current value of zero is incorrect, and that 15 percent is on the lower end of the range of estimates. It is appropriate to start with a

19. The 15 percent adder is intended to reflect those non-energy benefits that are not already directly quantified in cost-effectiveness screening. We expect environmental externalities, water savings, and operations and maintenance savings to continue to be directly quantified, where appropriate, separate from the 15 percent adder.

conservative estimate, and to revisit the estimate in the biennial EEU avoided-cost proceedings, with 15 percent serving as a rebuttable presumption.

We also conclude that energy efficiency providers that we regulate should not pay incentives to participants that exceed the value of the lifetime energy savings of the efficiency measures (we discuss the special case of low-income customers in the following section). There are limited ratepayer funds available for energy efficiency programs; such programs should remain focused on acquiring energy savings.

In addition, the inclusion of a non-energy-benefits adder affects one issue discussed in Section III.C.2, above, regarding project versus measure screening. As discussed above, currently there are instances in which an energy efficiency provider will provide an incentive for a measure that does not pass the societal test using the current State Screening Tool, as long as the project as a whole is cost effective. Since the inclusion of a non-energy-benefits adder in the State Screening Tool will increase the number of measures that pass the cost-effectiveness test, we expect that this decision will reduce the frequency with which energy efficiency providers offer incentives for measures that do not pass the test.

D. Low-Income Adjustment

This workshop process has explored whether cost-effectiveness screening should be conducted differently for energy efficiency investments that would benefit low-income customers. Throughout this proceeding, there were discussions regarding whether energy affordability should be a "key design parameter" for low-income programs in order to foster a "deeper" level of effort than would screen under the current State Screening Tool. In the most recent workshops, the discussions also addressed the possibility of an additional adder solely for low-income customers that would more accurately reflect the benefits of energy efficiency investments in that sector.

The Board Staff Memorandum acknowledged the participants' agreement that deeper energy efficiency investments should be made in each publicly funded low-income residence that is served. However, the Board Staff Memorandum declined to recommend that measure screening differentiate among customer types, without clear statutory direction to treat publicly funded low-income households differently than other households or customer classes. Instead, the Board Staff Memorandum recommended that cost-effectiveness screening tools be applied consistently across all customer classes and segments within those classes.

Participants' Comments

The 2009 Joint Commenters and the DPS filed comments on the Board Staff Memorandum's recommendations on this issue. However, this is an area in which significant updated information was provided during the 2011 workshops, and in which most of these participants filed updated recommendations. Therefore, there is no need to describe their earlier comments.

The DPS asserted that: (1) any energy savings that accrue to the low-income sector have a greater benefit to that sector because its energy-bill-to-income ratio is higher relative to other sectors; and (2) there appear to be greater non-energy benefits from energy efficiency investments accruing to participants in the low-income sector (both single-family and multi-family housing), particularly with regard to comfort, health and safety. The DPS stated that these benefits can be very difficult to quantify, but the DPS considers 15 percent to be a reasonable and conservative estimate of the additional non-energy benefits energy efficiency investments can provide to this sector. Therefore, to account for these increased benefits, the DPS recommended an additional adder of 15 percent be applied to the expected energy benefits from projects in the low-income sector.[20] The DPS also recommended that, for the low-income sector, incentive payments not be limited to the value of the energy benefits; rather, incentives should be limited to the value of the energy benefits plus the 15 percent low-income adder.

The 2011 Joint Commenters noted that over the last several years, many states have incorporated low-income adjustments into state screening policy. The 2011 Joint Commenters also cited a 2002 paper by the American Council for an Energy Efficient Economy ("ACEEE") which estimated that, based on the Vermont Weatherization Program's spending of $2,259 per program participant, the energy savings (based on natural gas as a fuel source) were $5,538 and

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20. The 15 percent low-income adder would be in addition to the general 15 percent non-energy-benefits adder discussed above.

the non-energy benefits were $11,391.[21] The 2011 Joint Commenters supported a 15 percent low-income adder, and the DPS's recommendation that incentives for low-income customers not be limited to the value of the energy benefits. However, the 2011 Joint Commenters recommended that, to be consistent, this investment guidance should also be applied at the portfolio level.

VGS does not object to the 15 percent low-income adder. However, VGS clarified that it would only apply the adder to measures or projects it screens pursuant to its "piggyback" arrangement with the Office of Economic Opportunity ("OEO"). VGS stated that, unless otherwise required by the Board, VGS does not intend to conduct income-eligibility reviews on its energy efficiency participants. Therefore, VGS explained that program participants who are not part of either the OEO weatherization program or other third-party low-income programs will not be treated as low-income for purposes of efficiency screening.

VFEP and VHCB supported the 15 percent low-income adder. VHCB asserted that, given the substantial reliance upon an unregulated fuel market for heating, operational energy costs have doubled for low-income housing operators over the last five years. VHCB stated that, as a result, the state energy efficiency screening process is very important in supporting the operational cost and the operational viability of the affordable housing community. Therefore, VHCB considered the low-income adder (and discount rate, risk adjustment and non-energy benefits adjustment) to be a first step toward the changes necessary to provide for the level of investment required under "A Roadmap for Housing Energy Affordability" ("Roadmap").[22] VHCB contended that implementation of the Roadmap is vitally important because: (1) it will protect a multi-hundred-million-dollar public investment in affordable housing by taxpayers made through both the state and federal governments over the last 30 years; (2) it will help

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21. VEIC December 16, 2011, Comments, citing Beyond Energy Savings: A Review of Non-Energy Benefits Estimated for Three Low-Income Programs. Nick Hall and Jeff Riggert, TecMRKT Works. 2002 ACEEE Program Measurement and Evaluation, Panel 10.

22. The Roadmap is a research project sponsored by VHCB and the Vermont Housing Finance Agency, and conducted by Andrew M. Shapiro, Energy Balance, Inc. with assistance from Maclay Architects and Stephen Pitkin. The Roadmap is specifically designed to address the issue of operational energy cost affordability in low-income multi-family housing.

Vermont meet its climate energy goals; (3) it protects an extremely low-income, elderly and disabled population; (4) it will avoid the need to add a new class of users to the Low-Income Home Energy Assistance Program; (5) it will maintain as affordable housing both historic structures that contribute to Vermont's sense of place and many buildings that provide by their location access to services for residents without reliance on an automobile; and (6) it provides a critical level of housing stability for the most vulnerable populations.

The DPS recommended that participants continue to monitor and examine the value of the low-income adder, and that it should be treated as a rebuttable presumption in the future. The DPS recommended that the Board consider any new information provided by interested stakeholders at least every two years, perhaps within the biennial avoided-cost proceedings. VGS agreed that the value should be revisited as part of the biennial avoided-cost proceedings. VGS noted that because a low-income adjustment has not previously been included in the cost-effectiveness screening of energy efficiency measures in Vermont, it will be particularly important to review whether its inclusion in this manner has had any unintended consequences. The 2011 Joint Commenters asserted that, given the critical importance of energy affordability and operational cost to the low-income sector, the 15 percent adjustment should be evaluated over time in light of achieving the necessary goals of the low-income sector.

Discussion

Workshop participants have articulated well the additional benefits to low-income customers and society that result from energy efficiency investments in the low-income sector. We determine that it is appropriate for these additional benefits to be incorporated into cost-effectiveness screening of energy efficiency investments in Vermont. Furthermore, we accept the DPS's recommendation that a 15 percent low-income adder should be applied to the energy benefits, across all fuels. While the additional benefits to low-income customers and society can be difficult to quantify, it is clear that the current value of zero is incorrect; 15 percent appears to be an appropriate conservative estimate of their value. It is appropriate to start with a conservative estimate, and to revisit the estimate in the biennial EEU avoided-cost proceedings, with 15 percent serving as a rebuttable presumption.

However, we do not adopt the DPS's recommendation that the maximum value of incentives for projects in the low-income sector also reflect the 15 percent adder. Rather, we conclude that energy efficiency providers that we regulate should not pay incentives to participants, including in the low-income sector, that exceed the value of the lifetime energy savings of the efficiency measures. Energy efficiency programs are intended to provide least-cost energy service to customers. If ratepayer-funded incentives of greater than the resulting energy benefits are paid to participants in the low-income sector, such service will not be least-cost.

We recognize that paying larger incentives for individual low-income projects, if they include additional efficiency measures, may result in the acquisition of additional efficiency savings by those individual projects. However, it is unknown whether such larger incentives would result in the acquisition of greater efficiency savings by the low-income sector as a whole. We have no indication that the EEUs have had difficulty cost-effectively spending the funds they have allocated to low-income programs or that participants in low-income programs are declining to install energy efficiency measures because incentive payments are inadequate.

We also do not adopt VEIC's recommendation that the 15 percent low-income adder be incorporated at the portfolio level. Both Efficiency Vermont and BED have a minimum performance standard with respect to electric efficiency that electric benefits must exceed utility costs by a ratio of 1.2 to 1. We are not persuaded that this standard should be lowered as a result of incentives paid to low-income customers that exceed the resulting energy benefits of their projects.

Finally, we clarify that in adopting this low-income adder, we are not requiring EEUs to conduct income-eligibility reviews on their energy efficiency participants. EEU programs targeted at low-income customers are currently "piggybacked" on services provided to low-income customers by other entities; these other entities perform income-eligibility screening of potential participants. Even though low-income customers likely receive additional services from EEUs through programs directed at all residential customers (for example, there are likely low-income customers who participate in the Efficient Products Program), we do not intend for EEUs to apply the additional 15 percent low-income adder to measures provided to low-income customers who participate in such programs as those customers are not readily identifiable, absent income-eligibility screening performed by some third-party entity.

V. Conclusion

In this Order, we make the following determinations that apply solely to cost-effectiveness screening of heating-and-process fuels by energy efficiency providers regulated by the Board:

- Future consideration of avoided costs for heating-and-process fuels will occur in the biennial EEU avoided-cost proceedings;
- There should be only one costing period for heating-and-process fuels, and any changes to the number of costing periods should be addressed in future biennial EEU avoided-cost proceedings;
- Representatives of the VFDA and VGS should be invited to TAG meetings at which assumptions used in the cost-effectiveness screening of efficiency measures for heating-and-process fuels will be reviewed;
- Efficiency Vermont should solicit input from the VFDA and VGS when drafting measure characterizations for heating-and-process-fuel measures used in the Technical Reference Manual;
- As the DPS has agreed, assumptions regarding the characteristics of liquid fuels should be addressed first by the DPS in the context of the regional avoided-cost study. The DPS is encouraged to consult with the VFDA and liquid-fuel retailers, service technicians and equipment manufacturers as it participates in the regional avoided-cost study, in the same manner that it consults with representatives from the electric, gas and energy efficiency sectors during the development of the study;
- It remains appropriate for energy efficiency providers regulated by the Board to screen all efficiency measures, regardless of the underlying fuel, using the societal test;
- Workshop participants are encouraged to continue informal discussions to address any remaining issues associated with who performs the analysis of heating-system efficiency opportunities and savings; if these discussions lead to any changes in the design of an EEU's services or initiatives, the affected EEU should describe the change in its first quarterly report or annual plan filed after the change is made; and
- Cost-effectiveness screening will continue to be performed at the measure, project, program, and portfolio levels.

In this Order, we make the following determinations that apply to cost-effectiveness screening of all efficiency investments by energy efficiency providers regulated by the Board, regardless of fuel type:

- The discount rate will be three percent;
- The risk adjustment will be a 10 percent discount to the price of demand-side options;
- The non-energy-benefits adjustment will be a 15 percent adder to energy benefits;
- The low-income adjustment will be an additional 15 percent adder to the energy benefits of projects in the low-income sector. This adder will be applied to projects for which a third-party entity has conducted income-eligibility reviews; entities regulated by the Board will not be required to perform such reviews;
- Ratepayer-funded incentive payments to energy efficiency program participants of all types will be limited to the value of the lifetime energy savings of the efficiency measures; and
- These values and adjustments will be treated as rebuttable presumptions and will be revisited in the biennial EEU avoided-cost proceedings.

VI. ORDER

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Public Service Board ("Board") of the State of Vermont that:

1. Energy efficiency providers regulated by the Board shall continue to screen all efficiency measures, regardless of the underlying fuel, using the societal test.

2. Energy efficiency providers regulated by the Board shall continue to perform cost-effectiveness screening at the measure, project, program, and portfolio levels.

3. Future consideration of avoided costs for heating-and-process fuels shall occur in the biennial Energy Efficiency Utility ("EEU") avoided-cost proceedings.

4. There shall be only one costing period for heating-and-process fuels, and any changes to the number of costing periods shall be addressed in future biennial EEU avoided-cost proceedings.

5. Representatives of the Vermont Fuel Dealers Association ("VFDA") and Vermont Gas Systems, Inc. ("VGS") shall be invited to Technical Advisory Group ("TAG") meetings at which

assumptions used in the cost-effectiveness screening of efficiency measures for heating-and-process fuels will be reviewed.

6. Efficiency Vermont shall solicit input from the VFDA and VGS when drafting measure characterizations for heating-and-process-fuel measures used in the Technical Reference Manual.

7. As agreed to by the Department of Public Service ("DPS"), assumptions regarding the characteristics of liquid fuels shall be addressed first by the DPS in the context of the regional avoided-cost study. The DPS is encouraged to consult with the VFDA and liquid-fuel retailers, service technicians and equipment manufacturers as it participates in the regional avoided-cost study, in the same manner that it consults with representatives from the electric, gas and energy efficiency sectors during the development of the study.

8. Workshop participants are encouraged to continue informal discussions to address any remaining issues associated with who performs the analysis of heating-system efficiency opportunities and savings. If these discussions lead to any changes in the design of an EEU's services or initiatives, the affected EEU shall describe the change in its first quarterly report or annual plan filed after the change is made.

9. When performing energy efficiency screening, regardless of fuel type, energy efficiency providers regulated by the Board shall use:

- a discount rate of three percent;
- a risk adjustment of a 10 percent discount to the price of demand-side options;
- a non-energy benefits adjustment of a 15 percent adder to energy benefits; and
- a low-income adjustment of an additional 15 percent adder to the energy benefits of projects in the low-income sector.

10. The low-income adder shall be applied to projects for which a third-party entity has conducted income-eligibility reviews; energy efficiency providers regulated by the Board will not be required to perform such reviews.

11. Ratepayer-funded incentive payments to energy efficiency program participants of all types shall be limited to the value of the lifetime energy savings of the efficiency measures.

12. The discount rate, risk adjustment, non-energy benefits adjustment, and low-income adjustment shown in Paragraph 9, above, shall be treated as rebuttable presumptions and shall be revisited in the biennial EEU avoided-cost proceedings.

Dated at Montpelier, Vermont, this 7th day of February, 2012.

s/ James Volz	)	
	)	PUBLIC SERVICE
	)	
s/ David C. Coen	)	BOARD
	)	
	)	OF VERMONT
s/ John D. Burke	)	

OFFICE OF THE CLERK

FILED: February 7, 2012

ATTEST: s/ Susan M. Hudson
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)

Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Board within thirty days. Appeal will not stay the effect of this Order, absent further Order by this Board or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Board within ten days of the date of this decision and order.

Appendix A

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