STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. EEU-2016-03

In Re: 2016-2017 Demand Resources Plan Proceeding	

Order entered: 07/07/2017

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GLOSSARY OF ACRONYMS

AIV	Associated Industries of Vermont
AMWh	Annual Megawatt Hour
BED	City of Burlington Electric Department
CLF	Conservation Law Foundation
Commission	Vermont Public Utility Commission
DRP	Demand Resources Plan
DSS	Development and Support Services
EEC	Energy Efficiency Charge
EEUs	Energy Efficiency Utilities
FCM	Forward Capacity Market
GDS	GDS Associates, Inc.
GMP	Green Mountain Power Corporation
Joint Commenters	350Vermont, Capstone Community Action, Citizens Awareness Network, Conservation Law Foundation, Rights & Democracy, VBike, Vermont Affordable Housing Coalition, Vermont Businesses for Social Responsibility, the Vermont Chapter of the Sierra Club, Vermont Conservation Voters, Vermont Interfaith Power & Light, Vermont Low Income Advocacy Council, Vermont Natural Resources Council, Vermont Public Interest Research Group, and Vermont Yankee Decommissioning Alliance
LMWh	Lifetime Megawatt Hour
MAP	Maximum Achievable Potential
Mcf	Million Cubic Feet
MPR	Minimum Performance Requirement
MW	Megawatt
P&A Document	Process and Administration of an Energy Efficiency Utility Order of Appointment
QPI	Quantifiable Performance Indicator

RAP	Realistic Achievable Potential
RGGI	Regional Greenhouse Gas Initiative
SQRP	Service Quality and Reliability Plan
TEPF	Thermal Energy and Process Fuels
TRB	Total Resource Benefits
VEC	Vermont Electric Cooperative, Inc.
VEIC	Vermont Energy Investment Corporation
VGS	Vermont Gas Systems, Inc.
VPIRG	Vermont Public Interest Research Group
VSPC	Vermont System Planning Committee

I. INTRODUCTION

In this Order, the Vermont Public Utility Commission ("Commission")[1] approves the resource-acquisition budgets proposed by the state's three energy efficiency utilities ("EEUs") – Efficiency Vermont, the City of Burlington Electric Department ("BED"), and Vermont Gas Systems, Inc. ("VGS"). The new EEU budget levels are expected to result in short-term rate relief in the energy efficiency charge ("EEC") paid by ratepayers in those respective territories, while also delivering long-term savings to the state as a whole.

In reaching its conclusions, the Commission recognizes that continued investment in cost-effective energy efficiency will result in total electric and natural gas costs for Vermont ratepayers that are lower than they would otherwise be absent energy efficiency efforts. These efforts not only yield savings for customers who install electric and natural gas efficiency measures, but also result in savings for all ratepayers through reduced need for power purchases by utilities and deferred need for system upgrades such as new transmission facilities. These savings through additional investments in energy efficiency will be obtained at a fraction of the cost of traditional supply-side resources.

[1] Pursuant to Section 9 of Act 53 of the 2017 legislative session, the Vermont Public Service Board's name was changed to the Vermont Public Utility Commission, effective July 1, 2017. For clarity, activities of the Vermont Public Service Board that occurred before the name change will be referred to in Commission documents as activities of the Commission unless that would be confusing in the specific context.

The Commission initiated this proceeding to develop long-term Demand Resources Plans ("DRPs") for Vermont's three EEUs. A DRP is a set of year-by-year values for demand-side electricity, natural gas, and thermal energy and process fuels ("TEPF") savings goals, and includes resource-acquisition and development and support services ("DSS") budgets. The establishment of both short and long-term EEU budgets and savings goals through a DRP allows the EEUs, Vermont utilities, and other market participants to incorporate efficiency savings into their planning and allows these entities to estimate the impacts of savings that will occur as a result of energy efficiency efforts that are funded by the EEC. Vermont law requires EEU budgets funded via an EEC to be set at a level that would achieve "all reasonably available, cost-effective energy efficiency," and describes specific objectives for the Commission to consider when setting EEU budgets.

In this Order, after considering these statutory factors and the information and comments provided by participants, we establish the resource-acquisition budgets, modeling assumptions, and quantifiable performance indicator ("QPI") and minimum performance requirement ("MPR") weightings for each EEU. The three-year electric and natural gas resource-acquisition budgets approved in this Order for the purpose of performing final savings scenario modeling are shown in Table 1. The 20-year electric and natural gas and 10-year TEPF resource-acquisition planning budgets are included as Appendix A to this Order. In the next phase of this proceeding, the EEUs will incorporate these budgets, assumptions, QPIs, and MPRs into a final scenario model, and participants will have an opportunity to comment on DSS budget proposals, the Department's evaluation plan, and other EEU program administrative budgets.

Table 1. Three-Year Electric or Natural Gas Resource-Acquisition Budgets for each EEU

	2018	2019	2020
Efficiency Vermont	$44,123,639	$44,123,639	$44,123,639
BED	$2,395,982	$2,544,509	$2,544,509
VGS	$2,889,201	$3,014,426	$3,030,476

As described in detail below, we conclude that significant cost-effective electric and natural gas energy efficiency is reasonably available in Vermont. We are also mindful that this spending on electric and natural gas efficiency affects the EEC charge on customers' bills. The EEC, though small in relation to total utility costs, is additive to overall rates. However, our

decision establishing these new EEU budget levels is expected to result in short-term rate relief for Vermont ratepayers while also delivering long-term savings. BED and VGS customers are expected to see reduced EEC rates in the next three performance years. Customers in Efficiency Vermont's service territory are expected to have a noticeable EEC rate reduction in 2018 followed by modest rate increases in 2019 and 2020. In approving the VEIC proposal for Efficiency Vermont's resource-acquisition budget instead of the Department's proposal for a lower budget, the Commission concludes that the long-term benefits of the incremental investments relative to the Department's proposal warrant the modestly greater EEC rate effect.

While all EEU investments are required by statute to be cost-effective, and do provide a significant long-term net benefit to Vermont, the out-of-pocket cost of efficiency services is borne by customers up-front. For example, when a ski area participates in an EEU program and invests in new, more energy-efficient snowmaking equipment, the business is spending its money and EEU funds now while benefiting from reduced energy usage over the life of the equipment. Accordingly, we recognize that EEC rates in the short term may be burdensome to some ratepayers and balance that consideration in determining overall EEU budgets. Nevertheless, we conclude that the resource-acquisition budgets approved in this Order will result in long-term benefits to Vermont ratepayers as a whole. Investments today in energy efficiency, like any capital investment, are beneficial not because of the immediate gain but because of the long-term gain over the lifetime of the investment. The energy efficiency investments that will be made under the budgets we approve today will continue to provide benefits to Vermont, including its ratepayers, over many years and thus, as discussed below, are cost-effective.

Our concern regarding the economic impact of electricity and natural gas rates on Vermont businesses and residents has influenced our decision to adopt resource-acquisition budgets that – while higher than the Department's budget proposal – are lower than those recommended by some participants. These moderately lower budgets also account for the practical considerations associated with ramping up energy efficiency sources too quickly, with a short planning horizon, and will enable the EEUs to fully plan for and implement their services in the most cost-effective manner. Nevertheless, when viewed over the DRP's twenty-year planning horizon, the long-term electric and natural gas resource-acquisition budgets we

establish today will enable the EEUs to acquire all reasonably available, cost-effective energy efficiency.

II. BACKGROUND

In 2010, as part of the Commission's modification of the EEU program structure, the Commission approved a document titled Process and Administration of an Energy Efficiency Utility Order of Appointment ("P&A Document") that describes the overall EEU program structure.[2] The P&A Document describes the process to be followed in developing a DRP as well as a DRP's contents.

Pursuant to the P&A Document, the DRP proceeding shall: (1) be a non-contested case proceeding before the Commission involving the EEUs that results in a set of long-term EEU-specific assumptions pursuant to which each EEU shall operate; (2) delineate the budgets, modeled savings, and QPIs for each EEU, including both resource-acquisition and DSS budgets; (3) to the extent possible, include consideration of the effects on overall DRP budgets and QPIs of geographically targeted energy efficiency budgets and services; (4) delineate the compensation structure, if any, of EEUs; (5) delineate budgets for the Vermont Department of Public Service ("Department") evaluation of EEUs; and (6) delineate budgets for the EEU Fiscal Agent, EEU Fund Audit, Independent Audit of EEU savings claims and program cost-effectiveness, the statewide TEPF Information Clearinghouse, and other items funded by the energy efficiency charge ("EEC") and TEPF funding sources, as applicable. The DRP proceeding may also include consideration of the potential of cost-effective technologies that increase the use of electricity or natural gas while decreasing overall energy consumption.

In June of 2016, we initiated this proceeding to develop the third DRPs for VEIC and BED, and the first DRP for VGS. This DRP proceeding has been guided by the objectives and criteria of 30 V.S.A. §§ 218c, 209(d), 209(e), 202(a), and other applicable sections of Vermont statutes and prior Commission orders. The process has not used contested case procedures, and all interested persons have been afforded the opportunity to participate through workshops and

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[2] *Investigation into Petition Filed by Vermont Department of Public Service Re: Energy Efficiency Utility Structure*, Docket 7466, Order of 12/20/10. The P&A Document has been modified in subsequent proceedings. The latest revision was approved in Docket 8455, Order of 2/12/16.

written filings. Because this process was not a formal docket, there were no parties and no deadlines for intervention. In this Order, we use the term "participants" to refer to the individuals and entities who participated in some manner in this process, regardless of the extent to which they attended the workshops. A list of participants is attached as Appendix B. The procedural history of this proceeding is attached as Appendix C.

As part of the DRP proceeding, the Department provided estimates of economically achievable electric and natural gas efficiency potential in Vermont. In turn, the EEUs modeled EEU-specific electric, natural gas, and TEPF resource-acquisition scenarios. The Department also analyzed the potential rate and bill impacts of the electric and natural gas resource-acquisition scenarios. Taken together, these analyses are intended to address the requirement of Vermont law that EEU budgets funded via an EEC be set at a level that will realize "all reasonably available, cost-effective energy efficiency," and the specific objectives the Commission must consider when setting electric and natural gas EEU budgets.[3]

III. SUMMARY OF PARTICIPANTS' RECOMMENDATIONS

Efficiency Vermont

VEIC recommends a 5% reduction in the Efficiency Vermont 2018 resource-acquisition budget relative to 2017, followed by a flat budget for the remainder of the performance period. Specifically, VEIC recommends electric resource-acquisition budgets of approximately $44.1 million for each year of 2018-2020. For the 2021-2037 planning budgets, VEIC recommends that the Commission order a 2% cost adjustor to account for inflation. For TEPF modeling, VEIC recommends a 10-year budget totaling approximately $94 million, with resource acquisition budgets of $9 million in 2018, $9 million in 2019, and $8.5 million in 2020.

For Efficiency Vermont, the Department recommends a reduction in the electric resource-acquisition budget over the 2018-2020 performance period. Specifically, the Department recommends resource-acquisition budgets of approximately $42.8 million in 2018, $41.7 million in 2019, and $40.6 million in 2020. For budgets over the 2021-2037 planning period, the Department recommends budgets that are flat in nominal dollars relative to the Department's proposed 2020 budget. The Department does not object to VEIC's proposal to

[3] 30 V.S.A. §§ 209(d)(3)(B) and (f).

"smooth out" TEPF funding over the performance period provided that total TEPF spending does not exceed funding.

350Vermont, Capstone Community Action, Citizens Awareness Network, Conservation Law Foundation ("CLF"), Rights & Democracy, VBike, Vermont Affordable Housing Coalition, Vermont Businesses for Social Responsibility, the Vermont Chapter of the Sierra Club, Vermont Conservation Voters, Vermont Interfaith Power & Light, Vermont Low Income Advocacy Council, Vermont Natural Resources Council, Vermont Public Interest Research Group ("VPIRG"), and Vermont Yankee Decommissioning Alliance ("Joint Commenters") recommend that the Commission increase the EEU budgets in line with the existing EEU planning forecasts. The Joint Commenters contend that reducing the resource-acquisition budgets would be out of step with Vermont policy and the need to address climate change as well as the requirement under Section 209(d)(3)(B) to set budgets at a level that will "realize all reasonably available, cost-effective energy savings."

In addition to their comments submitted with the Joint Commenters, CLF and VPIRG recommend that the Commission reject the recommendations to reduce electric energy efficiency budgets. Instead, CLF and VPIRG recommend budgets that incorporate the current twenty-year EEU forecast. CLF and VPIRG argue that the information presented by the Department and VEIC fails to substantiate that a reduction in budgets is justified. Instead, CLF and VPIRG argue the Department's potential study identifies a 3.9% increase in the available MWh savings and thus supports an increase in budgets. Further, CLF and VPIRG argue that the Department's potential study understates the available energy efficiency savings and that the EEUs' historic experience provides a better guideline for appropriate budgets.

Associated Industries of Vermont ("AIV") supports the Department's recommendation for resource-acquisition budgets, while also supporting further reductions as warranted and as opportunities arise.

Vermont Electric Cooperative, Inc. ("VEC") supports the Department's budget recommendations and further recommends that the Commission commence a process to assess whether Vermont's goals could be better served if the EEC were used to support other initiatives, in addition to electrical efficiency.

Green Mountain Power Corporation ("GMP") supports the Department's budget proposal. GMP is particularly concerned about the magnitude of the EEC, which GMP states is a material part of its industrial customers' bills.

The Vermont Agency of Commerce and Community Development ("VACCD") supports the Department's budget proposal.

In addition to participant recommendations, the Commission received hundreds of public comments addressing budget levels. Nearly all of these public comments recommend against reducing the Efficiency Vermont electric resource-acquisition budgets.

BED

BED and the Department agree on the electric and TEPF resource-acquisition budgets, QPI and MPR weightings, and modeling parameters to be used for final savings scenario modeling.

No other person or entity directly made recommendations with respect to BED.

VGS

VGS and the Department generally agree on the natural gas resource-acquisition budgets, QPI and MPR weightings, and modeling parameters to be used for final savings scenario modeling. VGS and the Department each made different recommendations with respect to the cost per million cubic feet ("Mcf") to be used for final savings scenario modeling.

No other person or entity directly made recommendations with respect to VGS.

Public Comments

In addition to participant recommendations, the Commission received hundreds of public comments addressing budget levels. Nearly all of these public comments recommend against reducing the Efficiency Vermont electric resource-acquisition budgets. These public comments largely focus on customer savings as well as energy efficiency's contributions toward achieving Vermont's energy policies and climate goals. Still others recommend reducing Efficiency Vermont budgets over the next three years, primarily due to concerns about EEC rate impacts.

We have considered these comments in our analysis of appropriate resource-acquisition budget levels. Full discussion of these topics can be found in the relevant sections that follow.

IV. DISCUSSION

30 V.S.A. § 209(d)(3)(B) provides the Commission with the following guidance for determining an EEC-funded EEU budget:

> The charge established by the Commission pursuant to this subdivision (3) shall be in an amount determined by the Commission by rule or order that is consistent with the principles of least cost integrated planning as defined in section 218c of this title. As circumstances and programs evolve, the amount of the charge shall be reviewed for unrealized energy efficiency potential and shall be adjusted as necessary in order to realize all reasonably available, cost-effective energy efficiency savings. In setting the amount of the charge and its allocation, the Commission shall determine an appropriate balance among the following objectives, provided, however, that particular emphasis shall be accorded to the first four of these objectives: reducing the size of future power purchases; reducing the generation of greenhouse gases; limiting the need to upgrade the State's transmission and distribution infrastructure; minimizing the costs of electricity; reducing Vermont's total energy demand, consumption, and expenditures; providing efficiency and conservation as a part of a comprehensive resource supply strategy; providing the opportunity for all Vermonters to participate in efficiency and conservation programs; and the value of targeting efficiency and conservation efforts to locations, markets or customers where they may provide the greatest value.

In addition, 30 V.S.A. § 209(f) contains additional goals and criteria for the Commission to consider, including the impact on retail rates of efficiency programs.[4]

In the following sections, we address the resource-acquisition budget levels, modeling assumptions, and QPI and MPR weighting for each EEU's final resource-acquisition scenario model. Our determination reflects a careful balancing of the substantial net societal benefits of energy efficiency investments with the rate and bill impacts that the electric and natural gas EECs will have on Vermont's customers.

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[4] While Section 209(f)(14) requires the Commission to consider the impact on retail *electric* rates and bills, we have also considered the impact on retail natural gas rates and bills with respect to VGS's EEU programs.

V. STATUTORY CONSIDERATIONS

A. Reasonably Available Cost-Effective Energy Efficiency Savings

Our determination of final scenario model resource-acquisition budgets is informed by the energy efficiency potential, first-round scenario modeling results, participant recommendations, rate and bill impact analysis, and other statutory considerations as discussed in the following sections.

1. Efficiency Potential Studies

A common way to assess the amount of available cost-effective energy efficiency savings is to conduct an energy efficiency potential study. In 2016, the Department contracted with GDS Associates, Inc. ("GDS") to assess the energy efficiency potential in Vermont. The assessment includes a study of the electric energy efficiency potential for Efficiency Vermont and BED, and a study of the natural gas energy efficiency potential for VGS.

To produce the initial potential estimate, GDS first assessed the technical and economic potential for each EEU across the 20-year timeframe of the study. Technical potential assesses all energy efficiency measures that are feasible with current technology while disregarding all non-engineering constraints such as cost-effectiveness and real-world adoption barriers, non-measure program delivery costs, and programmatic ramp-up. Economic potential is a subset of the technical potential that includes all efficiency measures that are cost-effective assuming perfect information, limited market barriers to the adoption of efficiency measures, and optimal resource allocation. A measure is defined as cost-effective if the present value of the benefits exceeds the present value of the costs over the measure's useful life. Achievable potential is a subset of the economic potential, and represents the energy savings that are possible assuming current market barriers and the administrative costs necessary to capture the potential.

The potential study determined that the 20-year statewide electric technical potential is 26.3% of statewide sales. After screening for cost-effectiveness, the 20-year statewide economic potential for electric efficiency falls to 22.8%. The potential study determined that the 20-year natural gas technical potential is 37.6% of forecast natural gas sales, and the economic potential

is 32.8% of forecast gas sales.[5] Table 2 summarizes the technical and economic potential study results.

Table 2. 20-Year Technical and Economic Potential

	EVT	BED	VGS	Statewide
Technical Potential (MWh)	1,414,664	117,628	n/a	1,532,292
Technical Potential (% MWh sales)	24.3%	2.0%	n/a	26.3%
Technical Potential (MMBtu)	n/a	n/a	4,337,520	4,337,520
Technical Potential (% MMBtu sales)	n/a	n/a	37.6%	37.6%
Economic Potential (MWh)	1,228,507	98,590	n/a	1,327,097
Economic Potential (% MWh sales)	21.1%	1.7%	n/a	22.8%
Economic Potential (MMBtu)	n/a	n/a	3,787,710	3,787,710
Economic Potential (% MMBtu sales)	n/a	n/a	32.8%	32.8%

For each EEU, the potential study also assesses the maximum achievable ("MAP") and realistic achievable ("RAP") energy efficiency potential. MAP assumes 100% incentive levels and aggressive measure adoption rates. The RAP scenario considers typical EEU incentive levels and measure adoption rates and is not constrained by any previously determined EEU spending levels. Tables 3-8 summarize the results of the MAP and RAP scenario potential studies.

Table 3. MAP Savings as a Percentage of Forecasted Statewide Energy and Natural Gas Sales

	2018	2019	2020	2027	2037
Electric Energy	4.4%	8.3%	10.0%	15.9%	18.1%
Natural Gas	4.7%	8.6%	12.2%	22.7%	25.8%

Table 4. MAP Savings Potential (MWh)

	2018	2019	2020	2027	2037
Efficiency Vermont	222,818	221,234	173,636	92,452	114,884
BED	16,883	16,058	12,772	6,216	8,318
VGS (MMBTu)	381,248	364,807	368,997	182,239	133,899

[5] Revised EEU Potential Study Narrative, filed 3/6/17.

Table 5. MAP Annual Budgets for each EEU (millions)

	2018	2019	2020	2027	2037
Efficiency Vermont	$94.4	$91.7	$75.0	$52.7	$66.8
BED	$9.2	$8.3	$6.4	$4.2	$5.5
VGS	$31.3	$29.9	$29.7	$19.8	$22.6

Table 6. RAP as a Percentage of Forecasted Statewide Energy and Natural Gas Sales

	2018	2019	2020	2027	2037
Electric Energy	1.9%	3.8%	5.4%	13.5%	15.8%
Natural Gas	1.1%	2.0%	3.0%	9.6%	16.0%

Table 7. RAP Savings Potential (MWh)

	2018	2019	2020	2027	2037
Efficiency Vermont	101,147	104,161	105,106	82,854	89,187
BED	5,210	5,714	5,776	6,837	5,930
VGS (MMBTu)	71,451	78,443	92,354	117,246	137,259

Table 8. RAP Annual Budgets for each EEU (millions)

	2018	2019	2020	2027	2037
Efficiency Vermont	$33.1	$33.7	$35.0	$31.9	$38.8
BED	$2.5	$2.3	$2.4	$3.1	$3.0
VGS	$4.8	$5.7	$7.2	$8.9	$11.2

The Department's potential studies do not apply sector equity constraints that are required for EEUs (e.g., residential/commercial, low-income, or geographic), which allows for an unconstrained assessment of the potential resource. In addition, the potential studies assume

that participant incentives do not exceed 100% of the incremental cost of energy efficiency measures.[6]

The potential studies consider each EEU's service territory independently. In prior DRP proceedings, the Department commissioned an efficiency potential study for the entire state, and a proportional share of the statewide potential for energy efficiency was then attributed to BED's service territory with certain adjustments.

BED observes that the apportionment of statewide potential to BED in prior proceedings did not fully reflect the distinctive features of Burlington that affect the market for energy efficiency services, including: the cyclical nature and large budget effect of changes in commercial new construction; the high percentage of residential and commercial buildings occupied by tenants; the turnover rate for residential apartments; the high percentage of consumers who use natural gas rather than unregulated fuels for heating; and the concentration of BED's electric load among 20 commercial accounts.[7] Some of these factors may reduce the realistic achievable potential for energy efficiency, and other factors, particularly commercial new construction, may increase potential savings.

VEIC contends that the Department's potential study is too conservative to be used for establishing future Efficiency Vermont budgets. VEIC states that the results of the RAP and MAP are inconsistent with past Efficiency Vermont performance and with VEIC's DRP modeling forecast. VEIC states that the RAP savings estimate is 50% lower than the MAP estimate, and is 17% lower than VEIC's modeling results for the 2018-2020 period. In addition, VEIC states that the RAP study estimates 2018 savings from lighting, motors, and industrial processes at levels that are less than 50% of the actual savings that Efficiency Vermont delivered in 2016. VEIC states that it does not expect a fundamental change in the market that would lead to significant declines. Based on its analysis, VEIC contends that actual potential may be as much as 30% more than what the RAP study suggests. Accordingly, VEIC recommends that the study's results be interpreted as a conservative estimate, rather than an exact standard for accurately assessing future EEU program goals.[8]

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[6] The Department notes that in mature markets with aggressive performance goals, incentive levels greater than 100% are not uncommon.

[7] Letter dated September 16, 2016, from Thomas Lyle of BED to Clerk of Commission at 2.

[8] VEIC Comments of 5/5/17 at 5; VEIC Comments of 5/12/17 at 3-5.

The Department acknowledges that the potential study makes more conservative assumptions regarding the treatment of emerging or improved technologies and the commercial measure refill/replacement rate, and thus the RAP study is slightly conservative. In addition, the RAP study excludes savings from measures that do not pass the cost-benefit screen.[9] However, the Department maintains that the potential study's assumptions are consistent with industry standard practice for potential studies.

2. Savings Scenario Analyses

Each EEU modeled several resource-acquisition scenarios in order to assist in identifying the reasonably available, cost-effective potential energy efficiency savings in its service territory, pursuant to the Commission's Order Determining Resource Acquisition Scenarios to Be Analyzed, Modeling Inputs, TEPF Revenue Forecast, and Quantitative Performance Indicator Framework (October 27, 2016).

VEIC

VEIC analyzed four scenarios for electric energy efficiency investment in Vermont. Those scenarios are based on the 2018-2034 resource-acquisition planning budgets established in the previous DRP and extended through 2037. The "Base Case" scenario reflects a continuation of Efficiency Vermont's current offerings with adjustments to reflect the previously established planning budgets. VEIC describes this as the control scenario to which the other scenario results are compared. The second scenario seeks to maximize first-year annual MWh ("AMWh") savings. The third scenario prioritizes the delivery of lifetime MWh ("LMWh") savings over short-term savings. The fourth scenario is designed to yield the greatest reductions in Vermont's summer and winter peak megawatts ("MW"), thus maximizing Vermont's revenues from the ISO New England Forward Capacity Market auctions ("Max. FCM"). The scenario modeling results establish "super stretch" performance metrics for the output criteria specified in the October 27 Order.

[9] In some instances individual measures that are not cost-effective on their own may in practice be included as part of a custom project that on the whole is cost-effective.

VEIC states that the modeling exercise was useful in informing its budget recommendations because the different scenarios highlighted different energy-related policy priorities and the necessary trade-offs associated with focusing investments on any individual metric. Table 9 summarizes the annual MWh savings for each of VEIC's four electric scenarios.

Table 9. Annual MWh Savings in VEIC's Electric Scenarios

	2018	2019	2020	2027	2037
Base Case	122,054	130,257	123,114	136,211	154,701
AMWh	132,269	139,731	134,934	150,049	170,377
LMWh	130,805	137,825	132,476	146,518	165,492
Max. FCM	120,752	127,913	122,628	134,783	151,815

Based on its analysis of scenario modeling, VEIC states that the AMWh and LMWh scenarios performed the best among the 11 modeling outputs approved in the October 27 Order. The AMWh scenario resulted in maximum performance metrics for annual MWh, first-year winter peak MW, cost effectiveness, and greenhouse gas reductions. The LMWh scenario resulted in maximum performance metrics for lifetime MWh, lifetime winter peak MW, total resource benefits, and net societal benefits.

VEIC used the results from these four scenarios to identify potential improvements and trade-offs. For example, the Maximize Annual MWh scenario shows the potential for an 8% increase in first-year annual MWh in the 2018-2020 performance period compared to the Base Case. However, the trade-off for this growth is a 20% reduction in assistance to the Residential New Construction sector. Similarly, the Maximize Lifetime MWh scenario shows the potential for a 12% increase in lifetime MWh savings over the 2018-2020 performance period compared to the Base Case. The trade-off for this growth is a 20% reduction in Behavioral and Residential New Construction program investments. The Maximize Summer and Winter Peak MW Reductions scenario shows the potential for a 20% increase in lifetime summer peak MW savings, which results in only a modest increase in FCM revenues in the 2018-2020 performance period because winter and summer peak MW reductions need to be of the same value in order to maximize the revenue stream from the FCM. The trade-off for this growth is a 20% reduction in investments in the Market Rate Multifamily, Single-Family Retrofit, and Behavioral programs.

For the purposes of final scenario modeling, VEIC argues that maximization should only be applied in a manner that would minimize service losses to customers, supply chain partners, and market allies from program cuts resulting from a different portfolio-wide approach. In other words, VEIC believes that such maximization should only be applied if budget amounts dedicated to maximization do not adversely affect current funding levels of existing programs and services. While VEIC maintains that it was appropriate to model the different maximization scenarios given the underlying assumptions of the modeling planning budget, which increases at a 3-5% growth rate, its analysis of such scenarios shows that the scenarios did not result in a "multiplier" effect. That is, the benefits in the maximization scenarios were not proportionally greater than the size of the dedicated investment or the benefits of the displaced existing programs and services.

BED

BED analyzed five scenarios for electric energy efficiency investment in its service territory. The first four were nearly identical to those modeled by VEIC (i.e., Base Case, AMWh, LMWh, and Max. FCM). The fifth modeling scenario ("maximum kW lifetime" or "Max. LFCM") weighted 30% of the resource-acquisition budget toward durable measures that would maximize peak demand reductions over a long period of time. It was intended to be nearly identical to the fourth scenario ("maximum kW first year" or "Max. FCM") except that it did not include behavior-type initiatives, but instead was directed only toward durable measures with high expected persistence rates.[10] The weighted percentage of the baseline budget applied to achieve the specific objectives behind each of the other scenarios ranged from 20% to 40% in the case of BED. Table 10 summarizes the annual MWh savings for each of BED's five scenarios.

[10] Letter dated September 16, 2016, from Thomas Lyle of BED to Clerk of Commission at 2.

Table 10. Annual MWh Savings in BED's Electric Scenarios

	2018	2019	2020
Base Case	5,186	5,566	5,497
AMWh	5,218	5,730	5,693
LMWh	5,200	5,639	5,596
Max. FCM	5,162	5,672	5,686
Max. LFCM	5,202	5,592	5,577

According to BED, the scenario analyses suggest that the budget and annual and cumulative savings differences among the five scenarios are not particularly large for BED. Such analyses indicate that the baseline scenario (scenario 1) results in the most expensive per MWh savings, that the maximum kW first-year scenario (scenario 4) would require the largest budget for BED, and that the maximum MWh first-year scenario (scenario 2) would yield the most annual and cumulative savings. BED questions the outputs associated with the maximum MWh first-year scenario, as BED previously anticipated that the maximize MWh lifetime scenario (scenario 3) would produce the greatest amount of cumulative savings. BED believes that the analysis overestimated savings in the maximum MWh first year scenario because of defects in the study model (for example, overly optimistic assumptions about residential behavior programs) as applied to BED's service territory.[11]

VGS

VGS analyzed three scenarios for natural gas energy efficiency investment in its service territory. The first scenario modeled savings based on an assumed 20-year budget using the approved 2017 resource-acquisition budget as a base and adjusting annually for inflation (the "Level Budget" scenario). The methodology for calculating the results is based on applying an annual scaling factor (at the measure-level) to the annual participation in the RAP scenario to align with the forecasted level budget. The second scenario was defined as linearly ramping up efficiency savings from 0.85% to 1% of forecasted sales by 2023 and then maintaining that level

[11] Letter dated February 24, 2017, from Thomas Lyle of BED to Clerk of Commission at 2 and 15.

of savings for the remainder of the planning period (the "Sustained Savings" scenario). Similar to the prior scenario, the methodology for calculating the results is based on applying an annual scaling factor to the annual participation in the RAP scenario to align with the target savings level. The third scenario was defined as ramping up to efficiency savings of 1.5% of forecasted sales by 2028 and then maintaining that level of savings for the remainder of the planning period (the "Ramp Up" scenario). In practice, VGS states that it was not possible to achieve the 1.5% savings target for the residential sector when based on the RAP estimates of potential. Therefore, VGS modeled the scenario based on a scaled-down estimate of maximum achievable potential in the residential sector, which assumes incentive levels equal to 100% of measure costs.[12] Table 11 summarizes the annual MMBTu savings for each of VGS's three scenarios.

Table 11. Annual MMBTu Savings in VGS's Natural Gas Scenarios

	2018	2019	2020	2027	2037
Level Budget	45,513	46,102	46,982	53,936	66,626
Sustained Savings	79,737	83,639	87,758	103,824	112,733
Ramp Up	79,737	87,238	94,509	149,283	169,099

3. Electric and Natural Gas Resource-Acquisition Budget Recommendations and Expected Savings Modeling

Resource-acquisition activities are those that lead directly to measurable savings, and represent the largest component of each EEU's annual efficiency budget. The next phase of the DRP proceedings requires EEUs to use the resource-acquisition budgets approved in this Order to model expected savings over a 20-year horizon. In turn, the modeled savings will inform the establishment of QPI targets.

BED

BED and the Department worked collaboratively to develop a three-year resource-acquisition budget for BED that they assert appropriately balances Vermont's overarching policy

[12] VGS Comments of 2/27/17 at 3.

objectives and complies with state statutes.[13] The Department and BED recommend that the Commission approve a total electric resource-acquisition budget for BED for the 2018-2020 period of $7,845,000. The overall $7.8 million budget recommended for BED during for this period is slightly larger than the $7.6 resource-acquisition budget approved by the Commission for BED for the 2015-2017 period. For the reasons explained below, the budget recommendation is somewhat higher than the potential study would suggest in terms of the realistic achievable potential for energy savings. Table 12 includes the three-year electric resource-acquisition budgets jointly recommended by BED and the Department.

Table 12. Recommended Three-Year Electric Resource-Acquisition Budgets for BED

	2018	2019	2020
BED	$2,395,982	$2,544,509	$2,544,509

The recommended budgets compare with actual resource-acquisition spending by BED of $2,263,055 in 2016 and a 2017 budget of $2,696,148. While the overall proposed budget for the next triennial period is larger than the budget for the current period, the proposed annual budgets for BED in the next triennial period (especially, the 2018 budget) are smaller than BED's 2017 annual budget.

The proposed budget reduction for 2018 reflects the fact that BED has not consistently spent its entire efficiency budget in recent years.[14] The recommendation for a 6.2% increase in the 2019 budget as compared with the 2018 budget is largely driven by the expectation that there will be a significant volume of major new construction projects in Burlington during the next triennial period.[15] Commercial new construction projects present significant opportunities for the installation of cost-effective energy efficiency measures in new buildings, which would be lost if budgets are inadequate to support such measures at the time of construction. Without the proposed level of budgetary support, BED would be unable to provide the necessary technical and financial support to capture all reasonably available cost-effective savings, and Burlington

[13] Letter dated June 2, 2017, from Thomas Lyle of BED to Clerk of the Commission at 1.
[14] Department's 2018-2020 Budget Recommendation for BED EEU (Attachment B to Department's filing of 5/8/17) at 2.
[15] Letter dated June 2, 2017, from Thomas Lyle of BED to Clerk of the Commission at 1-2.

would miss out on opportunities to reduce energy consumption in buildings that typically remain in service for at least 50 to 75 years, as well as to limit upward pressures on overall system load.

The Department agrees with BED that the significant number of new construction projects planned for Burlington over the next few years represents important strategic energy efficiency opportunities that warrant expending efficiency resources early in the investment cycle lest opportunities be lost. The need for such strategic investments persuaded both BED and the Department to recommend a three-year budget above that indicated by the potential study.

For purposes of the final model, the Department proposes that BED allocate 7% to 10% of the electric resource acquisition budget to maximizing lifetime MWh and lifetime summer peak kW performance, with BED applying no less than 5% of the resource acquisition budget to maximize lifetime MWh savings. The Department recommends that BED apply no changes to the policy and technical modeling assumptions that were filed on September 16, 2016. The Department also recommends that BED strive to achieve a first-year cost of energy saved of no more than $385 per MWh on average during the 2018-2020 performance period.

Consistent with the Department's recommendation, BED seeks to maximize annual savings by applying 90% of the approved budget on a wide assortment of cost-effective measures. BED proposes that the remaining budget will target measures that can produce the greatest amount of lifetime MWh savings. Although BED will seek to acquire savings at the lowest possible first-year cost, BED's emphasis on commercial new construction projects over the next triennial performance period (which tend to require expensive energy efficiency investments in the first year) may mean that first-year costs will exceed $385 per MWh. Because the levelized cost of energy savings from installed measures in new buildings is low due to the longevity of such projects, BED is confident that the levelized cost of all savings, including new construction, will be competitive on average with current and future wholesale avoided energy costs.

Efficiency Vermont

The Department recommends that the Efficiency Vermont resource-acquisition budget decrease in each of the next three years (2018-2020) relative to the 2017 budget. For the 2021-2037 planning period, the Department recommends that budgets remain flat in nominal dollars

relative to the 2020 budget. Table 13 summarizes the Department's recommended three-year Efficiency Vermont resource-acquisition budgets.

Table 13. Department Recommendation for Efficiency Vermont 2018-2020 Resource-Acquisition Budgets

	2018	2019	2020
Efficiency Vermont	$42,822,098	$41,687,435	$40,556,686

The Department states that its proposal to reduce resource-acquisition budgets for Efficiency Vermont is linked to the RAP potential study's estimates, which indicate reductions in the available energy efficiency potential relative to prior studies. Further, the Department's recommendation was significantly influenced by its understanding of the potential rate impacts of the budget recommendations. The Department explains that decreasing loads, a result of the successes of the electric efficiency and net-metering programs, result in reductions in retail sales, which in turn exert upward pressure on electric rates, including the EEC. The Department notes that over the last fifteen years Efficiency Vermont's budgets and the corresponding EEC have grown considerably and represent an ever-increasing share of customer bills. Even as total customer bills are declining, the Department argues that such increases in the EEC raise fundamental concerns of affordability and fairness to customers who do not or are unable to participate, and may also have negative impacts on customer acceptance.[16]

The Department states that other significant factors informing its recommendation include: (1) a decreasing contribution by the electric sector to greenhouse gas emissions as a result of increases in the amount of renewable electricity and the retirement of oil- and coal-fired generation units; (2) declining loads due to energy efficiency and net-metering , which have reduced the need for transmission and distribution infrastructure upgrades; and (3) the declining wholesale costs of electricity in real terms over the last seven years.[17]

Even though the Department recommends decreasing Efficiency Vermont budgets from 2017 levels, the Department argues that its proposed resource-acquisition budgets will ensure that Efficiency Vermont's investments in energy efficiency will remain an integral part of

[16] Department Comments of 5/5/17.
[17] Department Recommendation for Efficiency Vermont, 5/5/17 at 2.

Vermont's energy mix and are likely to be among the most ambitious energy efficiency plans among the states on an investment per-capita basis. The Department maintains that its proposed budget levels will ensure that all Vermonters will continue to have an opportunity to participate in efficiency programs. In sum, the Department maintains that energy efficiency represents a flexible resource that can continue to play an important role in meeting future energy needs at least cost, and therefore supports robust investment in demand-side management resources in recognition of their economic benefits relative to supply-side investments. However, considering ratepayer impacts and the other previously described concerns, the Department recommends reduced Efficiency Vermont resource-acquisition budgets relative to the last performance period.

The Department notes that, after accounting for Customer Credit program costs, the Department's evaluation budget, and Fiscal Agent costs, its budget proposal would result in EEC rate reductions in 2018-2020, whereas VEIC's recommendation would result in a more modest EEC rate reduction in 2018, followed by slight EEC increases in 2019 and 2020.[18]

The Department recommends that the final scenario model "maximize" a small portion of the budget for LMWh and Summer (lifetime) Peak Demand Reduction. The Department recommends that 90-93% of the final model be allocated to VEIC's Base Case portfolio, with the remaining 7-10% dedicated to Lifetime MWh and Lifetime Summer Peak kW, with no less than 5% of the resource-acquisition budget applied to LMWh. The Department contends that VEIC's scenario modeling demonstrated that the lifetime maximization scenario performed best at maximizing net societal benefits and resulted in longer lasting, more durable measures. The Department states that such maximization is not intended to limit Efficiency Vermont's activity to measures with long lifetimes. Instead, the Department states that this final model will serve to establish QPI targets that will challenge Efficiency Vermont to innovate and streamline its program implementation.

In performing this modeling, the Department recommends that VEIC apply no changes to the modeling assumptions filed jointly by the Department and the EEUs and approved by the Commission. These assumptions include electric and natural gas policy assumptions (such as

[18] Department Comments of 5/12/17 at 2.

minimum investments to ensure sector equity) and technical assumptions related to building energy codes and standards, use of the most recent avoided-cost values, treatment of loads and costs related to self-managed customers, equipment efficiency levels, free-rider and spillover rates, and measure life.

The Department also recommended that VEIC strive to achieve a first-year cost of energy saved of no more than $385 per MWh on average during the 2018-2020 performance period. The Department believes that this yield rate is achievable based on the results of the potential study, VEIC's scenario modeling, and Efficiency Vermont's past performance.

VEIC proposes a 5% reduction in the 2018 budget (relative to 2017) followed by flat budgets for 2019 and 2020. VEIC's recommendation includes a 3.8% expansion of the three-year resource-acquisition activities relative to the 2015-2017 performance period, which VEIC states is equivalent to absorbing the resource-acquisition research and development budget of the current performance period. For the planning budgets in 2021-2037, VEIC recommends that the Commission approve budgets adjusted for inflation at a 2% annual rate.[19] Table 14 summarizes VEIC's recommended three-year Efficiency Vermont resource-acquisition budgets.

Table 14. VEIC Recommendation for Efficiency Vermont 2018-2020 Resource-Acquisition Budgets

	2018	2019	2020
Efficiency Vermont	$44,123,639	$44,123,639	$44,123,639

VEIC argues that the efficiency services Efficiency Vermont provides are a critical energy resource for ratepayers, and states that the savings it achieves represent a least-cost resource. VEIC states that the energy resource that Efficiency Vermont has produced is equivalent to a supply-side resource providing 15% of the state's total demand, and that it provides this resource at a fraction of the cost of a distribution utility.[20]

VEIC maintains that its budget proposal will ensure that Efficiency Vermont's services will remain constant over the next performance period, the scale of which VEIC contends is well suited to the needs of the Vermont market.[21] VEIC contends that its first-round scenario

[19] VEIC Comments of 5/5/17 at 8.
[20] VEIC Comments of 5/12/17 at 1-2.
[21] VEIC Comments of 5/5/17 at 7.

modeling and the Department's potential study indicate that there are readily available efficiency savings at budgets that were at or near its proposal. Thus, VEIC does not believe that the level of efficiency services it provides needs to be dramatically altered up or down. To maintain its performance at flat budget levels, VEIC states that it will need to find internal efficiencies on the order of 2% per year to offset likely labor and expenses inflation.

VEIC believes that its resource-acquisition budget proposal is consistent with Section 209(d)(3)(B), which requires the Commission to set efficiency budget levels such that they will achieve all reasonably available cost-effective energy efficiency savings. VEIC notes that while the expected impact on rates is a criterion to be considered, it is not one of the four criteria to be given primary consideration pursuant to Section 209(d)(3)(B). VEIC states that there are other strategies, like strategic electrification, that can cost-effectively mitigate rate impacts without foregoing the bill savings obtained through efficiency investments.

For final modeling, VEIC maintains that maximizing scenarios should only be pursued if productive programs affecting policy and performance objectives remain intact. VEIC contends that the 2015-2017 portfolio is well balanced and offers markets, programs, and measures that provide customer benefits and contribute to many policy and performance objectives. In addition, VEIC observes that implementing programs in line with a maximization scenario may be difficult if customers do not adopt measures that maximize the targeted metric. As an example, VEIC notes that business customers often base their efficiency investment decisions on the assumption of a 1- to 3-year payback. According to VEIC, this assumption may preclude measures that maximize lifetime savings because longer lifetime measures do not necessarily translate to high first-year savings. Further, VEIC contends that implementing such programs may require higher incentives to meet customer payback expectations, which is contrary to policies that seek to maximize customer contributions toward efficiency investments. Nonetheless, for its final model, VEIC recommends that 3.8% of the resource-acquisition budget be allocated toward LMWh performance objectives. Because LMWh emphasizes measure persistence, VEIC states that it produces the highest quantified results for long-term societal benefits.

VGS

Table 15 contains the resource-acquisition budgets recommended by the Department and VGS for the 2018-2020 performance period.

Table 15. Proposed VGS 2018-2020 Resource-Acquisition Budgets

	2018	2019	2020
VGS	$2,889,201	$3,014,426	$3,030,476

The recommended resource-acquisition budget for 2018 represents an increase of approximately 6.2% over the 2017 resource-acquisition budget for VGS. The recommended resource-acquisition budget includes an additional increase of approximately 4.3% in 2019 and approximately 0.5% in 2020. For the 2021-2037 planning horizon, the Department and VGS recommend that budgets remain at the 2020 level.

The Department and VGS propose that the final scenario modeling be a budget-constrained portfolio similar to Scenario 1 from the first-round scenario modeling. The final scenario modeling will use the recommended resource-acquisition budgets and will be constrained by an overall acquisition cost (expressed in $ per Mcf). The recommended modeling across the 20-year period will include an escalation factor to account for the increasing costs of savings expected for a mature market and will incorporate the results of the potential study. It is expected that the final scenario modeling will inform program design by disaggregating the overall acquisition costs into residential and non-residential sector values and disaggregating by end use.

The Department proposes using a value for acquisition costs of approximately $36 per Mcf across the 20-year modeling period. The Department maintains that this value reflects the historic performance of VGS's efficiency program.[22] VGS proposes using a value of $40 per Mcf. VGS maintains that its proposed value reflects actual recent portfolio performance (i.e., over the past two years).[23] VGS requests that its proposed value be approved for scenario modeling, or in the alternative, that the value that reflect an average of the VGS and Department rate proposals.

[22] Department Recommendation for VGS, 5/5/17 at 2.
[23] VGS Comments of 5/12/17 at 2-3.

The Department and VGS recommend that expected savings modeling assume that large commercial projects will achieve 75% of the expected savings, rather than 100%. According to the Department and VGS, this proposed methodology addresses the concern that large commercial projects can distort the expected savings modeling and resulting savings goals. Large projects can achieve the bulk of the savings in the commercial sector; if a large expected project does not materialize during the performance period, the savings goal is overestimated, and conversely, if one large unexpected project is completed during the performance period, the savings goal is underestimated.

4. Rate and Bill Impacts

Pursuant to 30 V.S.A. § 209(f)(14), the Commission is required to consider the impact of energy efficiency programs on retail rates and bills. Retail customers experience most of the direct benefits of energy efficiency programs through lower bills. Through their participation in energy efficiency programs, customers reduce their energy consumption and costs. Rate impacts from energy efficiency investments will vary depending on customer class and individual customer usage levels. In general, any favorable bill impacts from energy efficiency investments will be determined primarily by the extent to which a customer participates in energy efficiency programs.

The Department performed an analysis of expected rate and bill impacts of the proposed resource-acquisition budgets for Efficiency Vermont, BED, and VGS. Average rate and bill impacts are expressed as differences between what average rates and bills would have been under a hypothetical scenario involving no new energy efficiency investments versus under the proposed budgets.

BED

Table 16 summarizes the expected 20-year average rate and bill impacts for the resource-acquisition budget proposed by BED and the Department.

Table 16. 20-Year Average Rate and Bill Impacts for BED Resource-Acquisition Budget

	Rates	Bills
All Customers	+8.0%	-5.2%
Residential Customers	+10.5%	-0.2%
Business Customers	+7.0%	-7.1%

The proposed electric resource-acquisition budget jointly recommended by the Department and BED will have a favorable bill impact for BED's customers over time. The Department believes it will also help address potential adverse impacts on non-participants by ensuring a manageable pace of efficiency investments and encouraging widespread program participation by all customers. Although the budget recommendation was partially informed by the analyses of savings benefits and the rate and bill impacts of the five scenarios, the recommended budget, as discussed above, is based in large part on the number of large commercial building construction projects expected in Burlington during the next three-year performance period and on historic patterns of program activities in the city.

The recommended BED budget results in an upward rate impact of 8% on average over the 20-year projection period and a decrease in bills of more than 5% on average over that period, although the average bill reductions for residential customers will be substantially smaller than for business customers.[24] BED and the Department expect that the recommended budget will help maintain a flat to declining electric load into the future despite the significant amount of new construction in the city.

BED has accumulated a significant amount of unspent funds in recent years. The Department proposes that the Commission allow these unspent funds to be applied to reduce the EEC rate for 2019 and 2020, following appropriate Commission process governing the disposition of carryover funds.

Based on information from BED, the Department developed a conservative estimate for the 2017 EEC carry-over funds to be applied as credits in 2019 and 2020. Because of these

[24] Department's 2018-2020 Budget Recommendation for BED EEU (Attachment B to Department's filing of 5/8/17) at 16.

credits and the fact that the annual budgets for 2018-2020 will be less than the 2017 budget, the estimated average EEC per kWh is expected to decline for BED customers.[25]

VGS

Table 17 summarizes the expected 20-year average rate and bill impacts for the resource-acquisition budget proposed by VGS and the Department.

Table 17. 20-Year Average Rate and Bill Impacts for VGS Resource-Acquisition Budget

	Rates	Bills
All Customers	+4.8%	-0.8%
Residential Customers	+6.7%	-0.5%
Business Customers	+3.4%	-1.1%

The Department's rate and bill analysis calculates the impact of ratepayer-funded energy efficiency on retail rates by estimating: (1) the changes in distribution utility revenue requirements associated with each of the following components of the cost of service: natural gas supply (energy, infrastructure, and capacity costs) and local distribution capital expenditures; and 2) the pressures caused by decreases in the volume of sales of natural gas (Mcf) over which the distribution utility collects its revenue requirement. The installation of efficiency measures avoids a significant amount of variable wholesale energy supply costs and, though more difficult to quantify, also yields cost savings in various categories of fixed infrastructure costs. These cost savings cause downward pressure on rates. However, upward pressure ultimately prevails due to the need to recover those fixed costs, which cannot be avoided by investment in efficiency, over a lesser volume of unit sales.

The proposed resource-acquisition budget recommendation results in an upward rate impact of nearly 5% on average over the 20-year projection period and a decrease in bills of nearly 1% on average over the 20-year projection period. These results assume that VGS achieves similar, though slightly higher yields than it has historically.[26] In general, over the long

[25] Department's 2018-2020 Budget Recommendation for BED EEU (Attachment B to Department's filing of 5/8/17) at 17.

[26] Department Recommendation for VGS, 5/5/17 at 16.

term, the Department and VGS contend that existing residential and business customers are financially better off consuming less energy at a higher unit price than consuming more energy at a lower unit price.

Efficiency Vermont

The Department prepared an analysis of the rate and bill impacts of both its and VEIC's recommended resource-acquisition budgets for VEIC.[27] Table 18 summarizes the differences in rate and bill impacts of the two proposals relative to a baseline scenario without additional energy efficiency investments.

Table 18. Rate and Bill Impacts Relative to a "Without EE" Baseline in each Year

	Department Recommendation		VEIC Recommendation	
	Rates	**Bills**	**Rates**	**Bills**
2018	+8%	+5%	+8%	+5%
2019	+8%	+4%	+9%	+4%
2020	+8%	+3%	+9%	+3%
2027	+8%	-5%	+11%	-6%
2037	+7%	-9%	+11%	-13%
20-Year Average	+7.71%	-4.4%	+10.1%	-6.2%

VEIC contends that the Department's rate and bills analysis is fundamentally deficient because it does not account for several significant Vermont energy policies. VEIC states that the Department's analysis does not account for load growth associated with "strategic electrification" (i.e., switching an energy end use to electricity) that will result from energy transformation projects required under the Renewable Energy Standard. According to VEIC, this omission under-represents future electricity sales and therefore affects the estimated rate impacts of the EEC. Second, VEIC states that the Department's assumption about load may be at the transmission and sub-transmission level, rather than at the consumer level. VEIC suggests that assumptions about load for the purposes of this proceeding should be based on ratepayer consumption forecasts, rather than based on apparent load on the electric grid. VEIC believes

[27] Department Comments of 6/2/17 at 1-2.

that the Department's use of an apparent load under-represents the effects of efficiency investments on customer usage, which results in an inflated EEC. By the same reasoning, VEIC states that the Department's analysis under-represents bill savings. Accordingly, VEIC argues that the Department's rate and bills analysis does not support the Department's resource-acquisition budget proposal.

Discussion

All retail electric and gas customers pay some of the costs of energy efficiency investments because these services are a component of their rates. We recognize that all customers are affected by the rate impacts of energy efficiency investments, but that the bill impacts vary among customers depending on the degree of their participation in energy efficiency programs. The bills of customers who do not participate in energy efficiency programs are affected only by the rate impacts, and these non-participating customers will generally experience higher rates and bills throughout the 2018-2020 period.

Efficiency investments also have an effect in reducing, or suppressing increases in, future rates as the resulting decrease in energy consumption from these investments leads to system-wide benefits accruing to all customers. Efficiency investments may lead to future lower electricity and natural gas costs that would be passed on to customers.

We conclude that the budgets approved today for the purpose of final scenario modeling provide an appropriate balance between immediate rate impacts and the long-term bill impacts of energy efficiency programs. An important factor in our decision to adopt VEIC's budget for Efficiency Vermont is that although the total dollar amount is higher than the Department's proposed budget, the rate and bill impacts associated with VEIC's budget are not significantly different from those associated with the Department's budget. In fact, over the 20-year period, bills are estimated to decrease by 6.2% using VEIC's proposed budget as compared to a 4.4% decrease using the Department's recommended budget.[28] The breadth of customer participation is a key component in understanding the implications of rate and bill impacts, but also in building support for energy efficiency budgets in the future.

[28] Department Comments of 6/2/17 at 2.

5. Other Statutory Considerations

Vermont law sets forth certain standards and criteria that the Commission must consider in determining budgets for energy efficiency programs. Pursuant to 30 V.S.A. § 209(d)(3)(B), in establishing the amount of the energy efficiency charge and its allocation, the Commission has to determine the appropriate balance among eight stated objectives, with "particular emphasis" given to the first four objectives: (1) reducing the size of future power purchases; (2) reducing the generation of greenhouse gases; (3) limiting the need to upgrade the state's transmission and distribution infrastructure; (4) minimizing the costs of electricity; (5) reducing Vermont's total energy demand, consumption, and expenditures; (6) providing efficiency and conservation as part of a comprehensive resource-supply strategy; (7) providing the opportunity for all Vermonters to participate in efficiency and conservation programs; and (8) targeting efficiency and conservation efforts to locations, markets, or customers where they may provide the greatest value.

In addition to the objectives under Section 209(d)(3)(B), Section 209(f)(1) directs the Commission to ensure that all retail consumers, regardless of electricity, natural gas, or heating or process fuel provider, will have an opportunity to participate in and benefit from a comprehensive set of cost-effective energy efficiency programs and initiatives designed to overcome barriers to participation. Further, Section 209(f)(15) directs the Commission to ensure that the 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. We have considered the criteria under 30 V.S.A. § 209(d)(3)(B) and (f) in establishing the appropriate EEU budgets, and address each criterion, in turn, below.

Reducing the Size of Future Power Purchases

Electric energy efficiency measures reduce Vermont's electric demand, thereby allowing Vermont's distribution utilities to purchase less electricity from the regional wholesale market or to sell excess energy into the market. The value of the reductions in demand will depend largely on the prices in the regional market.

The electric energy efficiency budgets proposed by VEIC will have a significant impact in reducing the size of future power purchases. The proposed budgets will help Efficiency Vermont meet or exceed its current obligation to provide 85.1 MW (through May 2021) in the ISO-NE Forward Capacity Market.[29]

Although both Burlington and Vermont have been going through an unprecedented period of declining electric loads, major new construction within BED's service territory creates a potential for increased demand for power. Timely and aggressive energy efficiency investments directed at new commercial construction could limit the potential for load growth. The Department and BED expect that the recommended program budgets will help maintain a flat to declining load into the future despite the expected new construction in Burlington's service territory.

Natural gas efficiency measures reduce VGS's fuel purchases in the wholesale market, allowing these savings to be passed on to VGS customers. The proposed efficiency budgets for VGS should have a significant impact in reducing the size of VGS's natural gas purchases.

Reducing the Generation of Greenhouse Gases

Due to the resource mix of Vermont's utilities, the state's emissions of greenhouse gases from electric generating sources are relatively low; electricity accounts for only a small percentage of the greenhouse gases Vermont emits. Generation sources of greenhouse gas emissions in Vermont are primarily the fossil-fuel-fired peaking units owned by Vermont distribution utilities.

However, because Vermont participates in the New England regional market, Vermont's statewide efficiency investments have an impact throughout the entire region. In the New England region, natural-gas-fired plants are typically on the margin. Therefore, increased energy efficiency investment in Vermont would avoid the emissions produced by a natural-gas-fired plant on the margin, wherever the plant is located. In 2015, ISO-NE estimated that a marginal generator in New England emits 747 pounds of CO_2 per MWh.

[29] Department Comments of 6/2/17 at 3-4; VEIC Comments of 6/2/17 at 1-2.

The electric energy efficiency budgets proposed by VEIC are expected to reduce greenhouse gas emissions by approximately 600,000 tons over the 2018-2020 performance period. Because BED's mix of energy resources does not include fossil-fuel generation units or wholesale market purchases, increased energy efficiency in BED's service territory is not likely to result in reductions in greenhouse gas emissions.

Natural gas efficiency programs directly reduce the generation of greenhouse gases through the reduction in natural gas usage and, under fuel-switching programs, the reduction in oil, propane, and kerosene use.[30] The proposed efficiency budgets for VGS are expected to save more than 243,000 Mcf over the 2018-2020 performance period. These investments are expected to reduce greenhouse gas emissions by approximately 1.7 million tons.

Deferring Transmission and Distribution Upgrades

Energy efficiency investments have a substantial value in limiting the need for electrical system transmission and distribution upgrades. This is true for non-targeted investments and for investments that are specifically targeted at potential transmission and distribution constraints. Current electrical energy efficiency investments have helped flatten Vermont's statewide electrical load. In addition, robust energy efficiency programs can delay or avoid transmission and distribution upgrades in those areas of the state where load and peak-load growth may occur.

Further, Vermont ratepayers pay a portion of the costs of transmission investments throughout New England through the ISO-NE Regional Network Service Charge, which is based on monthly peak demand in Vermont. The ability to use energy efficiency investments to reduce Vermont's peak demand in summer and winter can have a significant effect on the portion of the costs of these regional transmission investments that are borne by Vermont ratepayers. The QPI proposals for Efficiency Vermont and BED include targets addressing peak-load savings.

The electric energy efficiency budgets proposed by VEIC will help maintain Vermont's flat statewide electrical load. In addition, the proposed budget is expected to result in approximately 45 MW of summer peak savings and approximately 64 MW of winter peak savings over the 2018-2020 performance period.

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[30] The CO_2 contribution for energy services fueled from natural gas is about 72% of fuel oil's contribution and 84% of propane's contribution for comparable services.

Current electric load levels in Burlington are below 1989 levels. Given recent trends, electric loads in Burlington are unlikely to result in a material need for significant new transmission or distribution infrastructure. The electric energy efficiency budgets proposed for BED will help maintain this trend. Any necessary transmission or distribution upgrades on BED's system would likely be due to the age of the system itself, rather than any need to meet higher load levels.

The proposed budgets for VGS and the resulting investments in efficiency measures will reduce the need for natural gas transmission upgrades. The RAP scenario potential study indicates that over 2,700 MMBtu in peak-day savings can be achieved for the 2018-2020 performance period. These reductions in peak-day demand reduce upstream transmission capacity requirements as well as the need to upgrade in-state transmission infrastructure. Such peak-day reductions can have a significant effect on reducing the natural gas transmission costs that VGS ratepayers would otherwise have to incur. Thus, we conclude that the budgets approved in this Order are likely to limit the need to upgrade VGS's transmission and distribution system.

Minimizing the Costs of Electricity

Power costs are a significant component of Vermont electric distribution utilities' total cost of providing service to their customers. Portions of Vermont's energy and capacity needs, especially during peak times, are typically met through regional wholesale market purchases. New England is currently experiencing historically low energy prices, with capacity prices expected to decline, according to the Department. Forecasts suggest that energy could remain low and capacity prices could decline for the foreseeable future due in large part to the reliance on natural gas in the New England region, low natural gas prices, and relatively flat capacity requirements. Despite these lower market prices, energy efficiency remains an important investment for Vermont utilities to avoid market energy and capacity purchases.

The electric energy efficiency resource-acquisition budgets proposed by VEIC and adopted in this Order help to minimize the costs of electricity by helping Vermont distribution utilities avoid market purchases, especially during peak periods. Efficiency Vermont has historically achieved energy efficiency savings at prices well below market power prices, and the

proposed budgets and resulting energy efficiency investments will continue to contribute to stable and reduced power costs for Vermont distribution utilities.

BED's electric costs are affected by price fluctuations in renewable energy credits, transmission costs, and revenue from its McNeil plant. Given its generation resources and long-term contracts, BED's exposure to the wholesale electricity market is relatively small. However, reductions in load due to energy efficiency investments will help to reduce BED's marginal exposure to fluctuating energy and capacity prices. The electric energy efficiency resource-acquisition budgets proposed for BED and adopted in this Order will help reduce that exposure.

Natural gas costs are a significant component of VGS's total cost of providing service to its customers.[31] Natural gas energy efficiency that reduces peak-day consumption may enable VGS to purchase natural gas in the wholesale market at a lower cost. These lower natural gas costs would be passed on to VGS's customers in the natural gas charge component of customer bills. In addition, customers participating in VGS efficiency programs reduce their fuel consumption and thus receive a lower bill. Thus, we conclude that the natural gas resource-acquisition budgets proposed by VGS and adopted in this Order will help to minimize the cost of natural gas.

Reducing Vermont's Total Energy Demand, Consumption, and Expenditures

As discussed above regarding the reduction of future power purchases, the energy efficiency measures contemplated in this proceeding reduce Vermont's electric demand. This decrease in demand will reduce the total amount and cost of future power purchases. With this reduction in electric demand and in the size and cost of future power purchases, Vermont's total energy demand, consumption, and expenditures will be reduced. The electric energy efficiency resource-acquisition budgets proposed by VEIC and BED and approved in this Order will allow for the continued reduction in demand, consumption, and expenditures.

The energy efficiency measures contemplated in this proceeding also reduce VGS's natural gas demand, including peak-day demand. This decrease in demand will reduce the total amount and cost of future natural gas purchases. With this reduction in natural gas demand and

[31] Although this criterion specifically applies to electricity costs, we believe it is also appropriate to consider minimizing natural gas costs when determining VGS's energy efficiency budgets.

in the size and cost of future natural gas purchases, VGS customers' total energy demand, consumption, and expenditures will be reduced.

Providing Efficiency and Conservation as Part of a Comprehensive Resource-Supply Strategy

Vermont law has long required distribution utilities to include efficiency and conservation as part of their integrated resource plans. In addition, electric distribution utilities must consider whether the need for new transmission or generation resources can be met more cost-effectively by investments in energy efficiency.

Efficiency Vermont provides information about the results of its activities to electric utilities so that utilities can incorporate those results into their integrated resource plans. In addition, the EEUs participate in the integrated least-cost planning process for the Vermont transmission system as voting members of the Vermont System Planning Committee ("VSPC").

The DRPs for Efficiency Vermont and BED will include operating assumptions for 20-year electric budgets and savings goals. The inclusion of these assumptions within the DRPs is intended to assist distribution utilities, VELCO, the EEUs, and the Department in long-term electricity resource planning. Energy efficiency savings by the EEUs represent approximately 15% of the state's current resource mix,[32] and the adoption of the proposed VEIC and BED resource-acquisition budgets are expected to maintain the contribution of energy efficiency at a relatively stable level.

The DRP for VGS also includes operating assumptions for 20-year budgets and savings goals. The inclusion of these assumptions within the proposed budgets is intended to assist VGS in long-term resource planning and to provide efficiency and conservation as a part of its comprehensive resource supply strategy.

Providing an Opportunity for All Vermonters to Participate in Efficiency and Conservation Programs

The EEUs' Orders of Appointment require the EEUs to strive to ensure that the benefits of system-wide services, initiatives, and other activities generally reflect the level of contribution

[32] Department Recommendation for Efficiency Vermont, 5/5/17 at 19.

to EEU costs by ratepayers, as reflected in EEC payments, by customer class. In addition, the P&A document provides for the development of QPIs that address equity concerns such as certain levels of service to residential customers, low-income customers, and small-business customers.

VEIC, BED, and VGS have proposed budgets based on portfolios of efficiency programs that cover all customer classes (residential, and commercial and industrial) and market opportunities (equipment replacement, new construction, and discretionary retrofits). Customer incentives, including low- and no-cost financing, are available to help overcome cost barriers.

QPI targets will be determined in the next phase of the DRP proceeding, which will serve to help measure performance over time. Thus, we conclude that the resource-acquisition budgets approved in this Order, in conjunction with minimum performance requirements addressing customer, low-income, sector, and geographic equity, will ensure that Vermont's EEUs will provide an opportunity for all Vermonters to participate in their programs.

Targeting Efficiency and Conservation Efforts to Locations, Markets, or Customers Where They May Provide the Greatest Value

There is significant value in targeting energy efficiency because it is costlier to provide some types of customers with efficiency services than others, and because some efficiency measures have greater system benefits than others.

There are three types of targeting that can be achieved by electric energy efficiency programs: (1) targeting energy efficiency savings within a geographic area to defer the need for transmission, distribution, and generation infrastructure; (2) achieving peak-load reductions by focusing on particular energy efficiency measures; and (3) providing more funding for those programs that achieve the greatest savings possible for the least amount of investment. The proposed budgets for Efficiency Vermont and BED do not include any geographic targeting of efficiency investments because there are no recognized areas for which geographic targeting of energy resources would provide additional value. The budgets for BED and Efficiency Vermont include targeted efforts to reduce peak demand in the residential and commercial sectors.

There are two types of targeting that can be achieved by natural gas efficiency programs: (1) achieving peak load reductions by focusing on particular energy efficiency measures; and (2)

providing more funding for those programs that achieve the greatest savings possible for the least amount of investment. The budgets for VGS include targeted efforts to reduce peak-day demand in the residential and commercial sectors.

Section 581 Energy Efficiency Goals

Vermont has adopted goals in 10 V.S.A. § 581 aimed at improving the energy fitness of Vermont's housing stock, reducing residential annual fuel needs and fuel bills, reducing fossil-fuel consumption across all building types, and increasing weatherization services to low-income Vermonters. VEIC, BED, and VGS have proposed budgets based on a portfolio of efficiency programs that will contribute to progress in meeting the Section 581 goals. While most of the goals are established on a statewide basis, VGS and BED will make their contribution towards Section 581 goals in their own service territories.

B. Electric and Natural Gas Resource-Acquisitions Budgets and Modeling Assumptions

The potential studies are helpful in our assessment of the reasonably available cost-effective efficiency savings in Vermont. After reviewing the potential studies, we are persuaded that significant achievable efficiency potential continues to exist in the three EEU service territories. The MAP and RAP scenarios indicate that higher efficiency savings can be achieved than by the current VGS efficiency budget levels. In addition, VGS's recent expansion into Addison County presents new and unique potential. The Potential Study indicates that additional natural gas efficiency investments would be cost-effective and supports the conclusion that increased efficiency budgets would yield cost-effective investments.

VEIC

Based on our review and consideration of the studies, analyses, recommendations, and other filings of the parties, we approve VEIC's proposed electric resource-acquisition budgets for Efficiency Vermont for the 2018-2020 performance period and the 2021-2037 planning period. We conclude that these budget levels are consistent with applicable statutory standards under Section 209, and will ensure that Efficiency Vermont will continue to be able to offer

programs and services that can acquire all reasonably available cost-effective savings while minimizing the potential for adverse rate and bill impacts.

In reaching this conclusion, the Commission is mindful of the concerns expressed by the Department, VEC, GMP, AIV, and others about rate impacts associated with the EEC. While we share these concerns, we find that on balance the other statutory considerations weigh in favor of not reducing Efficiency Vermont's resource-acquisition budgets to the extent advocated by those participants. In particular, we conclude that the approved resource-acquisition budgets will reduce the size of future power purchases, will defer load-growth-related transmission and distribution upgrades, and will minimize the costs of electricity.

We have also considered the comments filed by the Joint Commenters and CLF and VPIRG recommending that resource-acquisition budgets be approved consistent with the 20-year planning budgets approved in the last DRP. Our decision to approve resource-acquisition budgets as recommended by the EEUs represents a careful balancing of all considerations, including those advanced by the Joint Commenters and CLF and VPIRG. Our determination considers the information and comments presented in this proceeding while being mindful of the limitations of the studies and various participants' arguments that the studies should not be relied upon. Significantly, we note that the EEUs do not support the larger budget levels proposed by the Joint Commenters, CLF, and VPIRG. According to VEIC, the current scale of Efficiency Vermont programs and services is appropriate for the Vermont market, and VEIC does not believe that increased budgets are needed to meet an unmet need in the electric market.[33]

For Efficiency Vermont's budget, the Department recommends a budget that is lower than the budget proposed by VEIC. The Commission, however, is approving the budgets proposed by each of the EEUs, including VEIC's proposal for Efficiency Vermont's budget, which represents a budget amount that is between those budgets proposed by the Department and the Joint Commenters, CLF, and VPIRG. In sum, the resource-acquisition budgets approved today reflect our conclusion, based on an analysis of all the statutory criteria, that there are additional cost-effective efficiency savings in Vermont's energy markets, and that the budget

[33] VEIC Comments of 5/5/17 at 7.

levels will help to achieve a reasonable portion of those savings over time while being mindful of potential rate impacts.

Following this Order, VEIC will begin the process of finalizing its savings model and will develop expected "super-stretch" savings goals for the Efficiency Vermont resource-acquisition portfolio. We direct VEIC to apply 3.8% of the resource-acquisition budget to maximizing LMWh savings, and to utilize the same policy and technical modeling assumptions as in the first-round scenario modeling. We conclude that it is appropriate to limit the maximization portion of the resource-acquisition portfolio because this is a novel program for Vermont, and we find that a measured approach is warranted as Vermont's program administrators, customers, and regulators gain experience and assess the value of this approach.

BED

Based on its review and consideration of the studies, analyses, recommendations, and other filings of the parties, the Commission finds that the proposed electric resource-acquisition budget for BED for the 2018-2020 period is consistent with applicable statutory standards and hereby approves the proposed budget. This three-year budget will ensure that BED has the resources to continue funding programs that can acquire all reasonably available cost-effective savings in Burlington while minimizing the potential for adverse rate and bill impacts.

Following this Order, BED will begin the process of finalizing its savings model and will then develop (with the Department's assistance) the MWh and MW "stretch" savings goals for the Commission's review. We approve BED's proposal for the final scenario model to apply 10% of the resource-acquisition budget to measures that are capable of producing the greatest amount of lifetime MWh savings.

VGS

We accept the resource-acquisition budgets for natural gas efficiency recommended by the Department and VGS. Our decision is informed by the potential study, rate and bill impact analysis, participants' recommendations, and the past implementation experience of VGS. We conclude that the approved resource-acquisition budgets provide the best balance among all the statutory criteria we are required to consider.

We accept the Department's and VGS's recommendations for the modeling of expected savings, including the assumptions regarding large commercial projects. We approve an acquisition cost value that reflects an average of the rate proposed by VGS and the Department (approximately $38 per Mcf). This value represents a balance between short-term and long-term historical performance.

C. TEPF Program Budgets and Modeling Assumptions

Pursuant to 30 V.S.A. § 209(e)(1), TEPF funds derived from the FCM and Regional Greenhouse Gas Initiative ("RGGI") must be used to provide efficiency services to unregulated-fuel customers.

BED

A large percentage of BED's customers rely primarily on regulated natural gas provided by VGS for thermal energy, and the number of Burlington residents and businesses that use unregulated fuels is relatively small.

BED and Efficiency Vermont established a working partnership in early 2009 that seeks to serve BED's TEPF customers. BED customers have access to the same services and incentives as those customers in the rest of the state through Efficiency Vermont. Because of the limited number of cost-effective TEPF efficiency measures in its service territory, BED revenue generated from the FCM and RGGI auctions has typically exceeded TEPF expenditures on TEPF efficiency measures by BED. In the past, the relatively small amount of excess TEPF funds were transferred to Efficiency Vermont to pay for programs that are implemented outside Burlington.

BED's initial TEPF budget for the 2018-2020 performance period allocates only $315,875 for TEPF resource acquisition ($103,300 in 2018, $105,228 in 2019, and $107,347 in 2020). This allocated amount is significantly below the TEPF revenue forecast for the period of $1,716,164 ($637,607 in 2018, $617,940 in 2019, and $460,617 in 2020).[34] Under the initial budget, the total unallocated amount of TEPF funds for the period is $1,377,055 (after deducting the initial resource-acquisition and DSS budget amounts from the forecast), which is

[34] *See* Department's 2018-2020 Budget Recommendation for BED EEU (Attachment B to Department's filing of 5/8/17) at 3 and letter dated June 2, 2017, from Thomas Lyle of BED to Clerk of the Commission at 3.

substantially more than the small amount of unused TEPF funds transferred to Efficiency Vermont in the past. Accordingly, these unallocated budget amounts are a matter of substantial concern to BED.

BED's budgets and savings targets reflect on-going work with the 110-unit North Avenue Cooperative mobile home park (formerly known as the Farrington's Mobile Home Park). Because residents now own this mobile home park, new energy efficiency opportunities are possible. BED is investigating two additional opportunities in Burlington for the investment of unallocated TEPF funds, but is still developing budget plans to meet these opportunities.[35] Accordingly, BED requests that the Commission approve the initial proposed TEPF budget, and grant BED an extension of time until July 31, 2017, in order to propose additional programs to invest the remainder of the unallocated TEPF funds or some portion thereof. BED will work with the Department to develop these plans. The Department concurs with BED's request.

Based on the foregoing, the Commission approves BED's initial proposed budget for TEPF resource acquisition and its request for an extension to develop plans for the use of TEPF funds that were not allocated in the initial TEPF budget.

Efficiency Vermont

VEIC notes that the TEPF scenario modeling reflects the expected pace of incoming revenue from carbon and environmental credit markets that could be in flux throughout the 10-year planning period. Using updated revenue and cost estimates, VEIC states that large budget increases are expected in 2018 and 2019, followed by a significant decrease in 2020 and then gradual increases beginning in 2021. VEIC states that designing and implementing programs to conform to these expected revenues may result in highly volatile program delivery, particularly if large swings in funding occur from year to year.[36]

For the purposes of the final scenario model, VEIC recommends that the 2018 and 2019 budgets be set below estimated revenues, with the difference allocated to increase the 2020 and

[35] The first opportunity would involve the investment of unallocated TEPF funds in a possible new program designed for income-qualified, prospective and current homeowners of the North Avenue Cooperative. This program would provide incentives toward the purchase of highly efficient modular homes. The second opportunity is to apply the unallocated funds toward the infrastructure cost of a district heating system in Burlington or to increase the potential efficiency of such a system.

[36] VEIC Comments of 5/5/17 at 4.

2021 budgets higher than estimated revenues. VEIC maintains that its recommendation will allow for continued effective program delivery, helps contractors and the supply chain plan for predictable levels of activity, and avoids program curtailments.

The Department supports VEIC's proposal to set the 2018 and 2019 TEPF resource-acquisition budgets below forecasted FCM and RGGI revenues to avoid drastic changes in year-to-year budgets. However, the Department maintains that total TEPF spending, including resource-acquisition, development and support services, and compensation, should not exceed Efficiency Vermont's allocation of the three-year total expected net revenues.

Table 19 summarizes the estimated TEPF revenues and recommended three-year TEPF resource-acquisition budgets.

Table 19. Estimated TEPF Revenues and VEIC Recommendation

	2018	2019	2020	Total
Estimated Revenue	$10,282,416	$9,930,469	$6,415,689	$26,628,573
VEIC Recommendation	$9,000,000	$9,000,000	$8,500,000	$26,500,000

We approve VEIC's proposal to "smooth out" Efficiency Vermont TEPF resource-acquisition budgets for the final scenario model and direct VEIC to ensure that total budgets do not exceed Efficiency Vermont's allocation of expected TEPF revenues.

D. QPIs and Weighting

In the October 27 Order, we established a QPI framework that the EEUs be measured on three types of performance indicators during the 2018-2020 performance period: (1) energy-related QPIs; (2) non-energy related QPIs; and (3) minimum performance requirements.

In today's Order, we determine the specific QPIs, including weighting factors, and minimum performance indicators for which targets should be developed in the next stage of this proceeding.

Pursuant to VEIC's Order of Appointment, performance compensation is to be paid based on the attainment of three-year QPI targets. QPIs that have a positive performance award associated with them include a weighting factor that determines the amount of possible compensation. Failure to meet minimum performance requirements results in the forfeiture of

the opportunity to earn some or all of the performance award that could be earned for meeting QPI targets.

BED and VGS do not have a monetary performance award associated with meeting their QPI targets. The corresponding QPI weighting factors are useful to direct the focus of an EEU's efficiency efforts.

Efficiency Vermont Electric QPIs

The Department recommends the following electric QPIs for Efficiency Vermont:

QPI 1: The total resource benefits ("TRB") QPI encourages Efficiency Vermont to design and implement efficiency initiatives that will maximize the lifetime electric, fossil-fuel, and water benefits. This metric would measure the cumulative three-year total resource benefits achieved in a performance period. This metric would include a second component that would measure lifetime MWh. The QPI target is proposed to be weighted at 33% of the total electric QPI award.

QPI 2: The annual incremental MWh savings QPI encourages Efficiency Vermont to design and implement efficiency initiatives that will maximize electrical energy savings. This metric would measure the total of the incremental MWh savings achieved each year of a performance period. The QPI target is proposed to be weighted at 25% of the total electric QPI award.

QPI 3: The cumulative summer peak demand savings QPI encourages Efficiency Vermont to design and implement efficiency initiatives that will maximize the capacity reduction coincident with peak summer demand. This metric would measure cumulative three-year coincident peak savings in a performance period. The QPI target is proposed to be weighted at 17% of the total electric QPI award.

QPI 4: The cumulative winter peak demand savings QPI encourages Efficiency Vermont to design and implement efficiency initiatives that will maximize the capacity reduction

coincident with winter peak demand. This metric would measure cumulative three-year coincident peak savings in a performance period. The QPI target is proposed to be weighted at 14% of the total electric QPI award.

QPI 5: The business comprehensiveness of savings QPI ensures that energy efficiency initiatives are designed and implemented to acquire comprehensive savings. This metric would measure the depth of savings at the project and/or customer level across all commercial and industrial participants. The QPI target is proposed to be weighted at 5% of the total electric QPI award.

QPI 6: The residential new construction market transformation QPI encourages Efficiency Vermont to design and implement programs that maximize long-term efficiency savings for the residential building and equipment stock in Vermont. This metric seeks to transform the market by encouraging residential new construction project completions with substantial savings. The QPI target is proposed to be weighted at 3% of the total electric QPI award.

QPI 7: The business market transformation QPI encourages Efficiency Vermont to design and implement programs that maximize long-term efficiency savings for commercial building and equipment stock in Vermont. This metric seeks to transform the market by encouraging supply-chain market actors, including contractors and suppliers, to partner with Efficiency Vermont to deliver efficient products. The QPI target is proposed to be weighted at 3% of the total electric QPI award.

VEIC agrees with the Department's recommendations for QPIs 2-4. With regard to QPI 1, VEIC contends that this QPI should not include a lifetime MWh indicator as a subset of the TRB monetary value. VEIC maintains that the TRB QPI is best tracked on its own merits and not on the subset of its component parts. Instead, VEIC proposes that a separate lifetime MWh QPI be established to replace QPI 5 (business comprehensiveness), QPI 6 (residential market transformation), and QPI 7 (business market transformation). VEIC believes that a single QPI

based on lifetime MWh would ease administrative burden and create a new focus for the development of programs and measures that yield long lifetime and comprehensive energy savings. VEIC contends that a separate lifetime MWh QPI would emphasize the need for measure persistence, deep savings, and comprehensiveness in savings for long-term societal and non-energy benefits, and this in itself would be a strong force for market transformation and business comprehensiveness.

VEIC maintains that QPIs 5-7, which are currently tracked and measured, add significant administrative burden and costs without creating incremental value to customers. VEIC maintains that reporting and measuring QPIs 5-7 require significant analysis of data and complex data queries. VEIC estimates that the time for completing these administrative activities is equivalent to having a full-time employee focused solely on developing and reporting metrics for proposed QPIs 5-7.

The Department maintains that the cost and burdens of tracking QPIs 5-7 do not outweigh the value of maintaining the QPIs. The Department contends that removing these QPIs has the potential to lessen the value to ratepayers because without them there will be insufficient incentives to ensure ever-increasing depth of savings for participating businesses and ensure customer access to innovative equipment and services that results from the engagement with market actors. While the Department agrees that these QPIs may be challenging to measure, the Department contends that striving for progress in these areas can lead to innovation that in the past has helped move Efficiency Vermont incrementally to the goals measured by these QPIs.

Discussion

We approve the Department's and VEIC's proposed electric-efficiency QPIs and weighting factors for QPIs 2-4. These recommendations are consistent with past performance periods. The proposed QPIs will push Efficiency Vermont to innovate while responsibly using ratepayer resources to encourage adoption of efficient technologies.

Based on VEIC's recommendations, we approve QPI 1, TRB, with no lifetime MWh component. Instead, we are establishing a separate lifetime MWh QPI, with a weighting factor of 9%, as recommended by VEIC. This QPI will replace proposed QPI 5 – business comprehensiveness, QPI 6 – residential market transformation, and QPI 7 – business market

transformation. We are persuaded that the administrative cost and burden of measuring the proposed QPIs 5-7 outweigh the benefits to customers. However, we still recognize the need to ensure that efficiency efforts focus on persistence, deep savings, and comprehensiveness in savings for long-term societal and non-energy benefits. Accordingly, Efficiency Vermont should ensure that its triennial plan explains how its planned activities will achieve the goals of market transformation, business comprehensiveness, and realization of long-term benefits.

We recognize, based on the completion of expected savings modeling, that the participants may make recommendations for further adjustments to QPI definitions and corresponding weightings. Accordingly, participants may request approval of changes to the QPIs in the next stage of the DRP proceeding.

Efficiency Vermont Electric Minimum Performance Requirements

The Department and VEIC agree to the following minimum performance requirements for Efficiency Vermont:

QPI 8: The equity for all electric ratepayers indicator is intended to ensure equity for all Vermont electric ratepayers as a group by ensuring that the overall electric benefits are greater than the costs incurred to implement and evaluate the EEU. This metric would require that total verified electric benefits divided by total costs be greater than 1.2. Failure to meet this requirement would result in the forfeiture of the entire 100% target level performance award.

QPI 9: The equity for residential ratepayers indicator is intended to ensure equity for residential customers by ensuring that a minimum level of overall efficiency efforts, as reflected in spending, will be dedicated to residential customers. This metric would require that a minimum of 70% of the residential-sector share of total resource-acquisition spending, as identified in the Commission-approved modeling assumptions, be in the residential sector. Failure to meet this requirement would result in the forfeiture of 18% of the 100% target level performance award.

QPI 10: The equity for low-income customers indicator is intended to ensure equity for low-income customers by ensuring that a minimum level of overall efficiency efforts, as reflected in spending, will be dedicated to low-income households. This metric would require that a minimum 70% of the low-income sector share of total resource-acquisition spending, as identified in the Commission-approved modeling assumptions, be on low-income services. Failure to meet this requirement would result in the forfeiture of 18% of the 100% target level performance award.

QPI 11: The commercial customer size equity indicator is intended to ensure equity for smaller non-residential customers by ensuring that a minimum level of overall efficiency efforts will be dedicated to small commercial accounts. This metric would require a minimum level of participation from customers whose annual usage is under 40,000 kWh/year. Failure to meet this requirement would result in the forfeiture of 18% of the 100% target level performance award.

QPI 12: The geographic equity indicator is intended to ensure equity for all Vermont electric customers by requiring that energy efficiency benefits be geographically distributed across the state. This metric would require a minimum TRB target by county. The TRB target by county is developed by first multiplying the Commission-approved 2018-2020 electric-efficiency budgets by a 1.1 factor to establish a state-wide minimum TRB target, and then multiplying the state-wide TRB value by the percentage of the state's population by county. Failure to meet this requirement would result in the forfeiture of 6% of the 100% target level performance award.

QPI 13: The administrative efficiency indicator is designed to measure the administrative efficiency of program delivery. The goal of this metric is to develop a set of administrative efficiency metrics to be applied to performance periods starting in 2021. This metric will establish a baseline in order to track and assess administrative efficiency and aid in the development of future metrics to maximize administrative efficiency and optimize ratepayer value. Failure to meet this requirement would result in the forfeiture of 2% of the 100% target level performance award.

QPI 14: The service quality indicator is designed to measure service quality as specified in the Commission-approved Service Quality and Reliability Plan ("SQRP") for VEIC. The SQRP sets a minimum performance target of 92 performance points over the length of the performance period. Points are accumulated for achieving success on individual metrics, including call responsiveness, customer feedback, complaint rates, and complaint resolution. Failure to meet this requirement would result in the forfeiture of 4.4% of the 100% target level performance award.

QPI 15: The spending indicator is designed to promote adherence, while providing appropriate flexibility, to Commission-established performance-period budgets. Efficiency Vermont expenditures above the Commission-established spending allowance for of a total three-year performance period (not including the maximum performance award) would result in a financial penalty. The metric applies to both resource-acquisition and DSS budgets for the three-year performance period. Performance period spending allowances are 3% of electric third-year budgets. Failure to meet this requirement would result in the forfeiture of a certain percentage of the 100% target level performance award. The size of the forfeiture varies depending on the size of the budget variance.

Discussion

We approve the proposed electric-efficiency minimum performance requirements for Efficiency Vermont. These recommendations are consistent with past performance periods. These minimum performance requirements encourage savings for all ratepayers and encourage savings to residential, commercial, and low-income customers. The minimum performance requirement for administrative efficiency will encourage Efficiency Vermont to deliver services at maximum value to Vermont ratepayers. The indicator addressing 2018-2010 spending will promote adherence, while providing appropriate flexibility, to Commission-established budgets and goals.

Efficiency Vermont TEPF QPIs and Minimum Performance Requirements

The Department and VEIC agree to the following TEPF QPIs and minimum performance requirements for Efficiency Vermont:

QPI 1: The overall MMBtu-savings QPI is designed to encourage Efficiency Vermont to design and implement efficiency initiatives that will maximize thermal-energy savings, measured as MMBtu savings, achieved each year of a performance period. For fuel-switching measures (from fossil fuels to renewable fuel sources), VEIC recommends that for cost-effectiveness screening and savings claims, energy use associated with the new system should be counted as zero in order to not "penalize" switching from fossil fuels to full or partial renewable energy. The QPI target is proposed to be weighted at 75% of the total TEPF QPI award.

QPI 2: The residential single family comprehensiveness-of-savings QPI is intended to encourage Efficiency Vermont to prioritize comprehensive thermal retrofits consistent with the Vermont Comprehensive Energy Plan and state building energy efficiency goals. This metric may address: (1) average air leakage reduction per project; (2) percent of projects with square feet of insulation added as a percentage of the homes' finished square feet of floor area; and (3) percent of projects with both shell and heating system measures installed. The QPI target is proposed to be weighted at 25% of the total TEPF QPI award.

QPI 3: The residential customer equity indicator is intended to ensure equity for residential customers by ensuring that a minimum level of overall efficiency efforts, as reflected in spending, will be dedicated to residential customers. This metric would require that a minimum level of the TEPF spending be in the residential sector. Failure to meet this requirement would result in the forfeiture of 10% of the 100% target level performance award.

QPI 4: The low-income participation indicator is intended to ensure equity for low-income customers by assuring that a minimum level of overall efficiency efforts, as reflected in spending, will be dedicated to low-income customers. This metric would require that a

minimum level of the TEPF spending be for low income services. Failure to meet this requirement would result in the forfeiture of 10% of the 100% target level performance award.

QPI 5: The spending indicator is designed to promote adherence, while providing appropriate flexibility, to Commission-established performance-period budgets. Efficiency Vermont expenditures above the Commission-established spending allowance of a total three-year performance period (not including the maximum performance award) would result in a financial penalty. The metric applies to both resource-acquisition and DSS budgets for the three-year performance period. Performance-period spending allowances are 3% of TEPF third-year budgets. Failure to meet this requirement would result in the forfeiture of a certain percentage of the 100% target level performance award. The size of the forfeiture varies depending on the size of the budget variance.

Discussion

We approve the proposed TEPF QPIs and minimum performance requirements for Efficiency Vermont. These recommendations are consistent with past performance periods. The proposed QPIs will push Efficiency Vermont to innovate while responsibly using ratepayer resources to encourage adoption of efficient technologies. The minimum performance requirements encourage savings for residential and low-income customers. The indicator addressing 2018-2020 spending will promote adherence, while providing appropriate flexibility, to Commission-established TEPF budgets and goals. We approve the recommendation regarding cost-effectiveness screening and savings claims for fuel-switching measures where a renewable fuel source is replacing fossil fuels.

BED Electric QPIs

The Department and BED agree on the following electric QPIs for BED's energy efficiency services:

QPI 1: The TRB QPI encourages BED to design and implement efficiency initiatives that will maximize the lifetime electric, fossil-fuel, and water benefits. This metric would

measure the cumulative three-year total resource benefits achieved in a performance period. This metric would include a second component that would measure lifetime MWh. The QPI target is proposed to be weighted at 33%.

QPI 2: The annual incremental MWh savings QPI encourages BED to design and implement efficiency initiatives that will maximize electrical energy savings. This metric would measure the total of the incremental MWh savings achieved each year of a performance period. The QPI target is proposed to be weighted at 25% of the total electric QPI award.

QPI 3: The cumulative summer peak demand savings QPI encourages BED to design and implement efficiency initiatives that will maximize the capacity reduction coincident with peak summer demand. This metric would measure cumulative three-year coincident peak savings in a performance period. The QPI target is proposed to be weighted at 17% of the total electric QPI award.

QPI 4: The cumulative winter peak demand savings QPI encourages BED to design and implement efficiency initiatives that will maximize the capacity reduction coincident with winter peak demand. This metric would measure cumulative three-year coincident peak savings in a performance period. The QPI target is proposed to be weighted at 14%.

QPI 5: The business comprehensiveness of savings QPI ensures that energy efficiency initiatives are designed and implemented to acquire comprehensive savings. This metric would measure the depth of savings at the project and/or customer level across all commercial and industrial participants. The QPI target is proposed to be weighted at 6%.

QPI 6: The long-term market transformation QPI encourages BED to design and implement efficiency initiatives that maximize market transformation. This metric seeks to transform the market by encouraging BED to provide technical assistance and data analysis to help building owners to benchmark their buildings. The benchmarking service is expected to lead to increased participation in BED's efficiency programs. This metric will measure the

number of buildings benchmarked over the performance period. The QPI target is proposed to be weighted at 5%.

Discussion

We approve the Department's and BED's proposed electric-efficiency QPIs and weighting factors for BED's electric-efficiency services. These recommendations are consistent with past performance periods. The proposed QPIs will push BED to innovate while responsibly using ratepayer resources to encourage adoption of efficient technologies.

In contrast to the approved QPIs for Efficiency Vermont, because BED and the Department agree, for BED we are approving a TRB QPI with a lifetime MWh component and QPIs addressing business comprehensiveness and market transformation. In addition, BED did not express a concern regarding the administrative costs of tracking these QPIs. However, in the next stage of the DRP proceeding, the Department and BED may request approval to change or remove these QPIs based on our decision with regard to Efficiency Vermont.

In addition, we recognize, based on the completion of expected savings modeling, that participants may make recommendations for further adjustments to QPI definitions and corresponding weightings. Accordingly, participants may request approval of changes to the QPIs in the next stage of the DRP proceeding.

BED Electric Minimum Performance Requirements

The Department and BED agree to the following minimum performance requirements for BED's energy efficiency services:

QPI 7: The equity for all electric ratepayers indicator is intended to ensure equity for all BED customers by ensuring that the overall electric benefits are greater than the costs incurred to implement and evaluate the EEU. This metric would require that total verified electric benefits divided by total costs be greater than 1.2.

QPI 8: The equity for residential ratepayers indicator is intended to ensure equity for residential customers by ensuring that a minimum level of overall efficiency efforts, as reflected

in spending, will be dedicated to residential customers. This metric would require that a minimum of 70% of the residential-sector share of total resource-acquisition spending, as identified in the Commission-approved modeling assumptions, be in the residential sector.

QPI 9: The equity for low-income customers indicator is intended to ensure equity for low-income customers by ensuring that a minimum level of overall efficiency efforts, as reflected in spending, will be dedicated to low-income households. This metric would require that a minimum 70% of the low-income sector share of total resource-acquisition spending, as identified in the Commission-approved modeling assumptions, be on low-income services.

QPI 10: The commercial customer equity indicator is intended to ensure equity for smaller non-residential customers by ensuring that a minimum level of overall efficiency efforts will be dedicated to small commercial accounts. This metric would require a minimum level of participation by customers whose annual usage is under 40,000 kWh/year.

QPI 11: The administrative efficiency indicator is designed to measure the administrative efficiency of program delivery. The goal of this metric is to develop a set of administrative efficiency metrics to be applied to performance periods starting in 2021. This metric will establish a baseline in order to track and assess administrative efficiency and aid in the development of future metrics to maximize administrative efficiency and optimize ratepayer value.

Discussion

We approve the Department's and BED's proposed electric minimum performance requirements. These minimum performance requirements encourage savings for all ratepayers and encourage savings to residential, commercial, and low-income customers. The minimum performance requirement for administrative efficiency will encourage BED to deliver services at maximum value to BED ratepayers.

BED TEPF QPIs and Minimum Performance Requirements

The Department and BED agree to the following QPIs and minimum performance requirements for BED's TEPF energy efficiency services:

QPI 1: The overall MMBtu-savings QPI is designed to encourage BED to design and implement efficiency initiatives that will maximize thermal-energy savings, measured as MMBtu savings, achieved each year of a performance period.

QPI 2: The residential single-family comprehensiveness-of-savings QPI is intended to encourage BED to prioritize comprehensive thermal retrofits consistent with the Vermont Comprehensive Energy Plan and state building energy efficiency goals. This metric may address: (1) average air leakage reduction per project; (2) percentage of projects with square feet of insulation added as a percentage of the homes' finished square feet of floor area; and (3) percentage of projects with both shell and heating system measures installed.

QPI 3: The residential customer equity indicator is intended to ensure equity for residential customers by ensuring that a minimum level of overall efficiency efforts, as reflected in spending, will be dedicated to residential customers. This metric would require that a minimum level of the TEPF spending be in the residential sector.

Discussion

We approve the Department's and BED's proposed QPIs and minimum performance requirements for BED's TEPF services. The weighting for the QPI targets will be determined in the next phase of the DRP proceeding. These recommendations are consistent with past performance periods. The proposed QPIs will push BED to innovate while responsibly using ratepayer resources to encourage adoption of efficient technologies. The minimum performance requirement encourages savings for residential customers.

VGS QPIs and Minimum Performance Standards

VGS QPIs

The Department and VGS agree to the following QPIs for VGS's natural gas efficiency services.

QPI 1: The annual incremental Mcf savings QPI encourages VGS to design and implement efficiency initiatives that will maximize natural gas energy savings. This metric will measure the total of the incremental Mcf savings achieved each year of a performance period. The QPI target is proposed to be weighted at 25%.

QPI 2: The lifetime natural gas savings QPI encourages VGS to design and implement efficiency initiatives that will maximize the lifetime natural gas benefits. The QPI target includes two components: (1) present worth of lifetime natural gas avoided costs, and (2) lifetime Mcf savings. The QPI target is proposed to be weighted at 30%.

QPI 3: The peak-day savings QPI encourages VGS to design and implement efficiency initiatives that will maximize the capacity reduction coincident with peak-day demand. The metric will measure incremental peak-day savings each year of the performance period. The QPI target is proposed to be weighted at 15%

QPI 4: The residential single-family comprehensiveness QPI ensures that energy efficiency initiatives are designed and implemented to acquire comprehensive savings. The QPI target contains two components: (1) percentage of home energy audits converted to measure installations within one calendar year; and (2) percentage of installations of audit-identified cost-effective measures within one calendar year. The QPI target is proposed to be weighted at 10% for each component.

QPI 5: The long-term market transformation QPI encourages VGS to design and implement efficiency initiatives that maximize market transformation. The metric will measure

the number of energy efficiency trainings offered to contractors to promote market transformation. The QPI target is proposed to be weighted at 5%.

QPI 6: The business comprehensiveness of savings QPI ensures that energy efficiency initiatives are designed and implemented to acquire comprehensive savings. The metric will measure the number of diverse measures implemented in commercial retrofit projects. The QPI target is proposed to be weighted at 5%.

Discussion

We approve the Department's and VGS's proposed QPIs and weighting factors for VGS's natural gas efficiency services. These recommendations are consistent with the past performance period. The proposed QPIs will push VGS to innovate while responsibly using ratepayer resources to encourage the adoption of efficient technologies.

In contrast to the approved QPIs for Efficiency Vermont, because VGS and the Department agree, for VGS we are approving a lifetime natural gas savings QPI with a lifetime Mcf component and QPIs addressing business comprehensiveness and market transformation. In addition, VGS did not express a concern regarding the administrative costs of tracking these QPIs. However, in the next stage of the DRP proceeding, the Department and VGS may request approval to change or remove these QPIs based on our decision with regard to Efficiency Vermont.

In addition, we recognize, based on the completion of expected savings modeling, that participants may make recommendations for further adjustments to QPI definitions and corresponding weightings. Accordingly, participants may request approval of changes to the QPIs in the next stage of the DRP proceeding.

VGS Minimum Performance Requirements

The Department and VGS agree to the following minimum performance requirements for VGS's natural gas efficiency services.

QPI 7: The equity for all natural gas ratepayers indicator encourages equity for all Vermont natural gas ratepayers by ensuring that the overall natural gas benefits are greater than the costs incurred to implement and evaluate the VGS efficiency programs. This metric would require that total verified gas benefits divided by total costs be greater than 1.2.

QPI 8: The equity for residential ratepayers indicator encourages equity for residential customers by ensuring that a minimum level of overall efficiency effort, as reflected by spending, will be dedicated to residential customers. This metric would require that a minimum of 70% of the residential-sector share of total resource-acquisition spending, as identified in the Commission-approved modeling assumptions, be in the residential sector.

QPI 9: The equity for low-income customers indicator encourages equity for low-income customers by ensuring that a minimum level of overall efficiency efforts, as reflected by spending, will be dedicated to low-income customers. This metric would require that a minimum 70% of the low-income sector share of total resource-acquisition spending, as identified in the Commission-approved modeling assumptions, be on low-income services.

QPI 10: The equity for small business customers indicator encourages equity for smaller non-residential customers by ensuring that a minimum level of overall efficiency effort will be dedicated to small commercial accounts. This metric would require a minimum level of participation by customers whose annual natural gas usage is under 6,000 Mcf per year.

QPI 11: The administrative efficiency indicator is designed to measure the administrative efficiency of program delivery. The goal of this metric is to develop a set of administrative efficiency metrics to be applied to performance periods starting in 2021. This metric will establish a baseline in order to track and assess administrative efficiency and aid in the development of future metrics to maximize administrative efficiency and optimize ratepayer value.

QPI 12: The TRB indicator encourages VGS to design and implement efficiency initiatives that will maximize the lifetime natural gas, other fossil-fuel, and water benefits. This metric is designed to encourage VGS to calculate and track all components of TRB, including water savings and delivered fuel savings associated with measures. The metric requires VGS, in consultation with the Department, to file a status update on the feasibility and cost/benefit of tracking water and delivered-fuel resource benefits by July 31, 2018.

QPI 13: The Addison County indicator encourages VGS to maximize the percentage of Addison County customers that benefit from VGS energy efficiency programs. This metric requires VGS to meet minimum program participation rates for customers in Addison County.

Discussion

We approve the Department's and VGS's proposed minimum performance requirements for VGS's natural gas efficiency services. These recommendations are consistent with the past performance period. These minimum performance requirements encourage savings for all ratepayers and encourage savings for residential, commercial, and low-income customers. The minimum performance requirement for administrative efficiency will encourage VGS to deliver services at maximum value to VGS ratepayers. The TRB indicator encourages VGS to track other fossil fuel and water benefits, with a goal of developing a TRB QPI for future performance periods. The Addison County indicator encourages VGS to maximize the percentage of Addison County customers that benefit from VGS energy efficiency programs.

VI. CONCLUSION

In this Order, the Commission has established the resource-acquisition budgets, modeling assumptions, and QPI and MPR weightings for each of the EEUs operating in Vermont – Efficiency Vermont, BED, and VGS. We have considered the statutory factors outlined in 30 V.S.A. § 209(d)(3)(B) and (f)(14) and the information and comments provided by participants over the course of this proceeding. We conclude that there remain significant cost-effective and reasonably available electric and natural gas energy efficiency opportunities in Vermont that will result in significant savings. These savings, through additional investments in energy efficiency,

will be obtained at a fraction of the cost of traditional supply-side resources. We have also evaluated the rate impacts associated with the budget proposals presented by the EEUs and the Department. BED and VGS customers are expected to see reduced EEC rates in the next three performance years while customers in Efficiency Vermont's service territory are expected to have a noticeable EEC rate reduction in 2018 followed by modest rate increases in 2019 and 2020. We conclude that the long-term benefits associated with VEIC's proposed budget outweigh the minimal reduction in the EEC rates that would result from adoption of the Department's lower budget proposal. As described in detail above, the resource-acquisition budgets approved in this Order will result in significant long-term benefits to Vermont ratepayers, and will enable the EEUs to acquire all reasonably available, cost-effective energy efficiency.

VII. ORDER

IT IS HEREBY ORDERED, ADJUDGED, AND DECREED by the Vermont Public Utility Commission ("Commission") that:

1. The 20-year electric resource-acquisition budgets for Efficiency Vermont and Burlington Electric Department ("BED") and natural gas resource-acquisition budgets for Vermont Gas Systems, Inc. ("VGS") shall be those shown in Appendix A to this Order for the purpose of performing final scenario modeling.

2. The 10-year thermal energy and process fuels ("TEPF") estimated budgets for Efficiency Vermont and BED shall be those shown in Appendix A to this Order for the purpose of performing final scenario modeling.

3. The quantifiable performance indicator ("QPI") and minimum performance requirement ("MPR") weightings for Efficiency Vermont, BED, and VGS shall be those approved in this Order.

4. Final scenario modeling shall incorporate the policy and technical assumptions approved in the October 27, 2017, Order in this proceeding except as modified in this Order.

5. Efficiency Vermont and BED may amend the TEPF QPI for MMBtu savings as agreed to by VEIC and the Department for the purpose of final scenario modeling and the development of savings goals in subsequent phases of this proceeding.

Dated at Montpelier, Vermont this 7th day of July, 2017

Anthony Z. Roisman) Public Utility
)
)
Margaret Cheney) Commission
)
)
Sarah Hofmann) of Vermont

OFFICE OF THE CLERK

Filed: 07/07/2017

Attest: Judith C. Whitney
Clerk of the Commission

Notice to Readers: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Commission (by e-mail, telephone, or in writing) or any apparent errors, in order that any necessary corrections may be made. (E-mail address: puc.clerk@vermont.gov)

Case No. EEU-2016-03

Appendix A

Resource-Acquisition Budgets

Efficiency Vermont	**2018**	**2019**	**2020**	**3 Yr. Total**	**2021**	**2022**
Electric	$44,123,639	$44,123,639	$44,123,639	$132,370,917	$45,006,112	$45,906,234
TEPF	$9,000,00	$9,000,000	$8,500,000	$26,500,000	$8,100,000	$8,000,000

BED	**2018**	**2019**	**2020**	**3 Yr. Total**	**2021**	**2022**
Electric	$2,395,982	$2,544,509	$2,544,509	$7,485,000	$2,544,509	$2,544,509
TEPF	$103,300	$105,228	$107,347	$315,875	$107,347	$107,347

VGS	**2018**	**2019**	**2020**	**3 Yr. Total**	**2021**	**2022**
Natural Gas	$2,889,201	$3,014,426	$3,030,476	$8,934,103	$3,030,476	$3,030,476

Case No. EEU-2016-03

Appendix A

Resource-Acquisition Budgets

Efficiency Vermont	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
Electric	$46,824,359	$47,760,846	$48,716,063	$49,690,384	$50,684,192	$51,697,876
TEPF	$8,000,000	$8,000,000	$8,100,000	$8,100,000	$8,131,500	

BED	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
Electric	$2,544,509	$2,544,509	$2,544,509	$2,544,509	$2,544,509	$2,544,509
TEPF	$107,347	$107,347	$107,347	$107,347	$107,347	

VGS	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
Natural Gas	$3,030,476	$3,030,476	$3,030,476	$3,030,476	$3,030,476	$3,030,476

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Appendix A

Resource-Acquisition Budgets

Efficiency Vermont	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Electric	$52,731,833	$53,786,470	$54,862,199	$55,959,443	$57,078,632	$58,220,205
TEPF						

BED	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Electric	$2,544,509	$2,544,509	$2,544,509	$2,544,509	$2,544,509	$2,544,509
TEPF						

VGS	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Natural Gas	$3,030,476	$3,030,476	$3,030,476	$3,030,476	$3,030,476	$3,030,476

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Appendix A

Resource-Acquisition Budgets

Efficiency Vermont	**2035**	**2036**	**2037**	**Total**
Electric	$59,384,609	$60,572,301	$61,783,747	$1,033,036,422
TEPF				$82,931,500

BED	**2035**	**2036**	**2037**	**2037**
Electric	$2,544,509	$2,544,509	$2,544,509	$50,741,651
TEPF				$1,067,304

VGS	**2035**	**2036**	**2037**	**2037**
Natural Gas	$3,030,476	$3,030,476	$3,030,476	$60,452,195

EEU-2016-03 APPENDIX B

LIST OF PARTICIPANTS

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EEU-2016-03 APPENDIX C

PROCEDURAL HISTORY

On June 7, 2016, the Vermont Department of Public Service ("Department" or "DPS"), jointly with VEIC, BED, and VGS, filed a petition requesting that the Commission commence this DRP proceeding.

On June 17, 2016, the Commission issued an Order Opening Proceeding.

On June 30, 2016, the Commission convened a workshop to discuss the scope and schedule of the proceeding, and on August 5, 2016, the Commission issued a scheduling order.

On September 16, 2016, the Department, VEIC, VGS, BED, and Conservation Law Foundation ("CLF") filed resource-acquisition scenario modeling proposals. In addition, the Commission received proposed modeling assumptions, QPI and MPR framework proposals, and a TEPF forecast proposal.

On September 22, 2016, a workshop was convened to discuss the September 16 filings.

On October 3, 2016, comments were filed by CLF, Vermont Public Interest Research Group, VGS, the Department, and VEIC. The Department also filed reply comments on October 6, 2016.

On October 27, 2016, the Commission issued an Order determining the resource-acquisition scenarios to be modeled by each EEU, modeling inputs, approving a TEPF revenue forecast, and approving QPI and MPR frameworks.

On November 8, 2016, CLF filed a motion for reconsideration of the Commission's October 27 Order. Comments on CLF's motion were filed by the Department, Vermont Public Power Supply Authority, BED, and VEIC.

On January 23, 2017, the Department filed the results of its potential studies and rate-and-bill impact analysis.

On January 26, 2017, a workshop was convened to discuss the Department's January 23 filings.

On February 3, 2017, VEIC and VGS filed comments on the Department's potential studies.

Also on February 3, 2017, the Department, with the concurrence of VEIC, BED, and VGS, filed a proposal to modify the schedule for this proceeding.

On February 9, 2017, an Order was issued modifying the schedule as proposed by the Department.

On February 24 and 27, 2017, VEIC, BED, and VGS filed the results of their first-round modeling exercise, as well as development and support services ("DSS") proposals. In addition, the Department filed a rate-and-bill impact analysis for each of the EEUs' modeled scenarios.

On March 6, 2017, the Department filed revised potential studies.

On March 10, 2017, a workshop was convened to discuss the EEUs' first-round scenario modeling results.

On March 17, 2017, BED, the Department, VGS, and VEIC filed comments addressing modeling results and workshop discussions. Reply comments were filed by the Department, VEIC, BED, and VGS on March 24, 2017.

Also on March 17, 2017, the Department, VEIC, BED, and VGS jointly proposed a further modification to the schedule.

On March 24, 2017, an Order was issued modifying the schedule as proposed.

On March 30, 2017, the Commission issued an Order addressing CLF's motion for reconsideration.

On April 7 and 10, 2017, VEIC, VGS, and BED filed supplemental information regarding their DSS proposals.

On May 5 and 8, 2017, VEIC, the Department, and VGS filed final resource-acquisition scenario model recommendations.

On May 12, 2017, VEIC, the Department, VGS, Vermont Electric Cooperative, Inc. ("VEC"), Green Mountain Power Corporation, and CLF and VPIRG filed comments on the final resource-acquisition scenario model recommendations.

On May 16, 2017, CLF and VPIRG filed comments on the final resource-acquisition scenario model recommendations.

Also on May 16, 2017, a workshop was convened to discuss the final resource-acquisition scenario model recommendations.

On June 2, 2017, VEIC, the Department, 350Vermont, Capstone Community Action, Citizens Awareness Network, CLF, Rights & Democracy, VBike, Vermont Affordable Housing Coalition, Vermont Businesses for Social Responsibility, the Vermont Chapter of the Sierra Club, Vermont Conservation Voters, Vermont Interfaith Power & Light, Vermont Low Income

Advocacy Council, Vermont Natural Resources Council, VPIRG, and Vermont Yankee Decommissioning Alliance (the "Joint Commenters"), CLF and VPIRG, Capstone Community Action, BED, and VGS, filed reply comments on the final resource-acquisition scenario model recommendations. The Department, VEIC, BED, and VGS also filed a joint request to amend the schedule of this proceeding. That request will be addressed by separate Order.

On June 5, 2017, Associated Industries of Vermont and the Joint Commenters filed reply comments on the final resource-acquisition scenario model recommendations.

On June 14, 2017, the Department filed sur-reply comments.

On June 30, 2017, BED filed a letter requesting additional time to file its TEPF plan on or before July 31, 2017.

PSB Case No. EEU-2016-03 - SERVICE LIST

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