

2022 Tier III Plan – Vermont Electric Cooperative November 1, 2021

The Energy Transformation (Tier III) provision of Act 56, passed by the Vermont Legislature in 2015, set targets for utility-led or utility-partnership projects that will reduce fossil fuel usage. The legislated target starts at 2 percent of sales (BTU equivalency) in 2017, rising by two-thirds of a percent each year until it reaches 12 percent in 2032.

A utility can satisfy this requirement through additional distributed renewable generation (Tier II), by implementing “energy transformation projects,” or by paying an Alternative Compliance Payment (ACP). In order to be eligible, an energy transformation project must have commenced on or after January 1, 2015, must provide delivery of energy goods or services other than electric generation, and must result in a net reduction in fossil fuel consumption by a utility’s customers.

The statute does not mandate any particular product or service and allows for flexibility in how each distribution utility will meet its targets. The statute includes the following project criteria, which will influence our implementation strategy. Projects must:

- Meet the lowest present value life cycle cost, including environmental and economic costs;
- Be evaluated against alternatives that do not increase electricity consumption;
- Cost less per megawatt-hour (MWh) than the ACP;
- Be implemented in a partnership with others unless exclusive delivery can be shown to be more cost-effective or because no others have the expertise;
- Ensure “an equitable opportunity to participate in, and benefit from, energy transformation projects regardless of rate class, income level, or provider service territory.”

Annual Planning and Evaluation

In 2016, the Public Utility Commission ruled that Tier III annual plans must include a description of the estimated Tier III compliance obligation for the following year and a description of the overall implementation strategy.

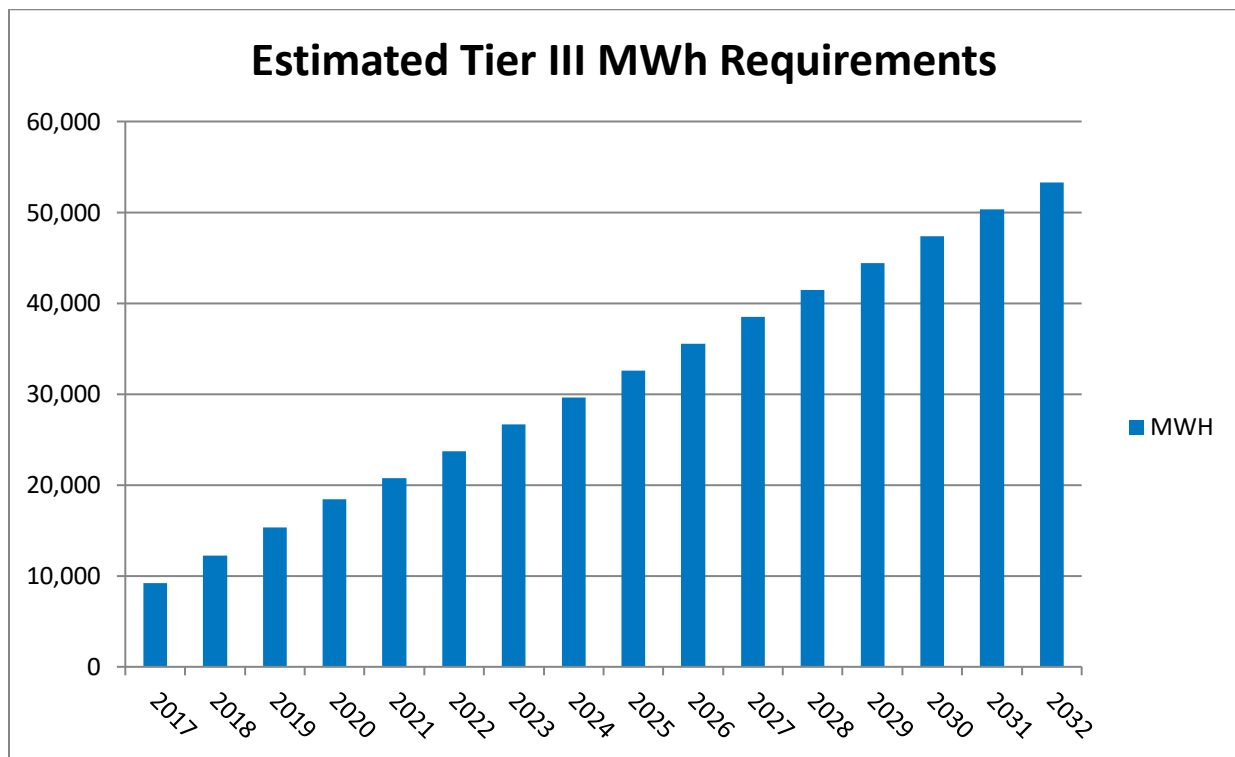
For energy transformation projects, the submitted plan must describe the project and include:

- Anticipated number of participants;
- Any collaborative efforts, or an explanation of why it is more cost-effective for the utility to work alone, or that there is no other entity with the capability to deliver the goods or services;
- Description of how all ratepayers will have an equitable opportunity to participate in and benefit from energy transformation projects regardless of rate class or income level;

- Description of the estimated electric impact of such measures and the demand management best practices that will be incorporated;
- How the technologies are appropriate for Vermont;
- How the installation of the technologies in buildings that meet minimum energy performance standards will be encouraged;
- Least-cost alternatives that do not increase electricity consumption that were analyzed;
- Methodology for allocating project costs and savings if services are shared between partners.

VEC’s Tier III Targets

We estimate that our 2022 Tier III requirement will be 24,072 MWh. Over time this requirement will continue to increase. The targets set in statute are aggressive and could be difficult to meet with existing technologies and without imposing excessive costs on ratepayers.



Components of VEC’s 2022 Tier III Program

VEC’s 2022 Tier III plan is organized into the following sections: the Clean Air Program, thermal, transportation, tools and equipment, storage and demand control, and complementary systems and services.

The Clean Air Program

VEC's Clean Air Program (CAP) offers customized opportunities to members with off-grid or underserved homes or businesses to replace fossil fuel usage with electricity. These opportunities may include service upgrades or line extensions, the costs of which are shared between the utility and the member through customized agreements. Each project is a custom measure with unique fuel savings estimates and Tier III credit. In August 2019, the Commission approved a tariff that VEC can use to determine eligibility for a custom CAP incentive. This tariff has replaced the previous process of applying for a special contract.

VEC's service territory includes many maple syrup producers who collect and process their sap off-grid using diesel, oil, or propane generators. Before CAP, the cost of extending electric service to their seasonal sugaring operations was prohibitive in many cases. With these custom agreements, many businesses are now able to connect to electric service, which saves them time, money, and thousands of gallons of fossil fuel each year.

In VEC's rural service territory, we have found ample opportunity to replace existing fossil-fuel generators with new electric service or service upgrades. As members have become aware of the opportunity through outreach and word of mouth, we have also been able to prevent members from purchasing a generator and have worked with them on discounted line extensions as a cleaner alternative. About 25 projects have been completed to date, which have included several sugaring operations, a sawmill, a gravel company, a cheese maker, a greenhouse, and an asphalt producer.

When screening CAP projects, VEC requires fuel receipts (in the case of an existing generator), estimates the additional electric load, and completes a cost estimate. In the case of a project that currently does not have a generator (e.g. a new sugarbush), we estimate what the consumption would have been based on the projected power requirements of the operation.

The screening criteria include:

- Must provide Tier III credits
- Must pass the "but for" test (i.e. the project would not have been done but for VEC's contribution and outreach)
- No adverse impact to grid (i.e. will not add load in areas where the grid cannot handle it)
- Load profile – annual, monthly, and daily – and demand response potential
- Net present value (NPV) payback period of less than 7 years
- No adverse effect on the current year capital budget or future operations and maintenance budgets

For every CAP project that comes to fruition, VEC's team evaluates several potential projects that do not move forward. In some cases, the project does not meet VEC's criteria; in other cases, the member decides not to pursue the project. CAP projects take time and effort to develop. However, when both VEC and the member determine that the project is worth pursuing, the benefits are immense.

Most CAP project MWh saving assumptions are based on a 30-year project life because these projects provide permanent infrastructure to serve an existing home or business. The project participants are generally paying about 75 percent of the total project cost, a significant investment that demonstrates a commitment to continued use of the electric service. We will continue to evaluate each CAP proposal to determine an incentive level that provides positive rate impacts for the overall VEC membership.

For each CAP project, VEC is working with Efficiency Vermont to identify efficiency opportunities. When Efficiency Vermont and VEC incentives overlap, VEC has worked with Efficiency Vermont to negotiate savings claims to avoid double-counting.

VEC continues to be excited about CAP opportunities. These projects provide large fossil fuel reductions, offer service to members that had previously found the investment cost-prohibitive, and increase electric sales so that the benefit accrues to all members. CAP projects pay back in fewer than seven years, while the benefits last for the life of the infrastructure.

Program	Clean Air Program
Objective	Discounted line extensions and service upgrades that offset use of fossil fuels
Number of participants	Unknown; we evaluate these projects on an ongoing basis
Lifetime MWh credit	Varies
Partners	Efficiency Vermont
Additional kWh	Varies
Incentive	Varies, historically about 25% of the total cost
Total budget	\$150,000
Best practices	Evaluate projects for DR potential, impact on the grid, potential for increased sales, and Tier III savings. Efficiency Vermont will discuss efficiency opportunities with the participant.
Appropriate for VT	Yes
Min Building Standards	N/A
Equitable opportunity - customer class	Yes
Equitable opportunity - low-income	Yes

Thermal

As identified in Vermont’s 2016 Comprehensive Energy Plan (CEP), 30 percent of Vermont’s total energy consumption is a result of heating. In order to tackle Vermont’s ambitious energy goals, we must transform the way we heat our buildings. The CEP states that 20 percent of heating in Vermont is currently from renewable sources and sets a goal of increasing that share to 30 percent by 2025.

Since 2017, we have offered a ductless heat pump bill credit in conjunction with Efficiency Vermont’s upstream incentive. In 2018, we added an incentive for installation of new pellet stoves and heat pump water heaters. In 2019, we added an incentive for Zero-Energy Modular (ZEM) homes. In 2020, we partnered with Efficiency Vermont to provide incentives for whole building centrally ducted and air-to-water heat pump systems, and have participated in the ground source heat pump program through Efficiency Vermont since July 1, 2021.

Ductless Heat Pumps

# of units	Per unit MWh	Total MWh	% of 2022 goal
400	29*	11,600*	48%
20 w/Wx bonus	6*	120*	<1%
12 w/controls	20*	480*	1%
18 for LMI	29*	522*	2%

** This number represents an average of the credit for CCHPs of different sizes.*

The CEP set an ambitious goal of installing 35,000 ductless heat pumps statewide by 2025. Because VEC’s current electric portfolio will be 100 percent carbon-free by 2023, heat pumps offer an attractive solution from a carbon emissions perspective. However, VEC is aware that their economics and efficacy are highly sensitive to fuel prices, appropriate sizing and placement, and user behavior. VEC promotes messaging from Efficiency Vermont to help members understand the factors they should consider when deciding whether a heat pump is right for their property and needs.

Starting in 2021, VEC has partnered with Efficiency Vermont to offer a single mid-stream incentive, which is deducted from the cost of the installation. This change has streamlined a program that matured considerably over the past few years. VEC will continue to pay \$250 of the incentive administered by Efficiency Vermont per ductless heat pump.

VEC will continue offering a \$150 bonus per outdoor unit if the heat pump is installed in a building that meets one of the thermal efficiency criteria that the Department of Public Service has identified. To receive the VEC bill credit, members fill out a short form that identifies information required for Tier III compliance and submit that along with a proof of installation as well as any additional paperwork for demonstrate that the building meets thermal efficiency standards.

VEC is partnering with Efficiency Vermont on two new ductless heat pump initiatives: controls and low-income installations. The controls program will be available for new installations and will be limited to 100 statewide, with VEC’s estimated share being 12. VEC will contribute \$400 to the cost of the incentive. The purpose of the control is to maximize the efficiency of the heat pump’s operation in conjunction with the base heating system of the home and increase the hours that the heat pump operates.

Another targeted heat pump program will be for members who qualify for free weatherization services. This program is being proposed by Efficiency Vermont under Act 151. The cost of these heat pump installations would be shared between VEC and Efficiency Vermont. The purpose of the program is to provide services to a segment of the market that has been difficult to reach and install heat pumps in buildings that meet thermal efficiency standards.

Program	Ductless Heat Pumps
Objective	Promote ductless HPs to displace fossil fuel heating.
Number of participants	400
Lifetime MWh credit	29 expected on average
Partners	Efficiency Vermont
Additional kWh	1,200 – 7,200
Incentive	\$250 midstream discount; \$150 thermal efficiency bonus; \$400 for controls; \$1,750 for LMI installations
Total budget	\$139,300
Best practices	Participants will be informed about VEC's TOU rate and the benefits of weatherization; thermal efficiency bonus
Appropriate for VT	Yes
Min Building Standards	Thermal efficiency bonus; participants will be given information about the benefits of weatherization.
Equitable opportunity - customer class	Yes
Equitable opportunity - low-income	Yes

Pellet Stoves

# of units	Per unit MWh	Total MWh	% of 2022 goal
30	65*	1,950	8%

Like cold climate heat pumps, pellet stoves are an important heating option for homeowners who would like to reduce the amount of fuel oil or propane they use. VEC will continue offering a pellet stove bill credit of \$150 in 2022. To qualify, models must meet the emissions standards set forth by the Technical Advisory Group (< 2 g/hr of PM²) and directly offset a fossil-fuel heating system. We will also offer a \$150 bonus if the pellet stove is installed in a building that meets one of the Department's thermal efficiency criteria.

Program	Pellet stoves
Objective	Provide an incentive for pellet stoves installed in VEC homes and businesses to displace fossil fuel heating.
Number of participants	30
Lifetime MWh credit	65 expected on average

Partners	Pellet stove distributors, Efficiency Vermont
Additional kWh	1,000
Incentive	\$150 bill credit; \$150 bonus for thermal efficiency
Total budget	\$4,500
Best practices	Participants will be informed about VEC's TOU rate, weatherization programs; thermal efficiency bonus
Appropriate for VT	Yes
Min Building Standards	\$150 bonus for thermal efficiency; participants will be given information about the benefits of weatherization.
Equitable opportunity - customer class	Yes
Equitable opportunity - low-income	Yes

Heat Pump Water Heaters

# of units	Per unit MWh	Total MWh	% of 2022 goal
60	10*	600	2%

*VEC's anticipated share of the Tier III credit after credit-sharing with Efficiency Vermont.

Starting in 2022, VEC will partner with Efficiency Vermont to offer a single incentive for heat pump water heaters. For installations that displace fossil fuels, VEC will pay 50 percent of the incentive and claim 50 percent of the savings.

Program	Heat Pump Water Heaters
Objective	Provide an incentive for HPWHs in VEC homes and businesses to displace fossil-fuel water heating
Number of participants	60
Lifetime MWh credit	4
Partners	Efficiency Vermont
Additional kWh	1,300
Incentive	\$325
Total budget	\$19,500
Best practices	Participants will be informed about VEC's TOU rate
Appropriate for VT	Yes
Min Building Standards	N/A
Equitable opportunity - customer class	Yes
Equitable opportunity - low-income	Yes

Whole Building Heat Pumps

Type	# of units	Per unit MWh	Total MWh	% of 2022 goal
Centrally Ducted	50	110	5,500	23%
Air to Water	2	140	280	1%
Ground Source	2	260	520	2%

Incentives for centrally ducted and air-to-water heat pumps were new in 2020, and a ground source heat pump program followed in July of 2021. The incentives are delivered in through Efficiency Vermont. These systems are more comprehensive, complex and expensive than cold climate heat pumps, and we are working with Efficiency Vermont to support their program delivery as they work to educate contractors on identifying good applications for these systems.

Program	Centrally ducted heat pumps
Objective	Support EVT's work to develop and promote this technology
Number of participants	50
Lifetime MWh credit	110 on average
Partners	Efficiency Vermont
Additional kWh	6,800
Incentive	\$1,200
Total budget	\$60,000
Best practices	Participants will be informed about VEC's TOU rate and the benefits of weatherization
Appropriate for VT	Yes
Min Building Standards	Participants will be informed about the benefits of weatherization and existing weatherization incentives
Equitable opportunity - customer class	Yes
Equitable opportunity - low-income	Yes

Program	Air to water heat pumps
Objective	Support EVT's work to develop and promote this technology
Number of participants	2
Lifetime MWh credit	140 on average
Partners	Efficiency Vermont
Additional kWh	6,800
Incentive	\$2,000
Total budget	\$4,000
Best practices	Participants will be informed about VEC's TOU rate and the benefits of weatherization
Appropriate for VT	Yes

Min Building Standards	Participants will be informed about the benefits of weatherization and existing weatherization incentives
Equitable opportunity - customer class	Yes
Equitable opportunity - low-income	Yes

Program	Ground Source heat pumps
Objective	Support EVT's work to develop and promote this technology
Number of participants	2
Lifetime MWh credit	260 on average
Partners	Efficiency Vermont
Additional kWh	8,000
Incentive	\$7,200
Total budget	\$14,400
Best practices	Participants will be informed about VEC's TOU rate and the benefits of weatherization
Appropriate for VT	Yes
Min Building Standards	Participants will be informed about the benefits of weatherization and existing weatherization incentives
Equitable opportunity - customer class	Yes
Equitable opportunity - low-income	Yes

Heat Pump Pool Heater

# of units	Per unit MWh	Total MWh	% of 2022 goal
10	183	1,830	8%

In 2022, VEC is adding a heat pump pool heater program to support members in installing a heat pump pool heater rather than a propane pool heater. This measure was characterized by the TAG in 2021.

Program	Heat pump pool heater
Objective	Displace propane pool pumps
Number of participants	10
Lifetime MWh credit	183
Partners	Efficiency Vermont, suppliers
Additional kWh	17,000
Incentive	\$600
Total budget	\$6,000
Best practices	Participants will be informed about VEC's TOU rate

Appropriate for VT	Yes
Min Building Standards	N/A
Equitable opportunity - customer class	This is a residential measure
Equitable opportunity - low-income	Not likely to have low-income uptake

Zero Energy Modular (ZEM) Homes

# of units	Per unit MWh	Total MWh	% of 2022 goal
1	custom	custom	unknown

VEC will continue to offer a \$500 credit per home to support the ZEM program and help the homeowner overcome the initial electrical costs, which include some upfront fees for net metering. The Tier III credit will be determined on a custom basis.

ZEM homes are a high-quality alternative to traditional manufactured housing. They are more expensive to purchase, but the operating costs are extremely low by comparison. The quality of the building materials and design facilitates a much healthier and more comfortable experience than that of traditional manufactured housing. Unlike most manufactured housing, ZEM homes are designed specifically for colder climates. Currently, the company manufacturing them is Vermod in Wilder, Vermont. ZEM homes are entirely electric. The tight building envelope allows them to heat with CCHPs, and they come with a HPWH. Despite their reliance on electricity for thermal load, solar panels on the roof ensure that the electric costs are minimal.

Program	ZEM Home
Objective	Support Efficiency Vermont's work to develop and promote this program
Number of participants	1
Lifetime MWh credit	Custom
Partners	Efficiency Vermont
Additional kWh	Custom
Incentive	\$500
Total budget	\$500
Best practices	Participants will be informed about VEC's TOU rate
Appropriate for VT	Yes
Min Building Standards	Yes
Equitable opportunity - customer class	This is a residential measure
Equitable opportunity - low-income	Yes

Transportation

According to the CEP, nearly half of Vermont’s greenhouse gas emissions are the result of transportation. Vermont cannot meet its greenhouse gas reduction goals without electrifying the transportation sector.

The appetite for electric vehicles continues to grow as the technology improves, costs come down, and infrastructure expands. In 2022, VEC will maintain the existing bill credits for all-electric vehicles (AEVs), plug-in hybrid electric vehicles (PHEVs), public/multifamily/workplace charging stations, and home charging stations.

Electric Vehicles

Vehicle type	# of units	Per unit MWh	Total MWh	% of 2022 goal
AEV	40	35	1,400	6%
PHEV	40	26	1,040	4%

Since 2017, VEC has offered a bill credit for all-electric and plug-in hybrid electric vehicles, used or new, purchased or leased. To date, 281 VEC members have taken advantage of these incentives. The incentive for an AEV is \$500 for a purchase and \$100/year for a lease. The incentive for a PHEV is \$250 for a purchase and \$50/year for a lease. We will continue promoting the incentives directly to members. VEC will also continue to help implement the statewide EV incentive program. VEC has added a \$250 bonus for members who qualify for the state incentive at the weatherization-eligible level.

Program	Electric Vehicles
Objective	Encourage deployment of EVs
Number of participants	40 AEVs, 40 PHEVs
Lifetime MWh credit	35 for new AEVs, 26 for new PHEVs 18 for used AEVs, 13 for used PHEVs
Partners	Car dealerships, Drive Electric Vermont, VTrans
Additional kWh	2,800 for AEVs; 1,700 for PHEVs
Incentive	\$500 for AEV purchase; \$100/year for AEV lease \$250 for PHEV purchase; \$50/year for PHEV lease \$250 bonus for weatherization-eligible LMI
Total budget	\$30,000
Best practices	Participants will be informed about VEC's TOU rate; members can enroll their L2 chargers in a communications platform to avoid peak times
Appropriate for VT	Yes
Min Building Standards	N/A
Equitable opportunity - customer class	Yes
Equitable opportunity - low-income	Yes, leased and used vehicles are included, income-eligible adder

Home Level II Charger Program

# of units	Per unit MWh	Total MWh	% of 2022 goal
30	2	60	<1%

VEC is offering a \$250 bill credit for the purchase of a Level II electric vehicle charger. This incentive is designed to help members purchase and install a Level II charger and avoid charging at times when electricity costs are highest. To participate in the program, members must commit to avoiding charging from 5-9 pm Monday through Friday or enroll their charger in VEC's communications platform, which asks the charger not to charge when peak demand is expected. Enrollment is optional, and participants can opt out of events when necessary. Participants receive another \$50 bill credit when they sign up and \$8/month for every month when they do not opt out of a peak event.

Program	Home Level II Charger
Objective	Enable connected and responsive home charging
Number of participants	30
Lifetime MWh credit	2 when enrolled in communications platform
Partners	Packetized, Virtual Peaker, charger manufacturers
Additional kWh	N/A, same as vehicle incentive
Incentive	\$250 bill credit
Total budget	\$9,000
Best practices	Participants will avoid charging M-F, 5-9 pm or enroll in the communications platform
Appropriate for VT	Yes
Min Building Standards	N/A
Equitable opportunity - customer class	Specific to residential
Equitable opportunity - low-income	Yes

Public/Multifamily/Workplace Charging Stations

# of units	Per unit MWh	Total MWh	% of 2022 goal
4	20	80	<1%

We will continue to offer an incentive of \$500 per head for public/multifamily/workplace chargers, Level II and up to help expand charging infrastructure in our service territory.

Program	Public Charging Stations
Objective	Enable public charging
Number of participants	4
Lifetime MWh credit	20
Partners	Businesses, municipalities
Additional kWh	1,500

Incentive	\$500 per head
Total budget	\$2,000
Best practices	Participants will be informed about VEC's TOU rate
Appropriate for VT	Yes
Min Building Standards	N/A
Equitable opportunity - customer class	Yes
Equitable opportunity - low-income	Yes

Tools and Equipment

Electric forklifts

# of units	Per unit MWh	Total MWh	% of 2022 goal
1	104	104	<1%

To expand opportunities for commercial and industrial members to participate in VEC's Energy Transformation Program, we began offering an incentive for electric forklifts in 2019. We will continue offering an incentive of \$1,000 for the purchase of a new or used electric forklift that directly replaces an existing fossil fuel forklift or for new applications.

Program	Electric forklifts
Objective	Promote the adoption of electric forklifts in VEC's service territory
Number of participants	1
Lifetime MWh credit	104 for new, 51 for used
Partners	Forklift dealers and C&I members
Additional kWh	14,000
Incentive	\$1,000 per forklift
Total budget	\$1,000
Best practices	VEC will work with participants to recommend the optimal charging schedule for demand charges as well as peak
Appropriate for VT	Yes
Min Building Standards	N/A
Equitable opportunity - customer class	Specific to C&I
Equitable opportunity - low-income	Specific to C&I

Electric Lawn Mowers – Commercial and Residential

Type	# of units	Per unit MWh	Total MWh	% of 2022 goal
Residential	40	2	80	<1%
Commercial	1	70	70	<1%

In May 2019, VEC began offering incentives for both commercial and residential electric lawn mowers. The amount is \$1,000 for commercial and \$50 for residential. The larger incentive is available for specific models of commercial lawn mowers for use by a lawn care business, state agency, or institution with a campus such as a hospital or university. Other users are considered on a case-by-case basis. The residential incentive is available for a new, corded or cordless mower.

Program	Lawn Mowers – Commercial and Residential
Objective	Promote the use of electric mowers to displace fossil fuels
Number of participants	1 commercial, 40 residential
Lifetime MWh credit	70 for commercial, 2 for residential
Partners	Local suppliers
Additional kWh	9,500 for commercial, 200 for residential
Incentive	\$1,000 for commercial, \$50 for residential
Total budget	\$3,000
Best practices	Participants will be informed about VEC's TOU rate
Appropriate for VT	Yes
Min Building Standards	N/A
Equitable opportunity - customer class	Yes
Equitable opportunity - low-income	Yes

ChargelUp Raffle Program

In the summer of 2020, VEC launched the “ChargelUp” program to highlight the improving technology found in lower-cost electric/battery powered devices on the market. Members who own these types of devices send us a picture for a chance to win a \$100 bill credit in a monthly drawing. Eligible products are electric/battery powered devices for which a fossil-fuel powered alternative is commonly available in the marketplace. The objective of the program is to promote electrification and gather on the ground information about emerging technologies. Submissions have included yard care equipment, recreational vehicles, and cooking and other appliances.

Products for which VEC already offers an Energy Transformation Program incentive are not eligible, and VEC does not plan to claim any Tier III credit for this program.

Storage and Demand Management

Home Level II Charger Controls

This program is described under transportation measures.

Home Battery

# of units	Per unit MWh	Total MWh	% of 2022 goal
30	9	270	1%

VEC plans to offer a residential battery storage program in late 2020 or early 2022. Members who purchase or already own a grid-connected home battery can sign up to receive either an upfront incentive or a monthly credit from VEC if they enroll in a communications platform to share access with VEC.

Program	Controllable Residential Storage
Objective	Reduce load during peak times
Number of participants	30
Lifetime MWh credit	9 MWh
Partners	Virtual Peaker, Packetized
Additional kWh	none
Incentive	\$6.40/kW per month
Total budget	\$11,520 annually
Best practices	This technology is a best practice.
Appropriate for VT	Yes
Min Building Standards	N/A
Equitable opportunity - customer class	Yes
Equitable opportunity - low-income	Yes

Tier III Program Summary

(See Attachment A for a more detailed summary table)

Technology	# Units	Per unit		Incentive	Program wide		
		MWh	Measure Life		MWh	% Req	Budget
CAP	TBD	TBD	TBD	TBD	TBD	TBD	\$150,000
Thermal							
Ductless HP	400	29	15	\$250	11,600	48%	\$100,000
LMI Ductless HP	18	29	15	\$1,750	522	2%	\$31,500
HP controls	12	29	15	\$400	348	1%	\$4,800
Pellet Stove	30	65	12	\$150	1,950	8%	\$4,500
Weatherization adder	20	8		\$150	160	1%	\$3,000
HP water heater	60	10	13	\$325	600	2%	\$19,500
HP pool heater	10	183	5	\$600	1,830	8%	\$6,000
Centrally Ducted HP	50	110	18	\$1,200	5,500	23%	\$60,000
A2W Heat Pump	2	140	18	\$2,000	280	1%	\$4,000
Ground source HP	2	260	30	\$7,200	520	2%	\$14,400
Transportation							
Electric vehicle	40	35	8	\$500	1,400	6%	\$22,000
Plug-in hybrid EV	40	26	8	\$250	1,040	4%	\$12,000
L2 Charger	30	2	10	\$300	60	0%	\$9,000
Public charging station	4	20	10	\$500	80	0%	\$2,000
Tools and Equipment							
Residential lawnmower	40	2	7	\$50	80	0%	\$2,000
Commercial lawnmower	1	76	7	\$1,000	76	0%	\$1,000
Electric forklifts	1	110	8	\$1,000	110	0%	\$1,000
Storage/Demand Management							
Home batteries	30	9	10	\$384	270	1%	\$11,520
TOTAL	790				26,426	109%	\$458,220

Tier III Savings Projections

	MWh
Current bank (expected)	23,750
2022 estimated savings	26,426
2022 requirement	24,072
Excess	26,104

Complementary Systems and Services

Time of Use (TOU) Rates

TOU rates can be an effective tool for shifting load and giving members more control over their usage and monthly electric bill. Since January 1, 2017 VEC has offered a pilot TOU rate available for both residential and small commercial members who participate in the Tier III program. As of October 1, 2017, we also have a pilot TOU rate available for larger commercial members participating in Tier III initiatives.

These pilot rates are optional rather than mandatory so that members who may not want to be charged a TOU rate are not discouraged from participating in the Tier III program. Currently, five large commercial, four small commercial, and 30 residential members have opted to participate in the pilot TOU rate.

Methodology for Sharing Savings with Efficiency Vermont

For any measure where both VEC and Efficiency Vermont are contributing an incentive, we will split the savings according to how much money was contributed by each partner. VEC expects to share savings for heat pump water heaters, air to water heat pumps and possibly pellet stoves. We will send a copy of our 2022 Memorandum of Understanding with Efficiency Vermont to DPS once it is finalized.

Strategies for Customer Education, Outreach, and Marketing

We will utilize the following tools to promote our Tier III incentives, which we call the Energy Transformation Program:

- Direct emails to approximately 19,000 email contacts
- An article in each issue of VEC's quarterly newsletter Co-op Life, which is sent directly to all VEC members
- Social media promotion through Facebook, Twitter and Instagram
- Press releases at the beginning of the year and when a new incentive is offered
- Events (virtual and possibly in-person) such as VEC's Annual Meeting of the Members, farmers' markets, town energy committees, and energy fairs

VEC coordinates with Efficiency Vermont on customer education for many of the prescriptive measures. VEC members with detailed questions are often connected with Efficiency Vermont's customer support team. We also provide links to information from Efficiency Vermont, Drive Electric Vermont and the Department of Energy on the Energy Transformation page of our website.

Load Forecast

The load forecast that VEC detailed in its 2019 Integrated Resource Plan (IRP) has not changed substantially. VEC anticipates sales increasing as a result of Tier III investments and decreasing as a result of net metering. The net effect is expected to be flat sales through 2038. This analysis is detailed in the Power Supply section of VEC's IRP, which can be found at <https://vermontelectric.coop/electric-system/integrated-resource-plan>.

Equitable Opportunity by Customer Class

VEC satisfies this requirement by offering a variety of prescriptive measures geared towards both residential and commercial members, as well as custom opportunities that are based on the amount of fossil fuel that can be saved and have typically applied to the commercial/industrial sector.

VEC's 2020 breakdown of sales was as follows:

Sector	kWh sales	%
Commercial & Industrial	116,577,767	25.72%
Residential	336,722,141	74.28%
Total	453,299,908	

Alternatives That Do Not Increase Electric Consumption

Under the RES rule, utilities are required to evaluate any available alternatives that do not increase electric consumption. In most cases, the only alternative is efficiency measures, which are already offered under Efficiency Vermont programs. The other alternatives are fossil fuel based, which Tier III is directly tasked with reducing,

The non-electric alternatives are listed below for each VEC Tier III program:

- CAP Projects – status quo fossil fuel usage, efficiency measures
- Heat pumps for space heating – fossil fuel heating system, advanced wood heating system (pellet stove incentive offered), efficiency measures
- Pellet stove – heat pumps, fossil fuel heating system, other advanced wood systems, efficiency measures
- Heat pump water heater – fossil fuel water heaters
- Electric vehicle – gas-powered vehicle, public transit, bicycle
- Electric lawnmower – gas-powered mower

The only possible areas where VEC could develop a Tier III program that does not increase electric usage would be for electric vehicles. However, the rural nature of VEC's service territory unfortunately does not lend itself to travel by bicycle or public transit.