

## **2023 Tier III Plan – Vermont Electric Cooperative**

### **November 1, 2022**

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.

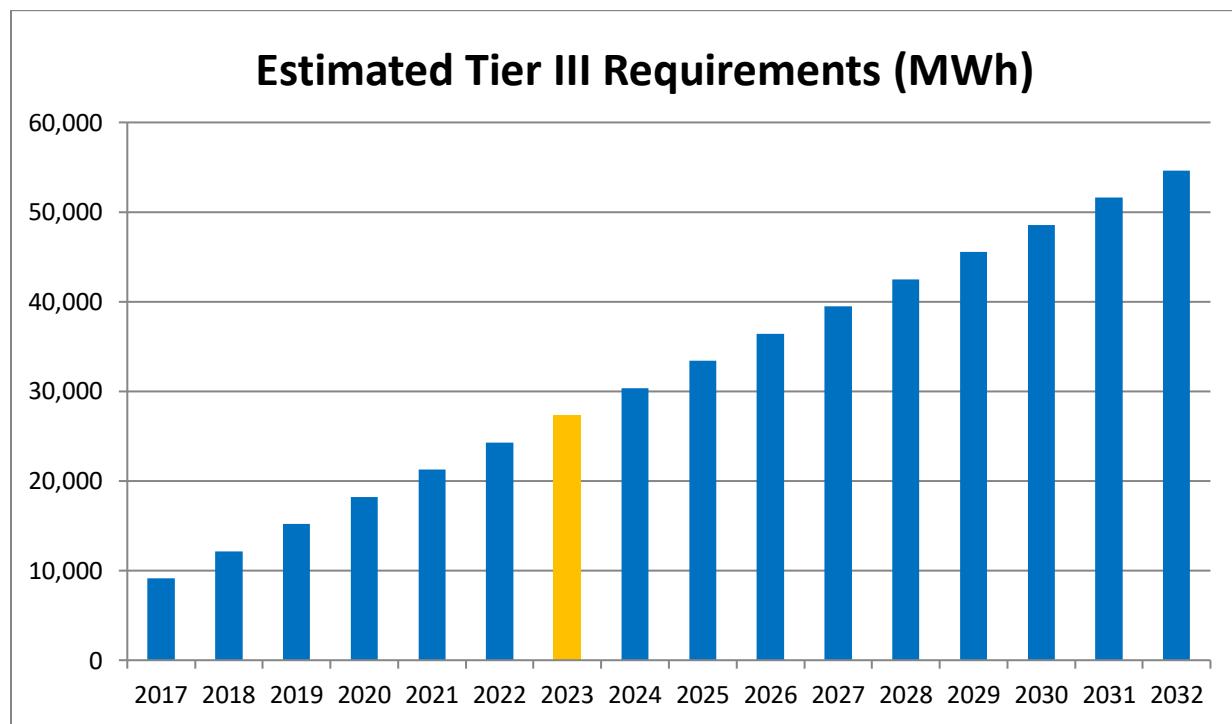
For energy transformation projects, the submitted plan must describe the project and include:

- 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 2023 Tier III requirement will be 27,324 MWh. Over time this requirement will continue to increase.



## Components of VEC's 2023 Tier III Program

VEC's 2023 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 with eligibility determined via tariff.

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 30 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

About a third 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.

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 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 2023 total
680	29*	19,720*	57%
20 w/Wx bonus	37*	740*	2%
20 for LMI	29*	580*	2%

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

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 thermal efficiency criteria identified by the Department of Public Service. 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.

In 2023, VEC will continue working with Efficiency Vermont to cover the cost of a heat pump for members who qualify for free weatherization services. 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	720
Lifetime MWh credit	29 expected on average
Partners	Efficiency Vermont
Additional kWh	1,200 – 7,000
Incentive	\$250 midstream discount; \$150 thermal efficiency bonus; \$1,000 for LMI installations
Total budget	\$198,000

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 2023 total
30	65	1,950	6%

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 2023. To qualify, models must meet the emissions standards set forth by the Technical Advisory Group (< 2 g/hr of PM<sup>2</sup>) 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	67 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 2023 total
50	10*	500	1%

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

Starting in 2022, VEC has partnered 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	50
Lifetime MWh credit	10
Partners	Efficiency Vermont
Additional kWh	1,000
Incentive	\$325
Total budget	\$16,250
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 2023 total
Centrally Ducted – commercial	10	86	860	2%
Centrally Ducted – residential	40	114	4,560	13%
Air to Water	2	157	314	1%
Ground Source	1	260	520	1%

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 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	86 average for commercial, 114 average for residential
Partners	Efficiency Vermont
Additional kWh	6,300
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	157 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	1
Lifetime MWh credit	260 on average

Partners	Efficiency Vermont
Additional kWh	8,000
Incentive	\$7,200
Total budget	\$7,200
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 2023 total
5	186	930	3%

In 2023, 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.

Program	Heat pump pool heater
Objective	Displace propane pool pumps
Number of participants	5
Lifetime MWh credit	186
Partners	Efficiency Vermont, suppliers
Additional kWh	17,000
Incentive	\$600
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	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 2023 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. 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.

Note that this is not included in the budget tables because we have not had a ZEM built in our service territory in many years, but funding will be available if a member builds one.

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 2023, 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 2023 total
AEV	50	40	2,000	6%
PHEV	50	30	1,500	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	45 AEVs, 45 PHEVs
Lifetime MWh credit	40 for new AEVs, 30 for new PHEVs 20 for used AEVs, 15 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	\$42,500
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 2023 total
25	0	0	0%
65	2	130	<1%

In 2019, VEC began offering a \$250 bill credit for the purchase of a Level II electric vehicle charger. 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.

In 2023, VEC plans to fully fund chargers that can participate in the communications platform and require enrollment in order to receive the free charger. The two manufacturers currently eligible are Chargepoint and Flo, and members will be able to choose from these two options.

VEC plans to maintain the \$250 bill credit for other models of charger, provided that they send proof of a schedule set to avoid peak charging (5-9pm Monday through Friday).

Program	Home Level II Charger
Objective	Enable connected and responsive home charging
Number of participants	90
Lifetime MWh credit	2 when enrolled in communications platform
Partners	Virtual Peaker, charger manufacturers
Additional kWh	N/A, same as vehicle incentive
Incentive	\$250 bill credit, \$750 for fully funded
Total budget	\$55,000
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 2023 total
6	50	300	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/Multifamily/Workplace Charging Stations
Objective	Enable public charging
Number of participants	6
Lifetime MWh credit	20
Partners	Businesses, municipalities
Additional kWh	3,500
Incentive	\$500 per head
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

## Tools and Equipment

### Electric forklifts

# of units	Per unit MWh	Total MWh	% of 2023 total
1	110	110	<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	110
Partners	Forklift dealers and C&I members
Additional kWh	17,000
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 2023 goal
Residential	45	1	45	<1%
Commercial	1	76	76	<1%

In 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, 45 residential
Lifetime MWh credit	76 for commercial, 1 for residential
Partners	Local suppliers
Additional kWh	3,150 for commercial, 200 for residential
Incentive	\$1,000 for commercial, \$50 for residential
Total budget	\$3,250
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

### Induction Cooktops

# of units	Per unit MWh	Total MWh	% of 2023 total
10	4	40	<1%

On September 1, 2022, VEC began offering a \$100 incentive for installed induction cooktops. Induction cooktops are an efficient electric alternative to gas cooktops. They quickly and safely cook food or boil liquids without the indoor air emissions that come with gas. This new incentive is intended to make induction cooktops more affordable for members looking to replace their current range. This incentive is aimed at residential users. We will offer a custom commercial incentive to any interested members.

Program	Installed induction cooktops
Objective	Promote the use of an efficient electric cooking appliance
Number of participants	10
Lifetime MWh credit	4
Partners	Local suppliers
Additional kWh	250
Incentive	\$100
Total budget	\$1,000
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, commercial can receive custom incentive
Equitable opportunity - low-income	Yes

### ChargeItUp Raffle Program

In the summer of 2020, VEC launched the “ChargeItUp” 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 Battery

# of units	Per unit MWh	Total MWh	% of 2023 total
30	9	270	1%

VEC began offering a residential battery storage program in late 2021. Members who purchase or already own a grid-connected home battery can sign up to receive either an upfront incentive and monthly credit or just a larger 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
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

## Home Level II Charger Controls

This program is described under transportation measures.

## 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
<b>Thermal Measures</b>							
Ductless HP	680	29	15	\$250	19,720	57%	\$170,000
Income-qualified Ductless HP	20	29	15	\$1,000	580	2%	\$20,000
Ductless HP w/thermal bonus	20	37	15	\$400	740	2%	\$8,000
Pellet Stove	30	65	12	\$150	1,950	6%	\$4,500
HP water heater	50	10	13	\$325	500	1%	\$16,250
Centrally Ducted HP - commercial	10	86	18	\$1,200	860	2%	\$12,000
Centrally Ducted HP - residential	40	114	18	\$1,200	4,560	13%	\$48,000
A2W Heat Pump	2	80	18	\$2,000	160	0%	\$4,000
Ground source HP	1	260	30	\$7,200	260	1%	\$7,200
HP pool heater	5	186	5	\$600	930	3%	\$3,000
<b>Transportation Measures</b>							
All-electric vehicle	40	40	8	\$500	1,600	5%	\$20,000
AEV income qualified	10	40	8	\$750	400	1%	\$7,500
Plug-in hybrid EV	40	30	8	\$250	1,200	3%	\$10,000
PHEV income qualified	10	30	8	\$500	300	1%	\$5,000
L2 Charger	25	0	10	\$250	0	0%	\$6,250
L2 Charger fully funded	65	2	10	\$750	130	0%	\$48,750
Public/multifamily/workplace charging station	6	50	10	\$500	300	1%	\$3,000
Transformer upgrades	20	0	25	\$1,200	0	0%	\$24,000
<b>Tools and Equipment</b>							
Residential lawnmower	45	1	7	\$50	45	0%	\$2,250
Commercial lawnmower	1	76	7	\$1,000	76	0%	\$1,000
Electric forklifts	1	110	8	\$1,000	110	0%	\$1,000
Induction cooktops	10	4	15	\$100	36	0%	\$1,000
<b>Storage/Demand Management</b>							
Home batteries	30	9	10	\$384	270	1%	\$11,520
<b>TOTAL</b>	<b>1,161</b>				<b>34,727</b>	<b>100%</b>	<b>\$584,220</b>

### **Tier III Savings Projections**

	MWh
Current bank (expected)	41,877
2023 estimated savings	34,727
2023 requirement	27,324
Excess	49,280

## **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, we have four large commercial, four small commercial, and 30 residential members have opted to participate in the pilot TOU rate.

### **Transformer Upgrades**

VEC has been covering the cost of transformer upgrades for members who need them because they participated in energy transformation programs. To date, this has been about 20 percent of members purchasing electric vehicles. If these percentages continue, nine members would need an approximately \$1,200 transformer upgrades for a total cost of \$10,800.

## **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 2023 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 25,000 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**

In its 2022 draft Integrated Resource Plan (IRP), VEC anticipates that load will remain flat until around 2029 and then will begin to climb steadily for ten years before leveling out around 2039. This steady load growth is the result of the expected acceleration of heating and transportation electrification. This analysis is detailed in 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 2021 breakdown of sales was as follows:

Sector	MWh sales	%
Commercial & Industrial	222,354	48.82%
Residential	233,047	51.18%
Total	455,401	

## **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
- Electric forklift – fossil fuel forklift
- Induction stovetop – gas stovetop

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 well to travel by bicycle or public transit.