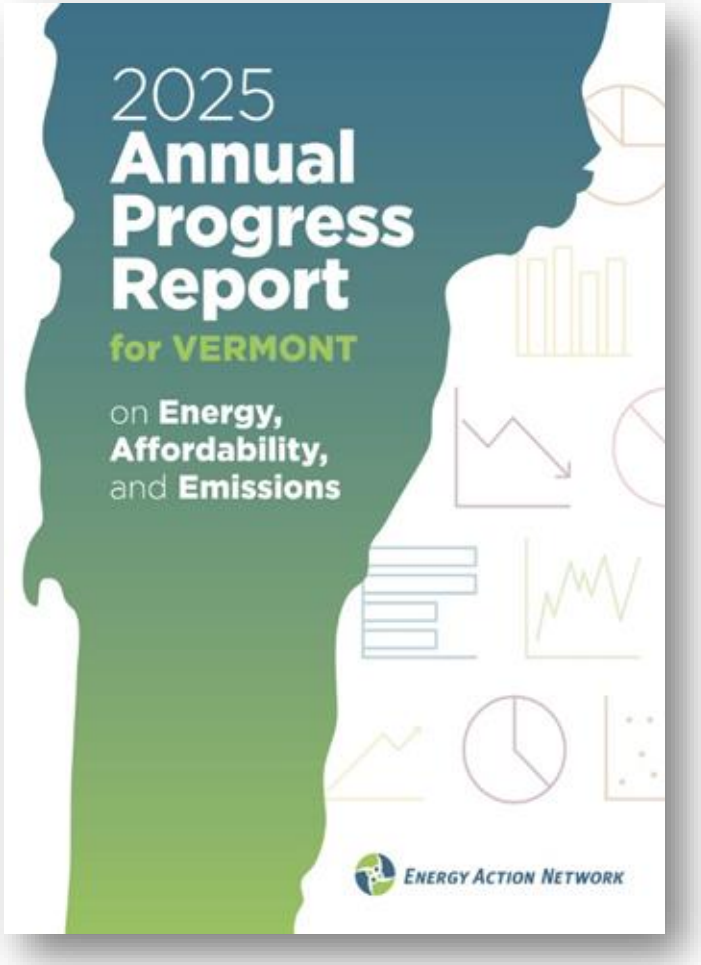
EAN's 2025

Annual Progress Report for Vermont

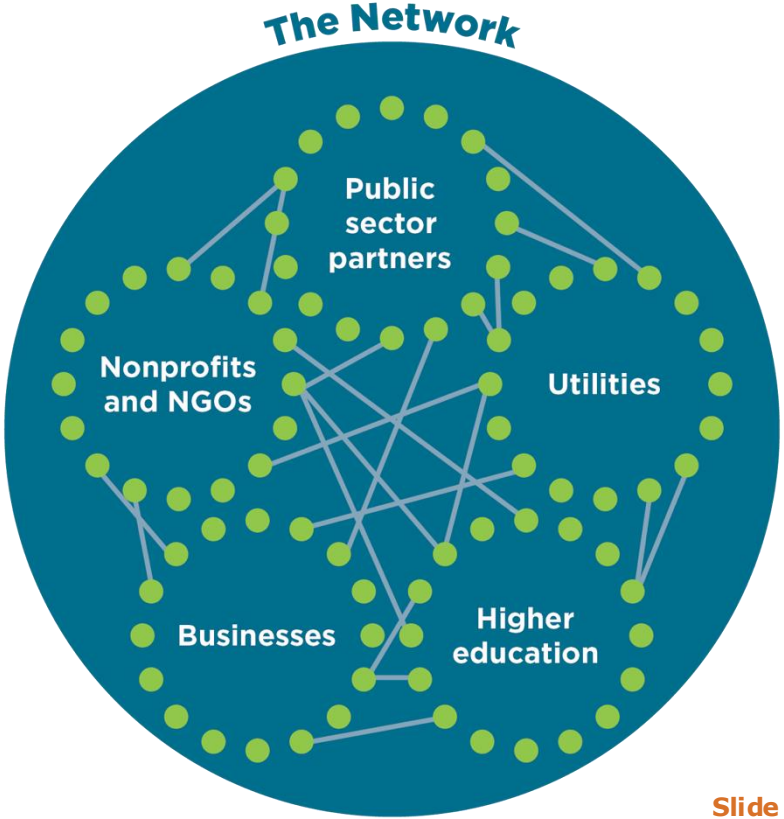
on Energy, Affordability, and Emissions



EAN is two things

EAN Network

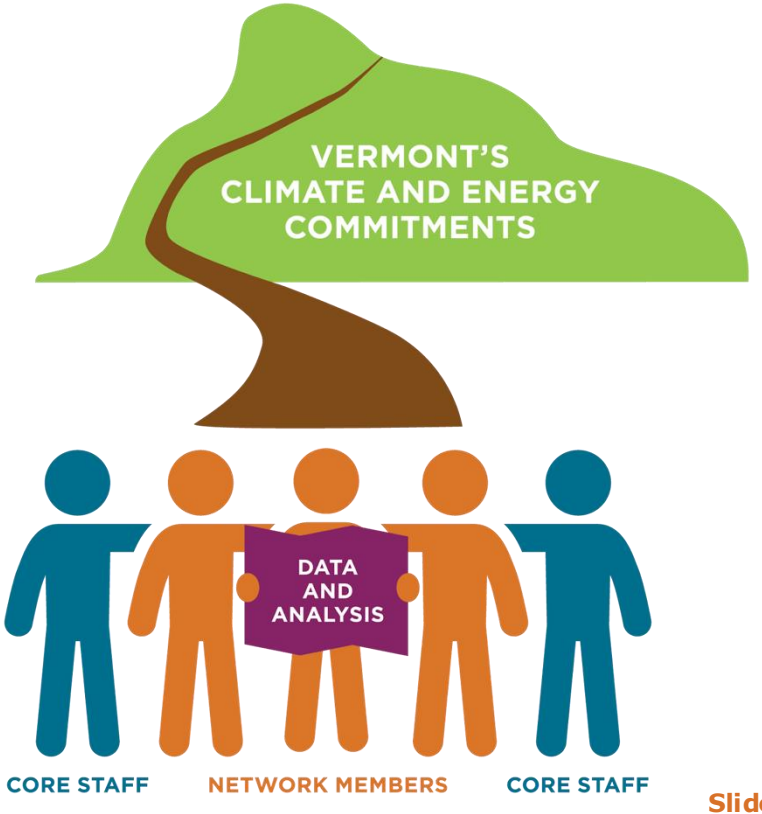
The Network's mission is to achieve Vermont's climate and energy commitments in ways that create a more just, thriving, and sustainable future.



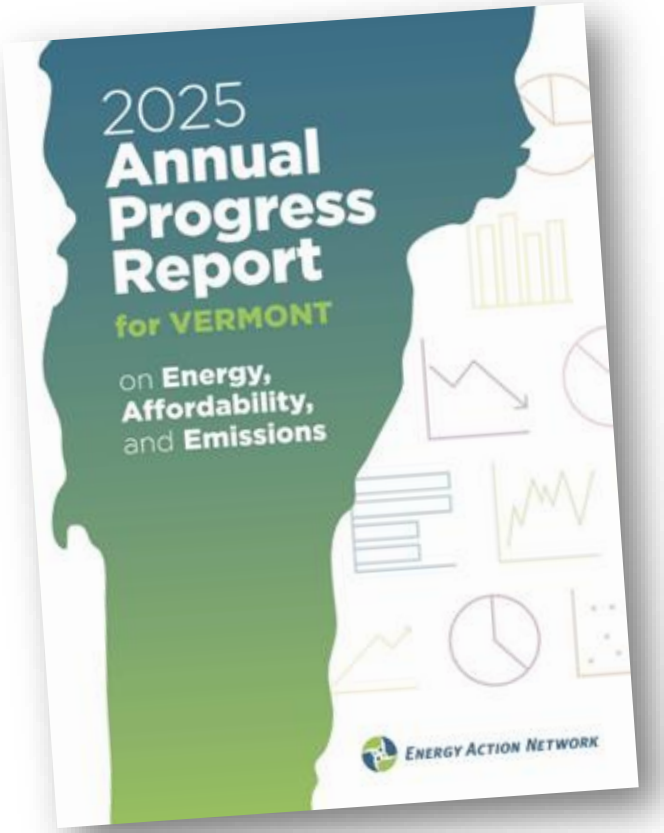
EAN is two things

EAN Organization

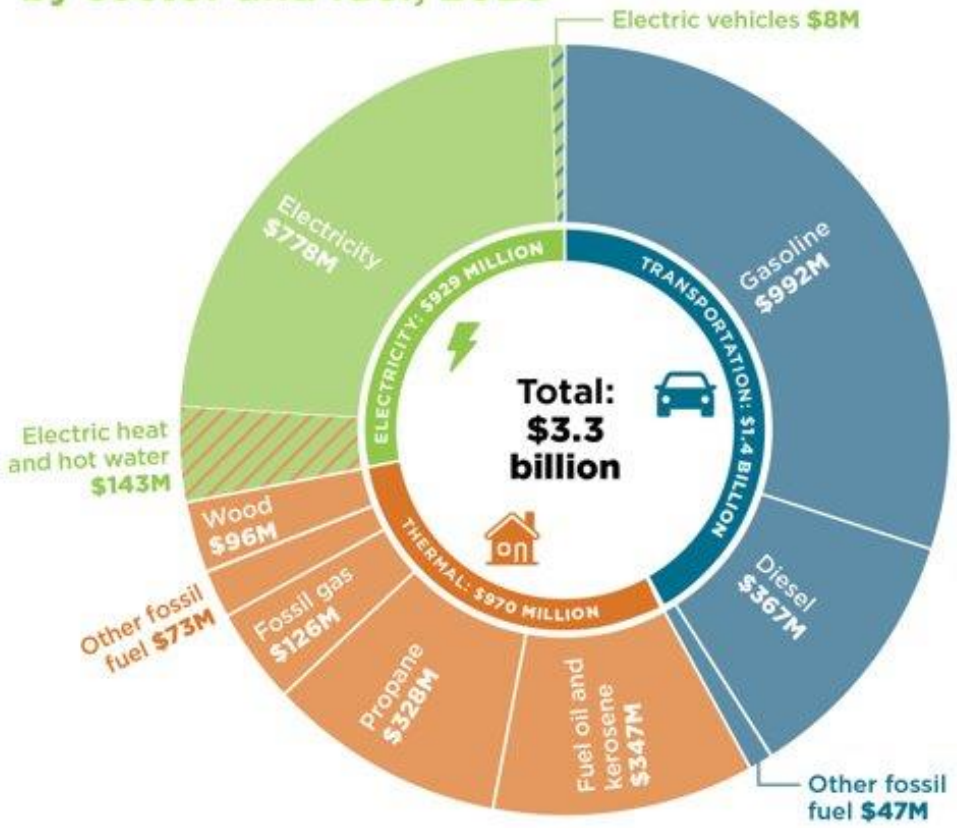
The organization's mission is to ensure that Vermont's energy and climate decisions are evidence-based, grounded in high-quality data and analysis, and collaboratively developed for effective and durable progress.



2025 Annual Progress Report for Vermont



Total Vermont energy expenditures by sector and fuel, 2023



Sources: Gasoline and diesel sales volumes from Vermont Joint Fiscal Office, 2025; fuel oil, kerosene, and propane sales volumes from Vermont Department of Taxes, 2025; fossil gas sales volumes and prices from VGS, 2025; other fuel prices from Vermont Department of Public Service and EIA; electricity expenditures from Vermont Department of Public Service; wood and other fossil fuel expenditures from EIA.

ENERGY ACTION NETWORK

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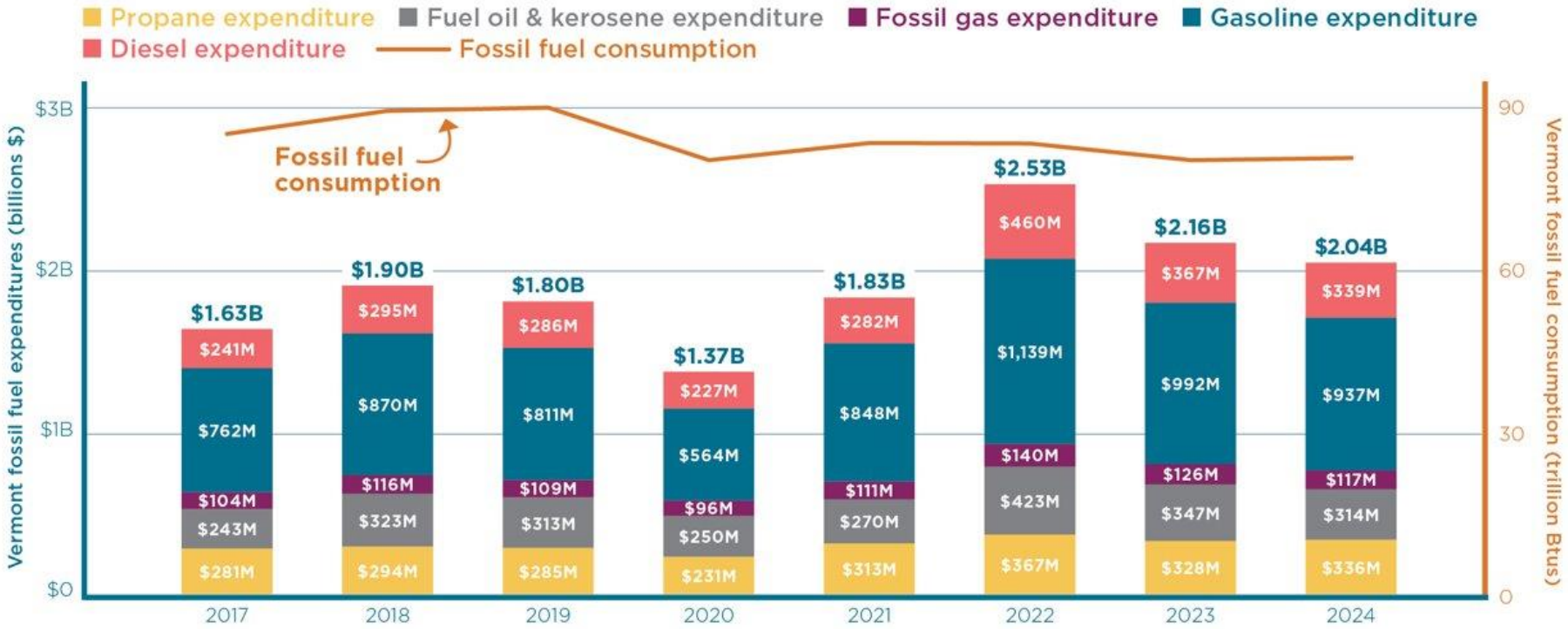
Fossil fuel price volatility has led to large cost swings for Vermont, despite relatively flat consumption



Sources: Gasoline and diesel sales volumes from Vermont Department of Taxes via the Joint Fiscal Office; fuel oil, kerosene, and propane sales volumes from Vermont Department of Taxes; fossil gas sales volumes and prices from VGS; other fuel prices from Vermont Department of Public Service and EIA. **Notes:** This estimate only includes sales of gasoline, diesel, propane, fuel oil and kerosene, and fossil gas in Vermont. It does not include sales of aviation gasoline or jet fuel from the transportation sector or of fossil fuel-based electricity generation (less than 10% of Vermont's electricity portfolio). Fossil gas is also sometimes referred to as "natural gas," "utility gas," "fossil natural gas," "pipeline gas," "fracked gas," "methane," or "gas." Prices shown are nominal and [illegible] for inflation.

ENERGY ACTION NETWORK

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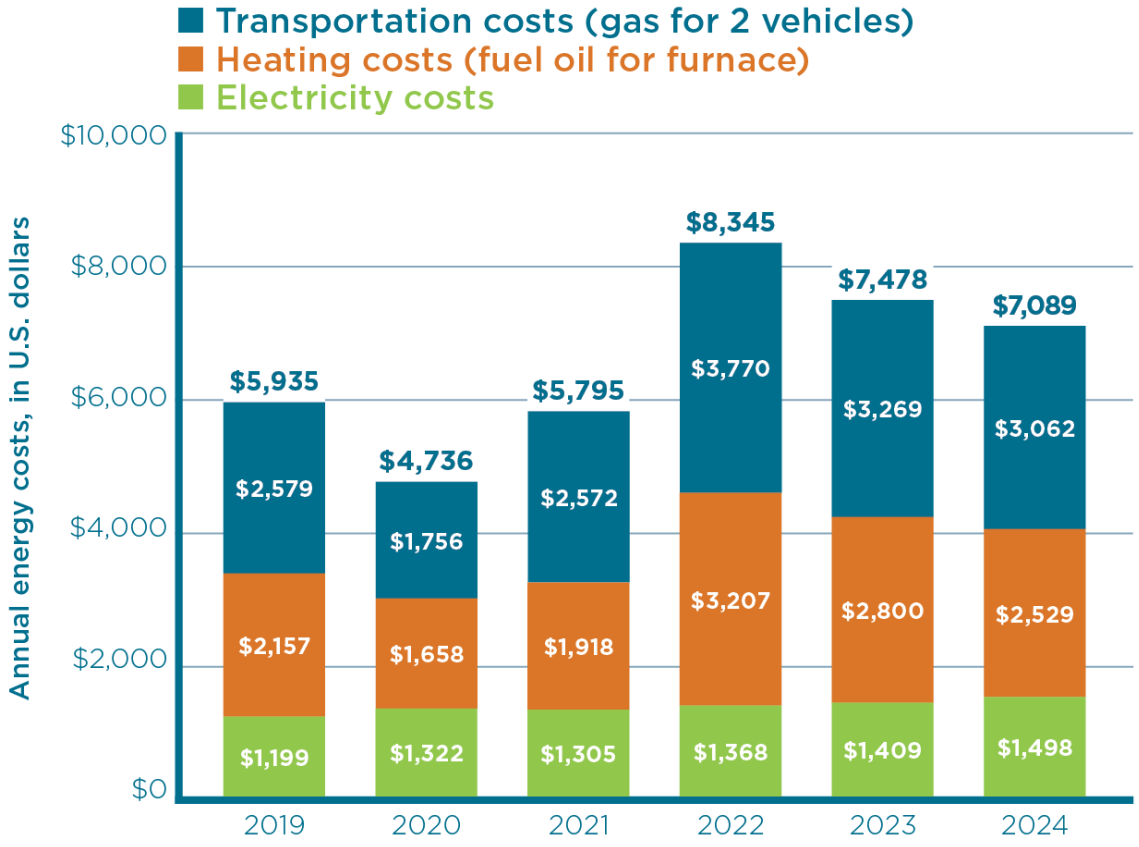
Annual energy costs for an example VT household, 2019–2024

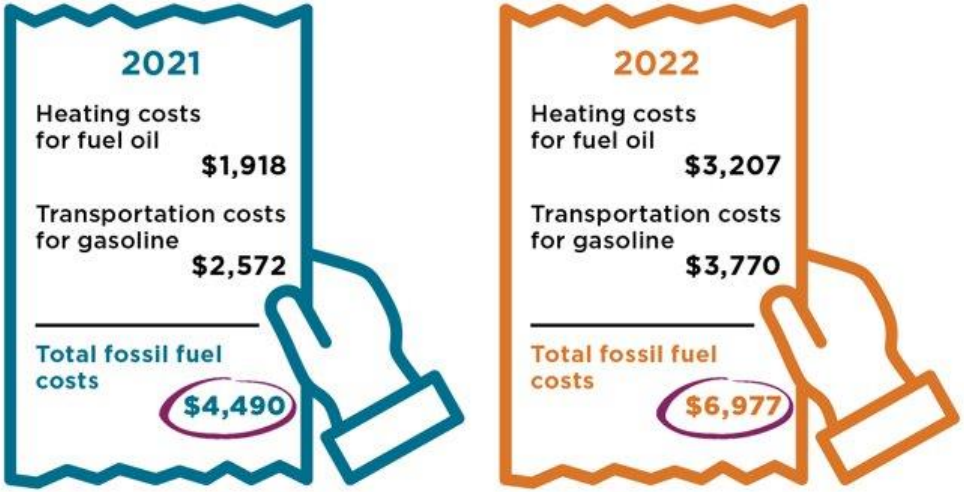


Sources: Transportation costs estimated for a household with 2 gasoline vehicles based on VT average annual VMT from the Federal Highway Administration, average MPG assumption from the 2021 Vermont Transportation Energy Profile, and average annual gasoline prices for New England from EIA. Heating costs for a fuel oil furnace estimated based on average Vermont heating load of 83 MMBtu (adjusted based on annual heating degree days), average fuel oil furnace efficiency from the Efficiency Vermont Technical Reference Manual (TRM), 2024, and average VT fuel oil prices from the Department of Public Service. Electricity costs estimated based on average monthly electricity consumption and average annual electricity prices from EIA. **Note:** Costs are presented using nominal prices and are not adjusted for inflation.

ENERGY ACTION NETWORK

Not in report

Fossil fuel costs spiked in 2022: Example cost impacts for a Vermont household



Sources: Transportation costs estimated for a household with 2 gasoline vehicles based on average fuel efficiency (23.4 MPG) from "Vermont Transportation Energy Profile 2021"; average annual gasoline prices for New England (2021: $2.94/gal; 2022: $3.98/gal) from EIA; and VT average annual vehicle miles traveled (VMT) from the Federal Highway Administration (10,236 in 2021 and 11,084 in 2022 - this difference in VMT accounts for $72 of the total cost increase). Heating costs for a fuel oil furnace estimated based on average Vermont heating load of 83 MMBtu (adjusted based on annual heating degree days); average fuel oil furnace efficiency (81%) from the Efficiency Vermont, "Technical Reference Manual" (TRM), 2024; and average VT fuel oil prices from the Department of Public Service.

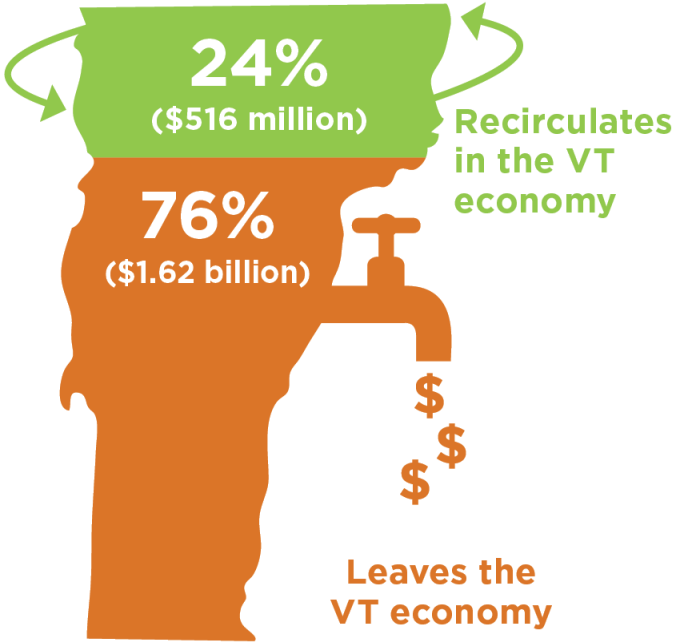
ENERGY ACTION NETWORK

Table 1. Average spending by energy category +/- standard deviation for the current report and the previous version of the report released in 2019.

Energy Type	Average Expenditure (2019)	Range of expenditures (2019)	Proportion of total energy cost (2019)	Average Expenditure (2023)	Range of expenditures (2023)	Proportion of total energy cost (2023)
Electricity	$1,150 ±$199	$302 - $1,777	20%	$1,417 ±$209	$619 - $2,073	20%
Thermal	$2,050 ±$290	$1,041 - $2,916	35%	$2,447 ±$390	$1,050 - $4,340	35%
Transportation	$2,638 ± $126	$2,047 - $2,874	45%	$3,217 ±$417	$1,682 - $4,196	45%
Total	$5,837 ± $471	$3,859 - $6,949	-	$7,071 ±$741	$3,498 - $9,100	-

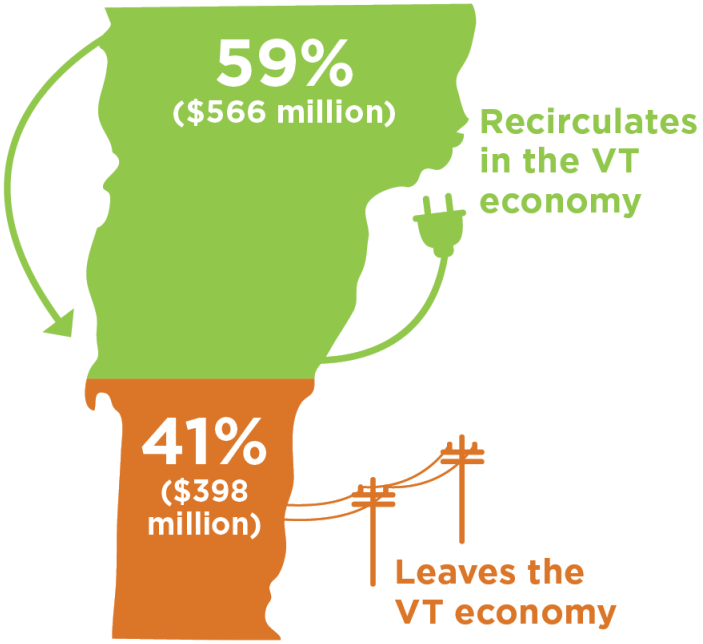
Source: Efficiency Vermont, 2023 Vermont Energy Burden Report

VT average annual fossil fuel spending



Sources: Fossil fuel spending: VT Department of Taxes, 2025; VGS, 2025; EIA, 2025; Dollar recirculation share: Ken Jones, EAN Senior Fellow for Economic Analysis, 2025. **Note:** Data shown are an average of 2021-2024. This graph includes spending on thermal and transportation fuels only.

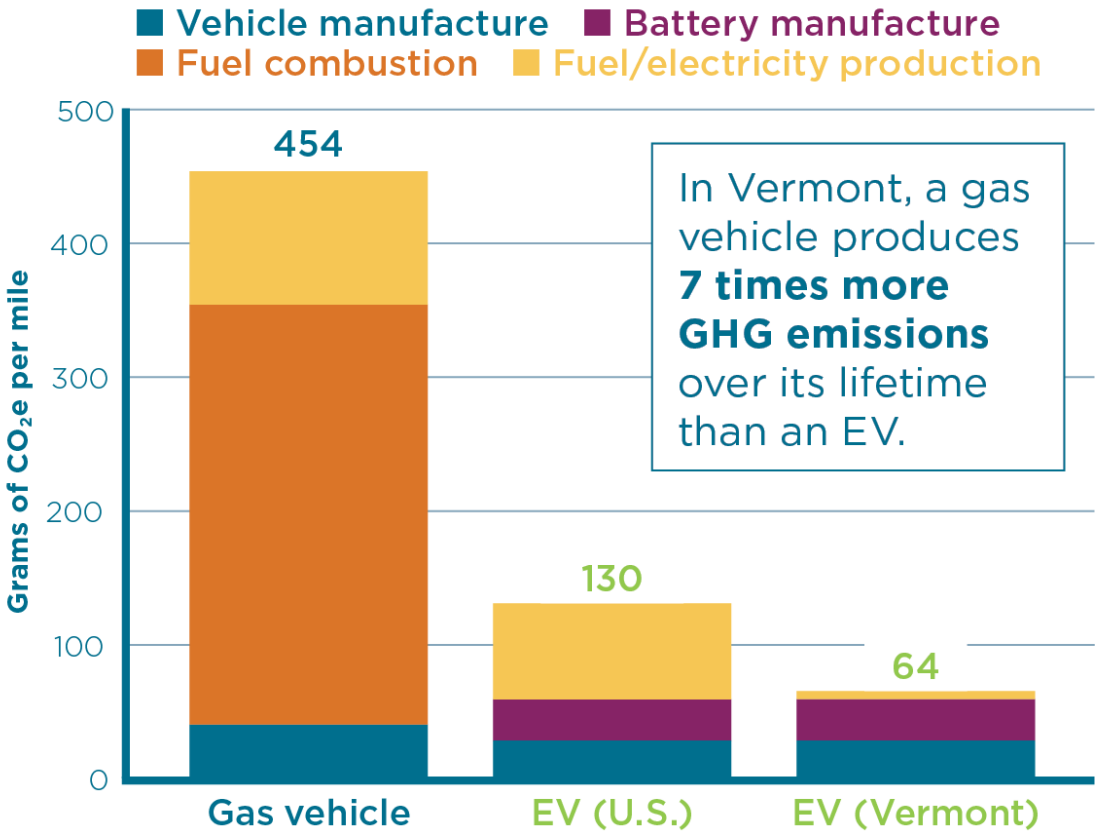
VT average annual electricity spending



Sources: Electricity spending: Vermont Department of Public Service and VT electric utilities. Dollar recirculation share: Ken Jones, EAN Senior Fellow for Economic Analysis, 2025. **Note:** Data shown are an average of 2021-2024. The methodology for the dollar recirculation share was updated in January 2025 to account for out-of-state transmission costs.

ENERGY ACTION NETWORK

Lifecycle GHG emissions of gas vs. electric vehicles



Sources: ICCT, "Life-cycle greenhouse gas emissions of U.S. sedans and SUVs with different powertrains and fuel sources," 2024. Vermont electricity emissions based on 2020 life cycle emissions from Vermont Agency of Natural Resources/ERG, "Vermont Energy Sector Life Cycle Assessment," 2024. **Notes:** Values represent emissions over the lifetime of a vehicle purchased in 2024. Emissions from EVs are presented separately for the U.S. and Vermont because Vermont's electricity portfolio is much lower-emitting than the national average.

Four Features of Fossil Fuels

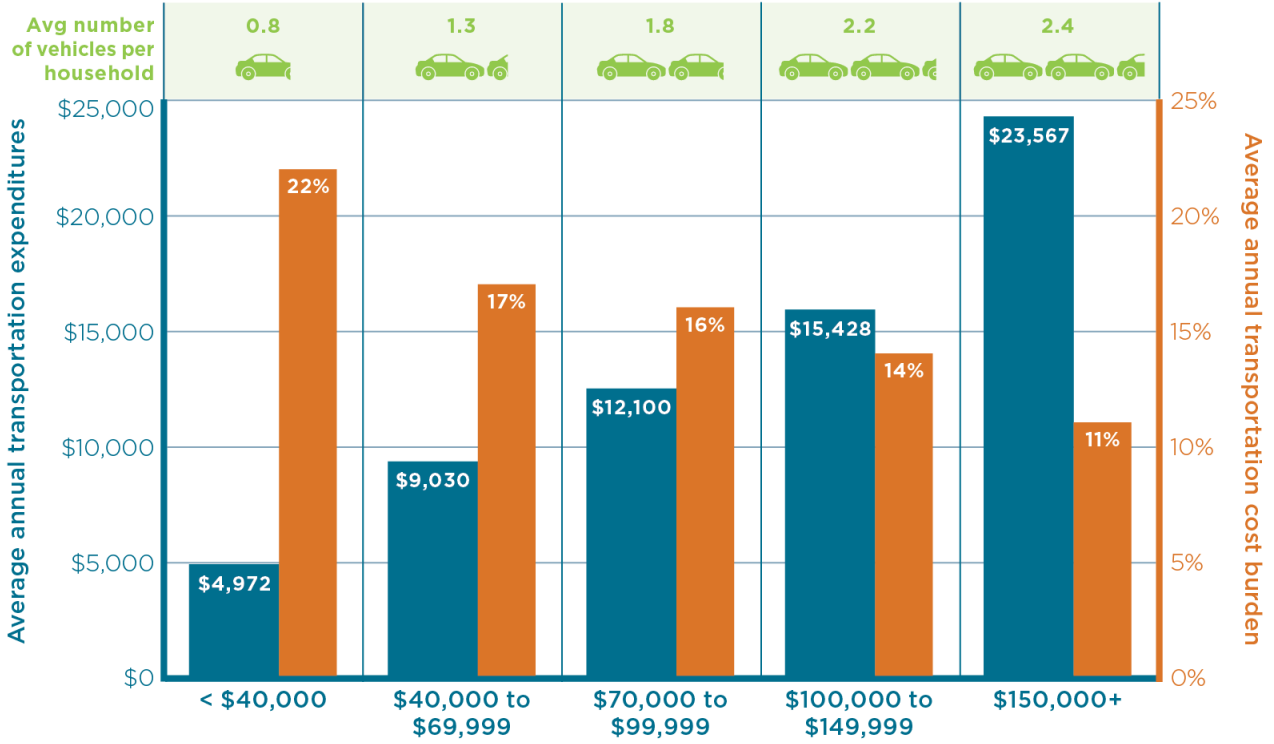
1) Expensive

2) Price-volatile

3) Drain $ out of Vermont (100% imported)

4) Heavily polluting (harming human health and worsening climate destabilization)

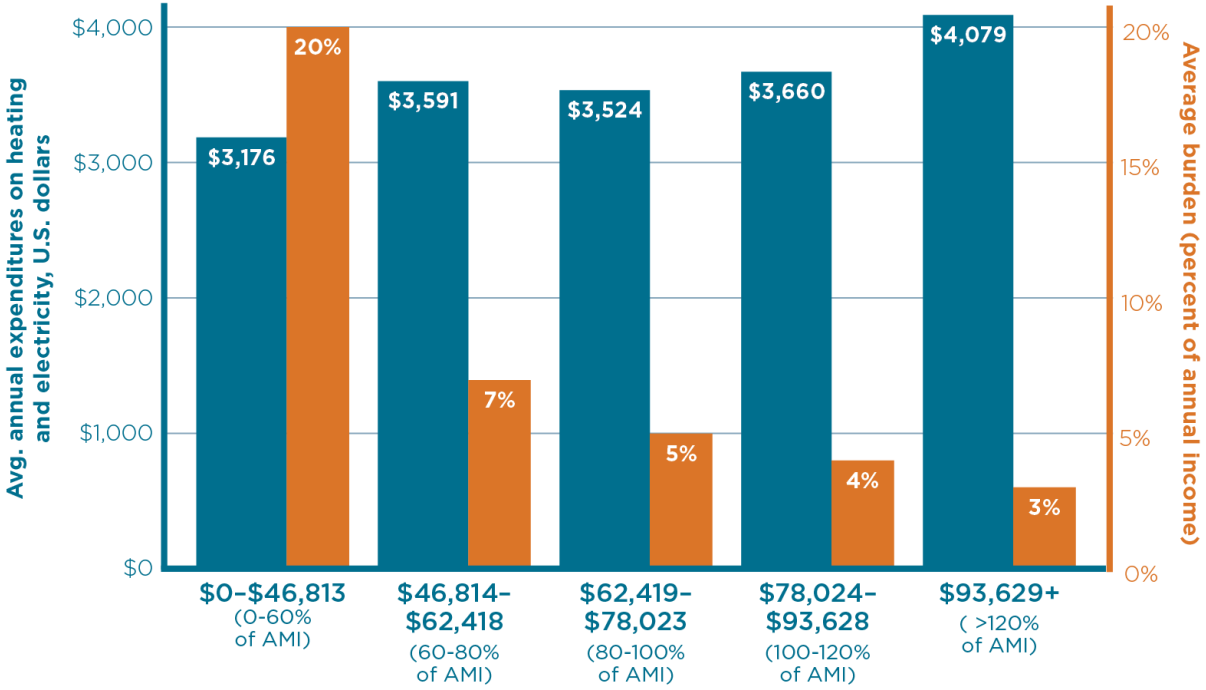
Transportation expenditures and burden by household income, Northeast, 2022-2023



Source: U.S. Bureau of Labor Statistics, Consumer Expenditure Surveys, average expenditures for the Northeastern U.S., 2022-2023. **Note:** Transportation cost burden is the share of household income that is spent on transportation-related costs, including vehicle purchase, fuel, maintenance, insurance, etc.

ENERGY ACTION NETWORK

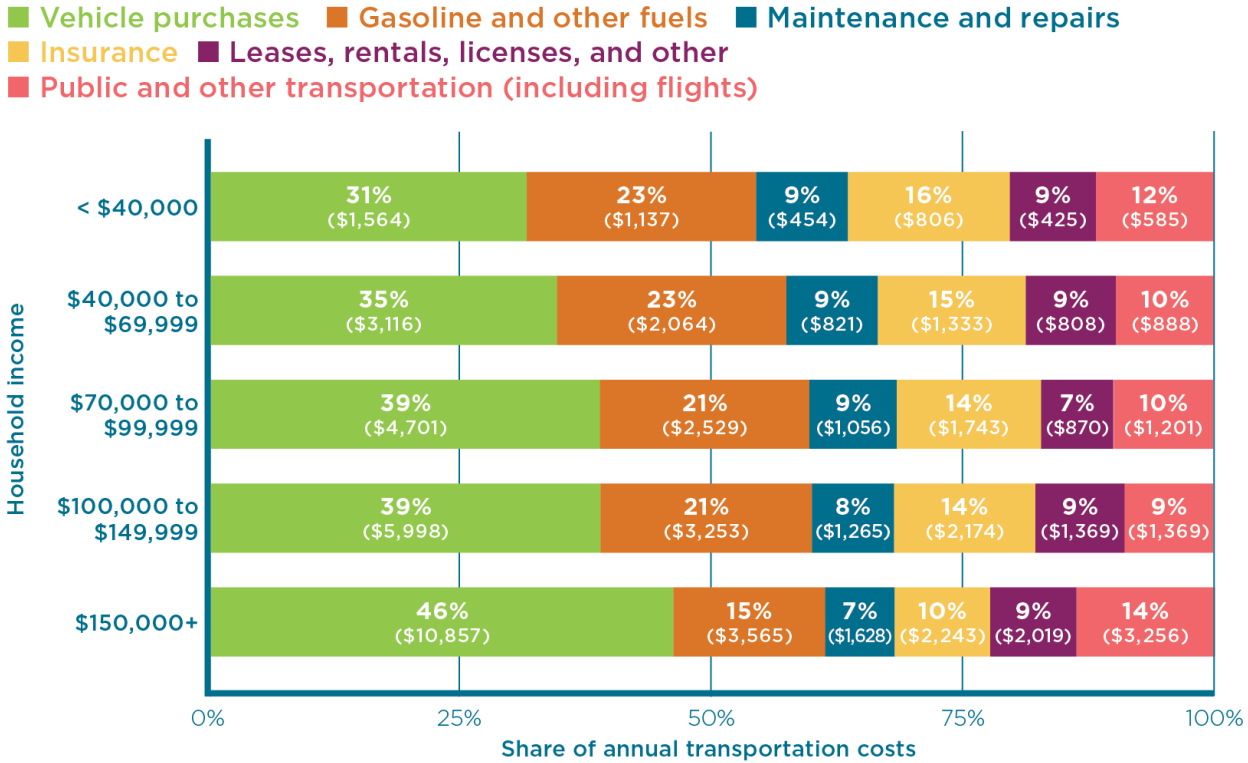
Vermont average household heating & electricity fuel costs and burden by income level, 2019–2023



Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-year Public Use Microdata Samples. **Notes:** Income categories are based on 2019-2023 median household income in Vermont of $78,024. Energy burden refers to the share of annual household income spent on energy. This expenditure data is for fuels only and does not include equipment or maintenance costs.

ENERGY ACTION NETWORK

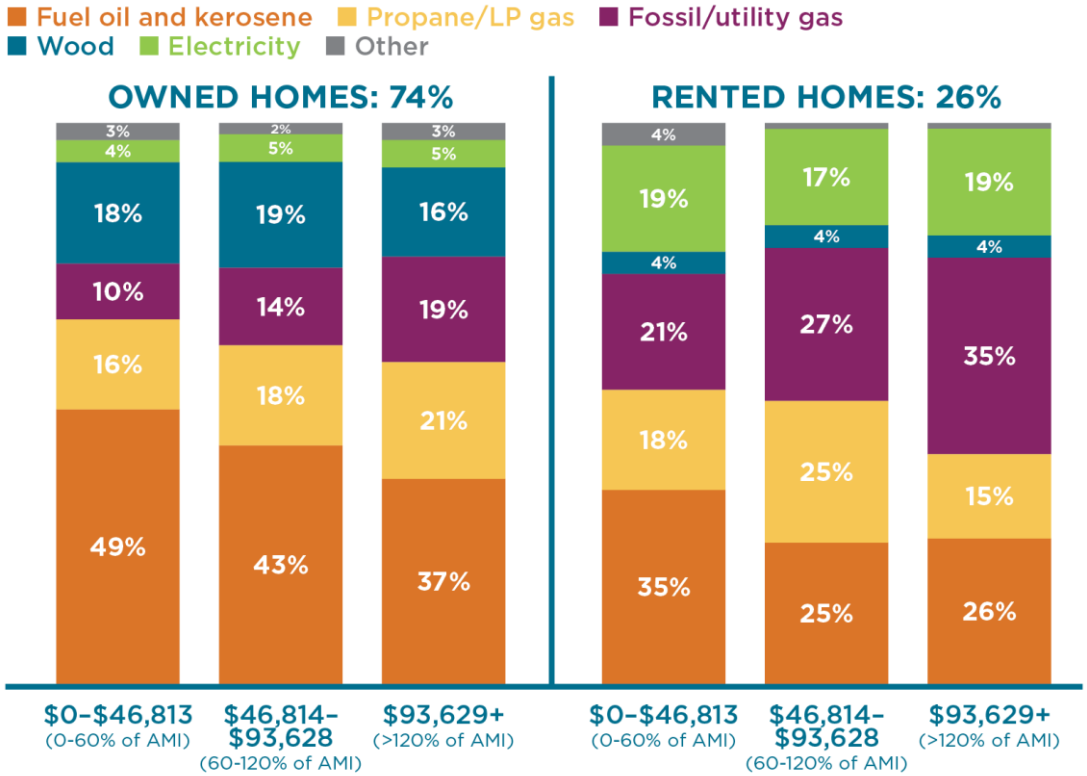
Share of annual transportation costs by expense type and income category, Northeast, 2022–2023



Source: U.S. Bureau of Labor Statistics, Consumer Expenditure Surveys, average expenditures for the Northeastern U.S., 2022-2023.

ENERGY ACTION NETWORK

Vermont primary household fuel use by income and housing type



Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-year Public Use Microdata Samples. **Notes:** Income categories are based on 2019-2023 median household income in Vermont of $78,024. Data is self-reported. Percentages may not sum exactly to 100% due to independent rounding. Due to data limitations, electricity cannot be disaggregated between resistance heating and heat pumps, however, it is assumed that the majority of heat coming from electricity in rented homes is electric resistance. Kerosene makes up only 3%–4% of total "fuel oil and kerosene" gallons sold.

ENERGY ACTION NETWORK

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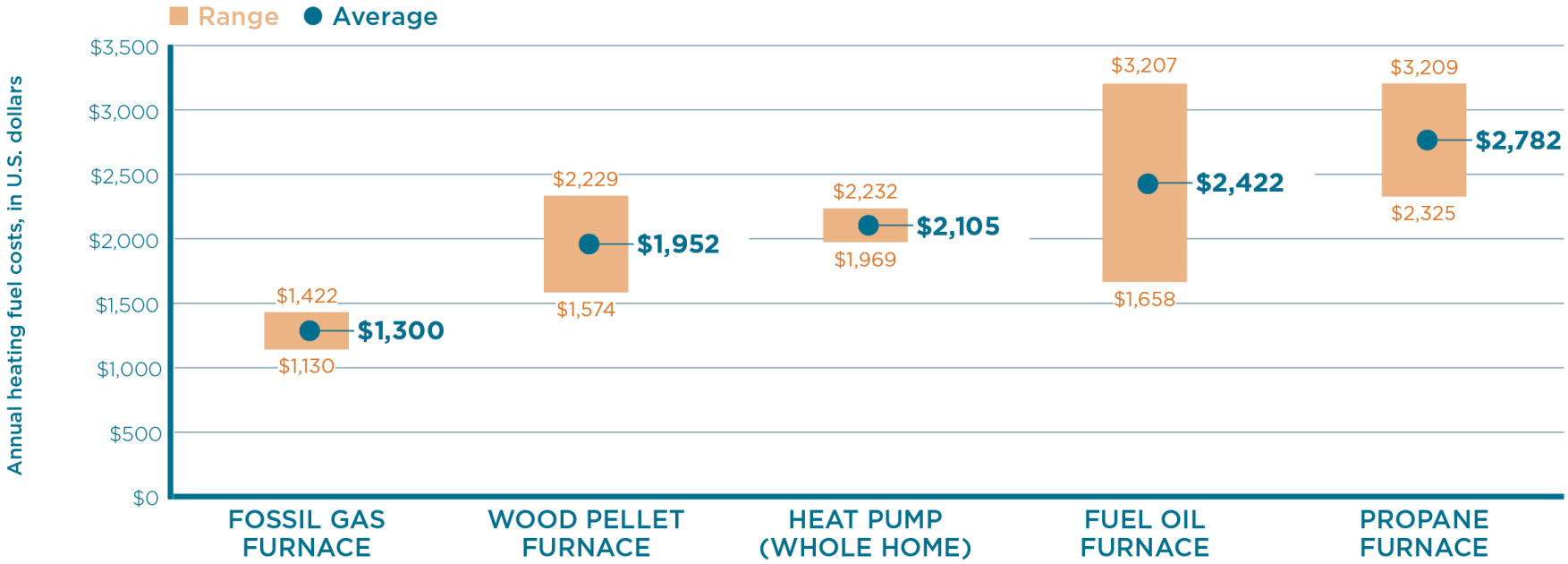
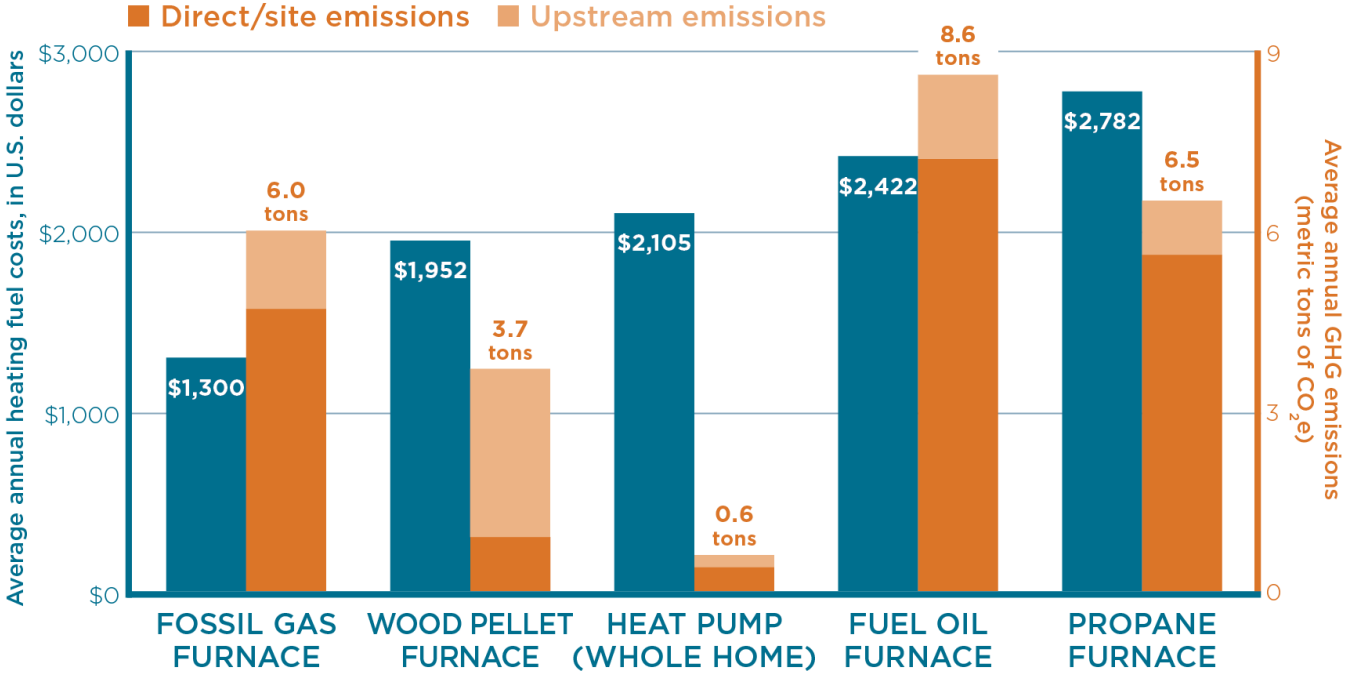
Annual household heating fuel costs (ducted systems) in VT, 2020–2024



Sources: Average monthly fuel prices: EIA; Vermont Department of Public Service, Retail Prices of Heating Fuels; VGS. Average efficiency rates of heating equipment: Efficiency Vermont "Technical Reference Manual (TRM), Program Year 2024." Annual fuel costs assume average household heating load of 83 MMBtu, adjusted to account for annual population-weighted heating degree days from NOAA Climate Prediction Center. **Note:** This graph compares heating fuel costs only, for ducted (forced air) heating systems.Equipment costs and incentives vary widely and are not represented. Costs are inclusive of any applicable charges, not merely rates.

ENERGY ACTION NETWORK

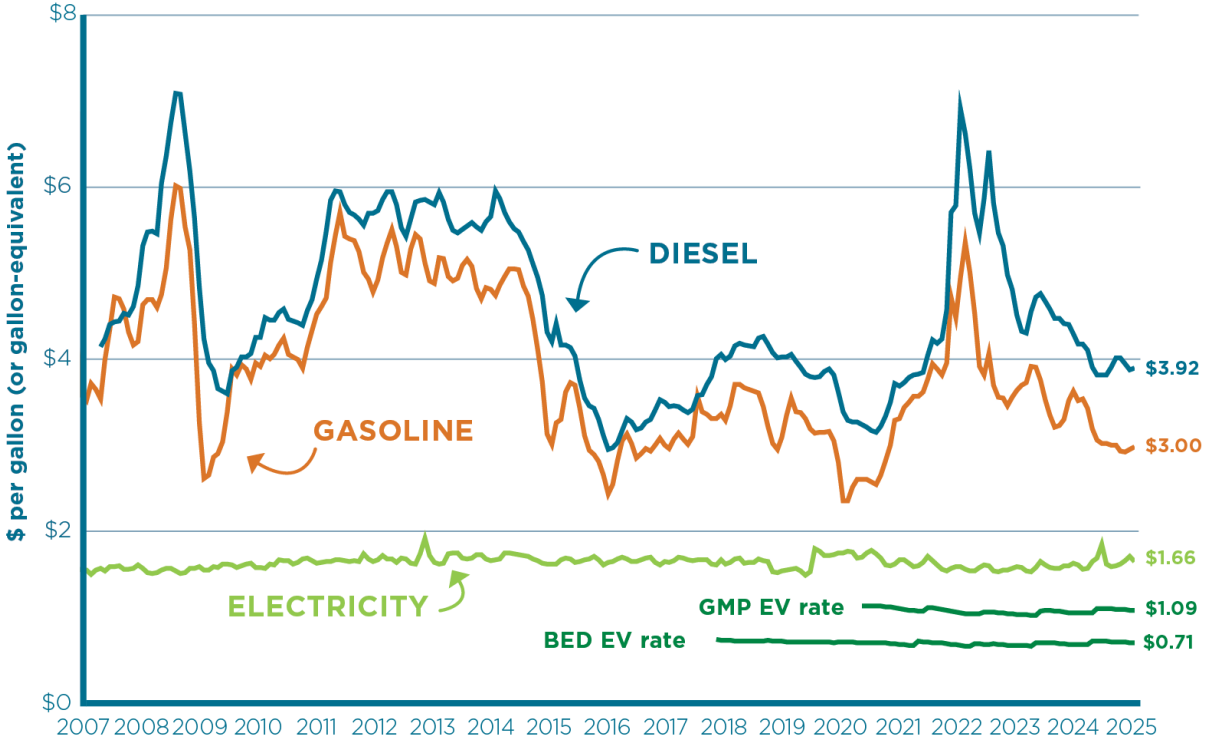
Average annual VT household heating fuel costs and GHG emissions, 2020–2024



Sources: Average monthly fuel prices: EIA; Vermont Department of Public Service, Retail Prices of Heating Fuels; VGS. Average efficiency rates of heating equipment: Efficiency Vermont, "Technical Reference Manual (TRM)," 2024. Direct/site emissions factors: VT Agency of Natural Resources, "Vermont Greenhouse Gas Emissions Inventory and Forecast, 1990-2022," 2025. Upstream emissions factors: ERG, prepared for VT ANR, "Vermont Energy Sector Life Cycle Assessment," 2024. Annual fuel costs assume average household heating load of 83 MMBtu, adjusted to account for annual population-weighted heating degree days from NOAA Climate Prediction Center.

ENERGY ACTION NETWORK

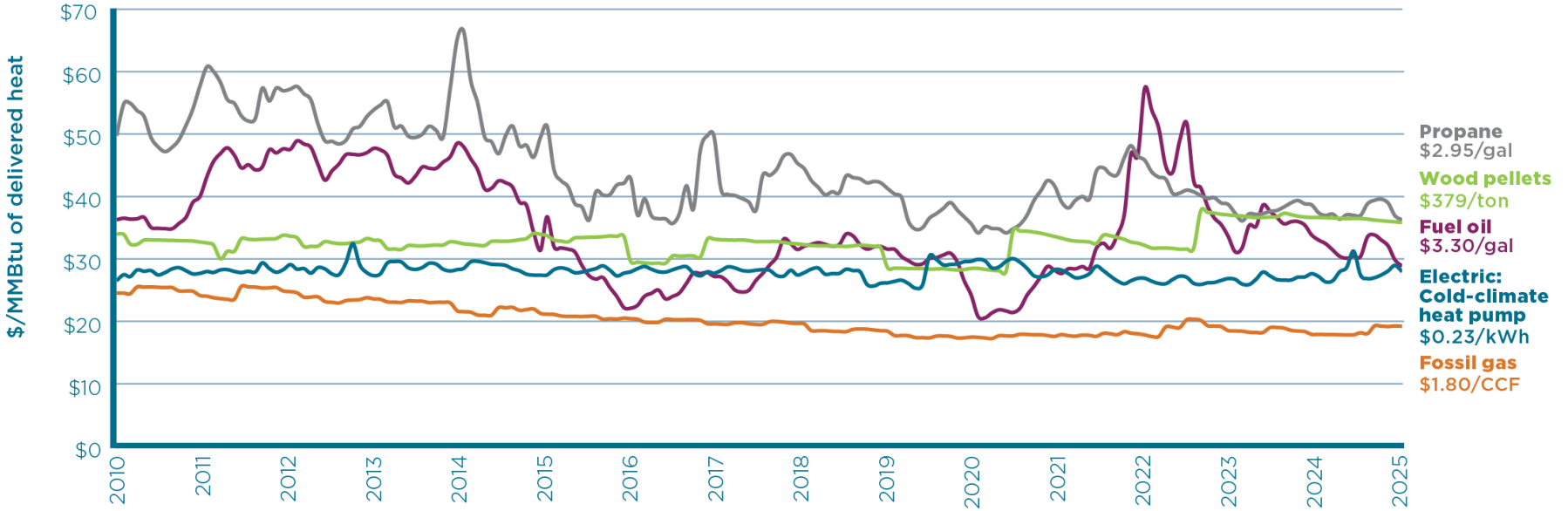
Cost comparison of different transportation fuels over time in VT



Sources: VT electricity, gasoline, and diesel prices: EIA, 2025; Off-peak EV rates: Green Mountain Power and Burlington Electric Department, 2025. **Notes:** Data through June 2025. Prices shown are adjusted for inflation and shown in June 2025 dollars, using the U.S. Bureau of Labor Statistics Consumer Price Index. The electricity prices shown in light green are average statewide residential prices.

ENERGY ACTION NETWORK

Cost comparison of different heating fuel options over time



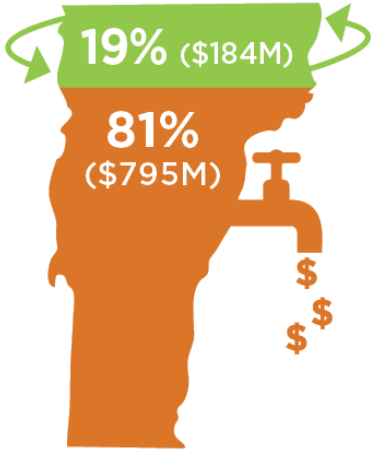
Sources: Fuel oil and propane prices: VT Department of Public Service, Retail Prices of Heating Fuels. Fossil gas: VGS. Electricity: EIA. Wood pellets: Biomass Energy Research Center (2025 prices estimated based on a small sample of Vermont suppliers and average prices collected by Maine and New Hampshire). **Notes:** Electricity prices presented here are a statewide average but vary by utility territory. The reason propane is usually more expensive per MMBtu than fuel oil but less expensive on a per gallon basis is because propane has a lower energy content per gallon (66% of the energy of fuel oil per gallon). Prices reflect data through June 2025. Prices shown are adjusted for inflation and shown in June 2025 dollars, using the U.S. BLS Consumer Price Index.

ENERGY ACTION NETWORK

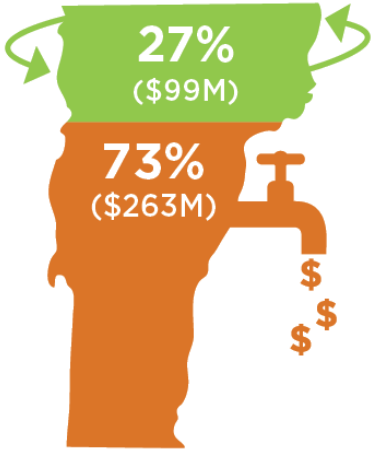
Average annual transportation spending in VT, 2021–2024

■ Recirculates in the VT economy ■ Leaves the VT economy

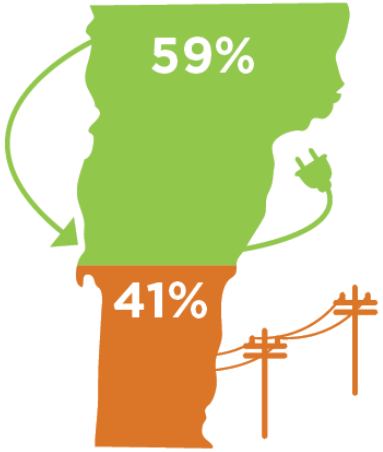
GASOLINE



DIESEL



ELECTRICITY

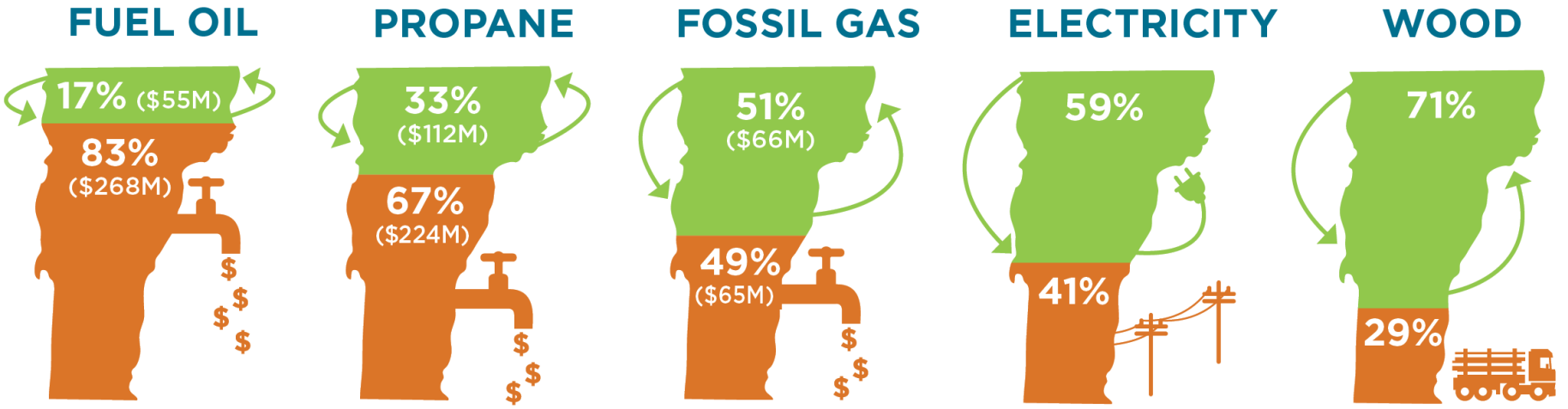


Sources: Fossil fuel spending: VT Department of Taxes, 2025; EIA, 2025; Electricity spending: VT Department of Public Service and VT electric utilities, 2025; Dollar recirculation share: Ken Jones, EAN Senior Fellow for Economic Analysis, 2025.

ENERGY ACTION NETWORK

Average annual thermal spending in Vermont, 2021-2024

■ Recirculates in the VT economy ■ Leaves the VT economy

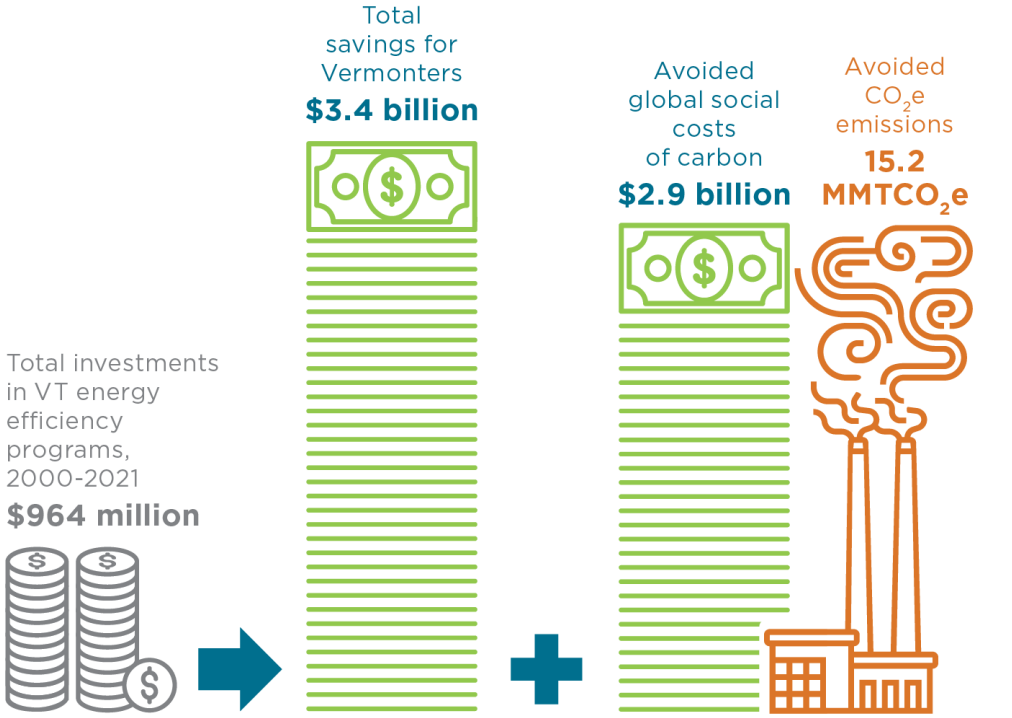


Sources: Fossil fuel spending: VT Department of Taxes, 2025; VGS, 2025; EIA, 2025; Electricity spending: VT Department of Public Service and VT electric utilities, 2025; Wood spending: VEIC, "Wood Heat Use in Vermont," 2024; Dollar recirculation share: Ken Jones, EAN Senior Fellow for Economic Analysis, 2025. **Notes:** Kerosene sales are not included in fuel oil total. Total dollars spent on electricity and wood for thermal purposes not available.

ENERGY ACTION NETWORK

Investment vs. Cost & Fleeting vs. Durable Affordability

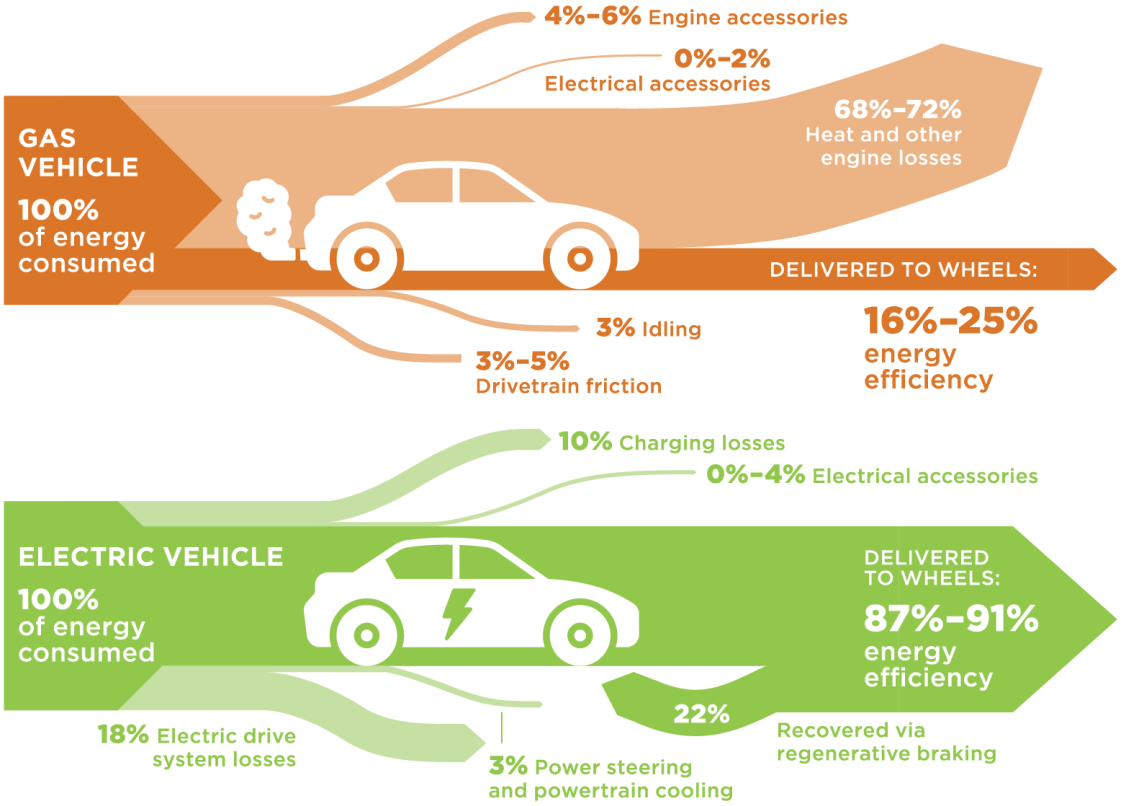
Lifetime return on investment from Vermont energy efficiency programs



Source: Efficiency Vermont, 2023; Burlington Electric Department, 2023; VGS, 2023. **Notes:** Social cost of carbon based on estimate of $190 per metric ton ("EPA Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances", 2023). Savings, avoided costs, and avoided emissions incorporate the modeled lifetime of the measures. Avoided CO_2e emissions are calculated by energy efficiency utilities using marginal emissions of the ISO-NE mix, rather than of VT's electricity portfolio.

ENERGY ACTION NETWORK

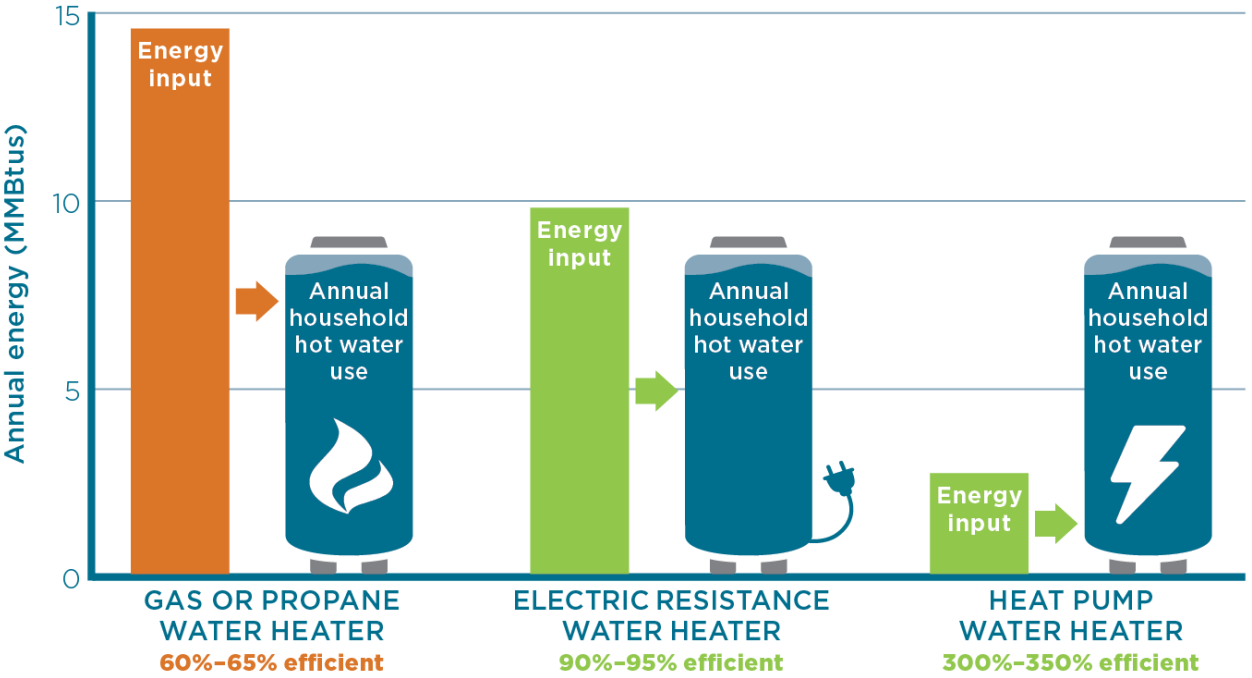
Efficiency of energy use: Gas vehicles vs electric vehicles



Source: Fueleconomy.gov, 2024. **Note:** Estimates shown are for combined city and highway driving.

ENERGY ACTION NETWORK

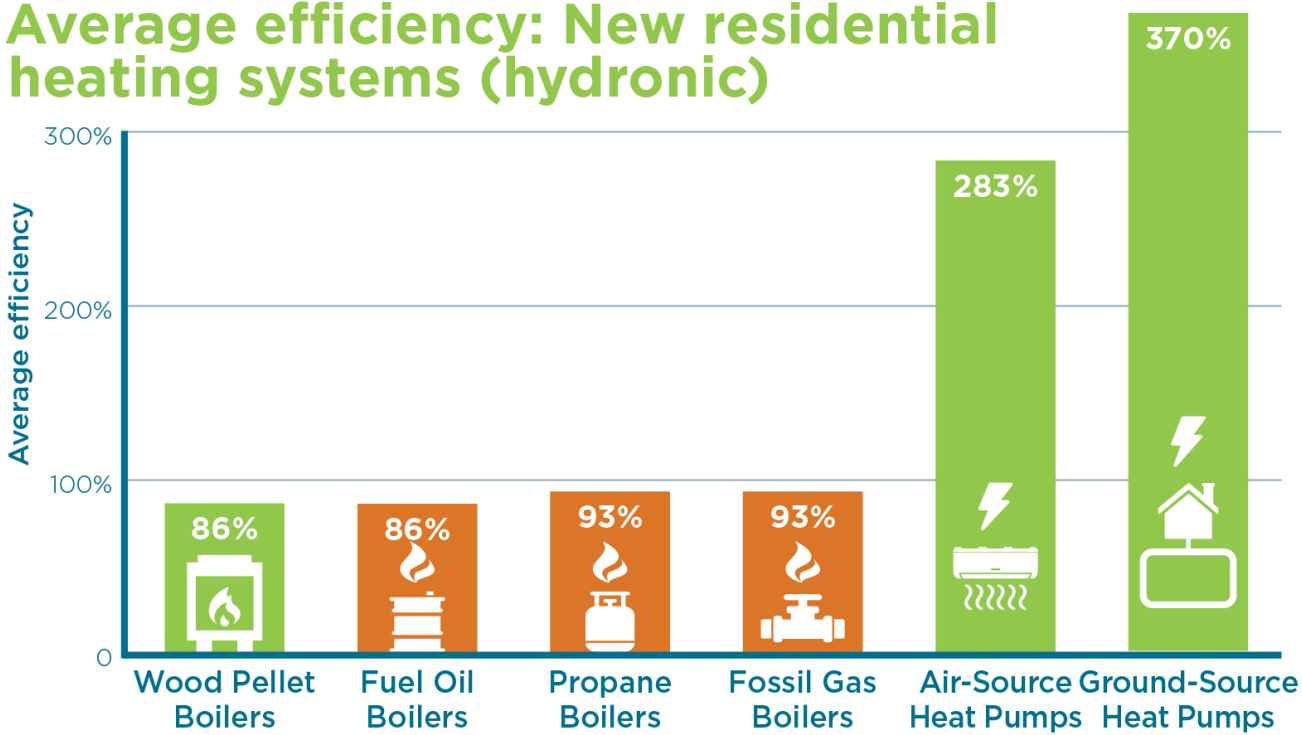
Energy needed for annual household water heating: Fossil fuel vs. electric



Sources: Efficiency Vermont, "Technical Reference Manual" (TRM), 2024; EIA, Updated Buildings Sector Appliances and Equipment Costs and Efficiencies, 2023. **Notes:** Average annual household water heating load assumed to be 9.04 MMBtus. Efficiency rates are for storage/tank water heaters.

ENERGY ACTION NETWORK

Average efficiency: New residential heating systems (hydronic)

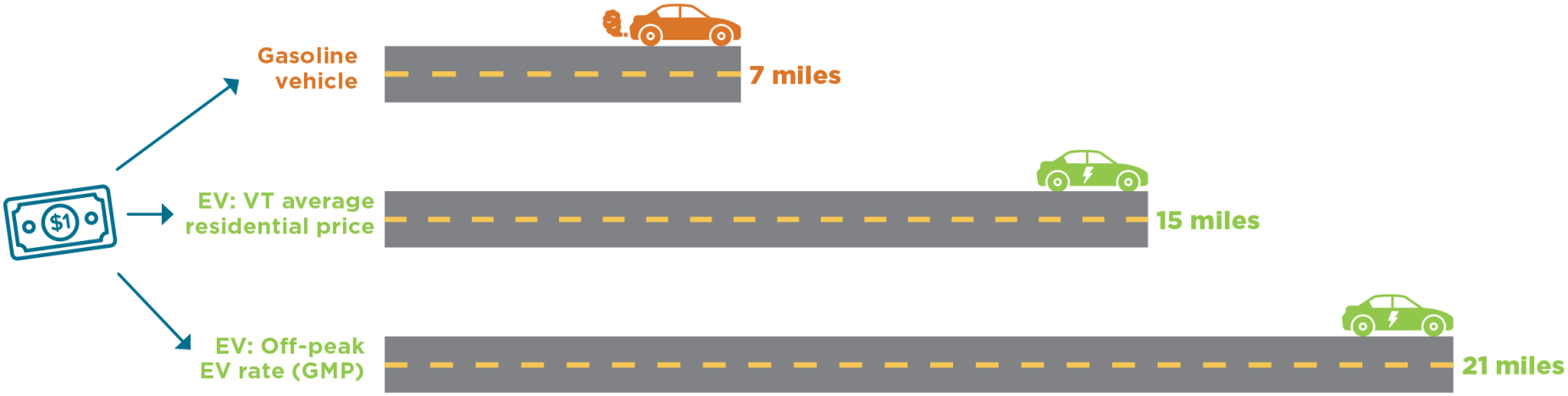


Sources: Pellet boilers, air-source heat pumps, and fuel oil, propane, and fossil gas boiler efficiencies: Efficiency Vermont "Technical Reference Manual (TRM), Program Year 2024." Ground-source heat pumps: U.S. EIA, "Updated Buildings Sector Appliance and Equipment Costs and Efficiencies," 2023. **Notes:** Hydronic systems use water to distribute heat throughout the building, such as via radiators. Heating efficiency refers to the average rate at which an appliance converts energy from fuel to heat output, expressed as a percentage. Heat pumps are capable of achieving efficiency rates greater than 100% because the energy input is used to transfer — rather than generate — heat. Efficiency rates for air-source heat pumps can vary considerably depending on outdoor air temperature — the efficiency presented here is an average over the heating season.

ENERGY ACTION NETWORK

With an electric vehicle, your dollar takes you farther

Average miles per dollar: gasoline vs. electric



Sources: Average 2024 gasoline prices ($3.24/gal) for New England and average residential electricity prices ($0.22/kWh) for VT from EIA; Off-peak EV charging rate (rate 74: $0.15/kWh) from Green Mountain Power (GMP); Average EV efficiency rate of 0.306 kWh/mile and average VT fleetwide fuel economy of 23.4 MPG from "Vermont Transportation Energy Profile 2021."

ENERGY ACTION NETWORK

Gas vehicles cost more over time — for drivers and society

Extra fuel and maintenance costs over the life of the vehicle: ~ $9,900

+

Extra societal costs from gasoline GHG emissions over the life of the vehicle: ~ $7,400

Sources: Annual mileage assumed to be 11,153 based on 2023 data for Vermont from Federal Highway Administration; Fuel economy assumptions from "Vermont Transportation Energy Profile 2021"; Gasoline and electricity prices from EIA Annual Energy Outlook; maintenance costs per mile (gas vehicle $0.11/mile; EV $0.08/mile) from AAA "Your Driving Costs," 2024; gasoline emissions factors from EIA and EPA; electricity emissions intensity assumed to decrease linearly to 100% carbon-free by 2035; Social Cost of GHG values from EPA (2023), using a 2% discount rate. Calculation based on a vehicle lifetime of 8 years, per assumptions in the 2023 "Vermont Tier III Technical Reference Manual." **Note**: Upfront vehicle costs vary based on make/model and incentive eligibility; because of this variance, upfront vehicle costs are not quantified here. All costs presented in 2024 dollars.

ENERGY ACTION NETWORK

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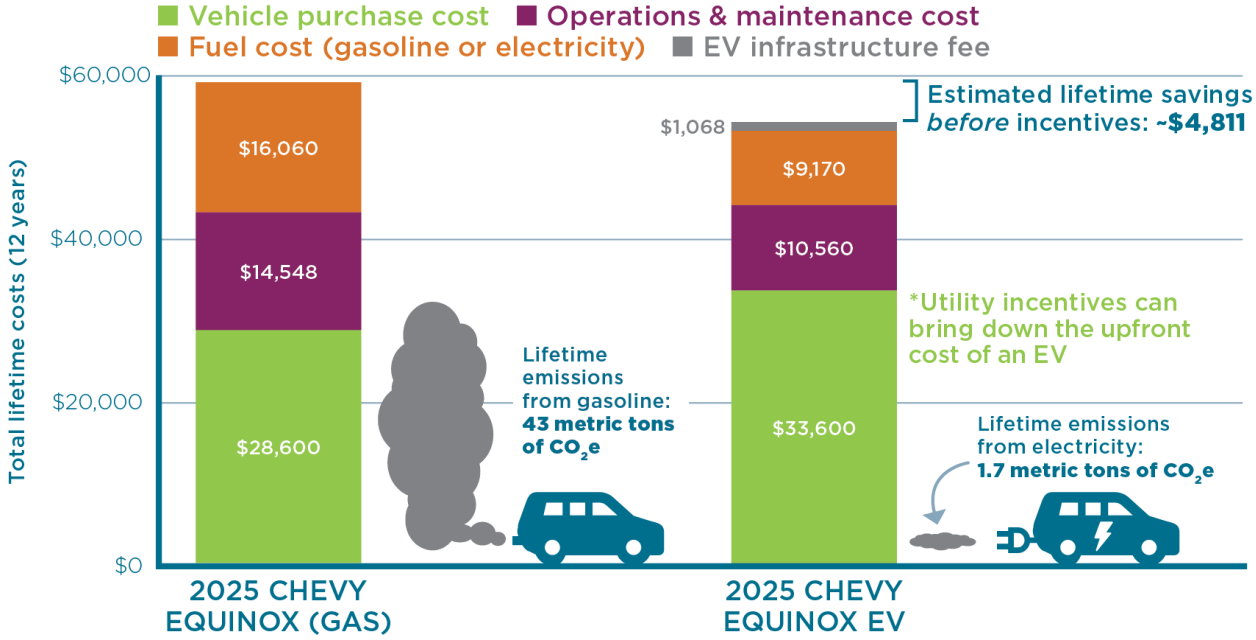
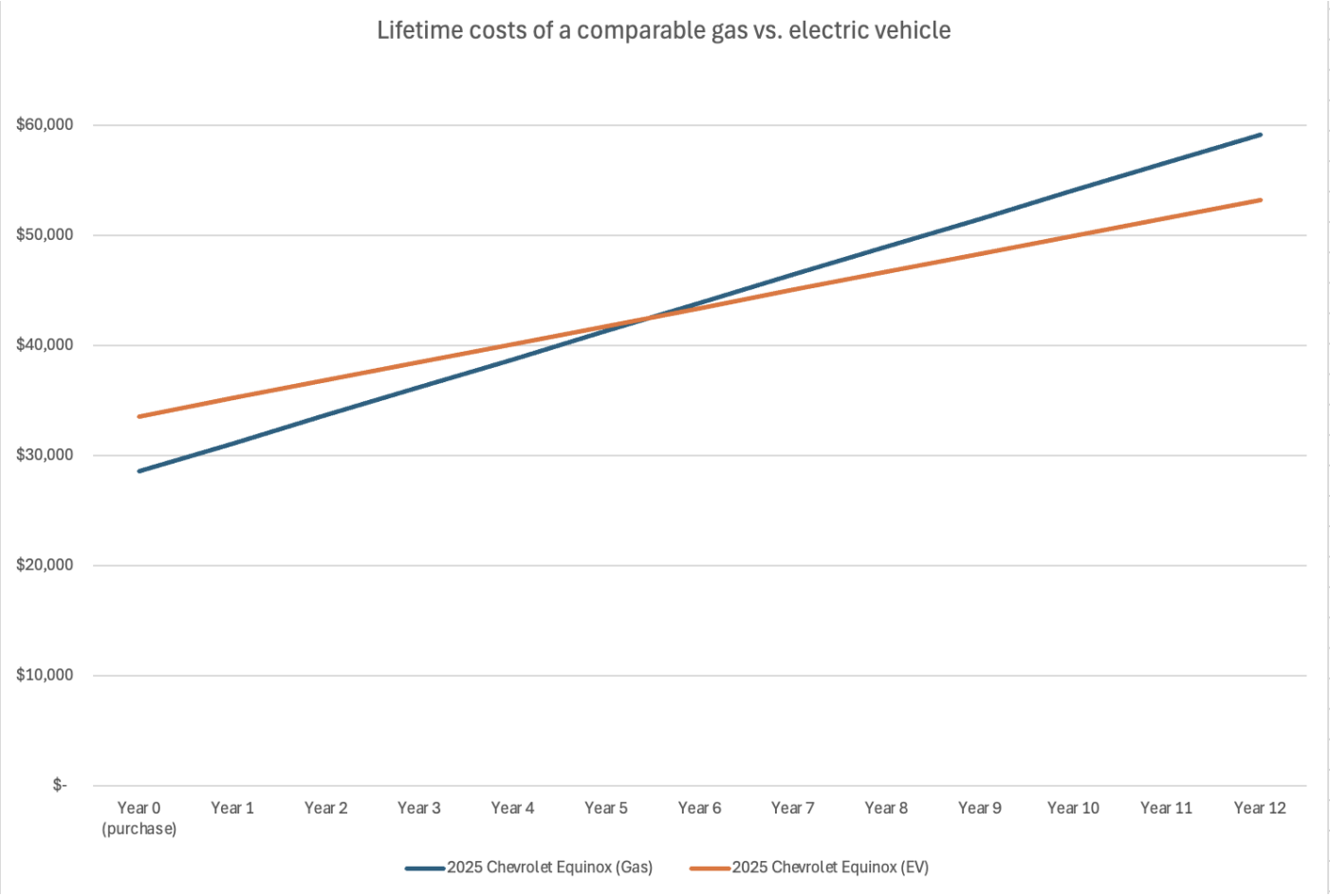
Lifetime costs and GHG emissions of comparable gas vs. electric vehicles in Vermont

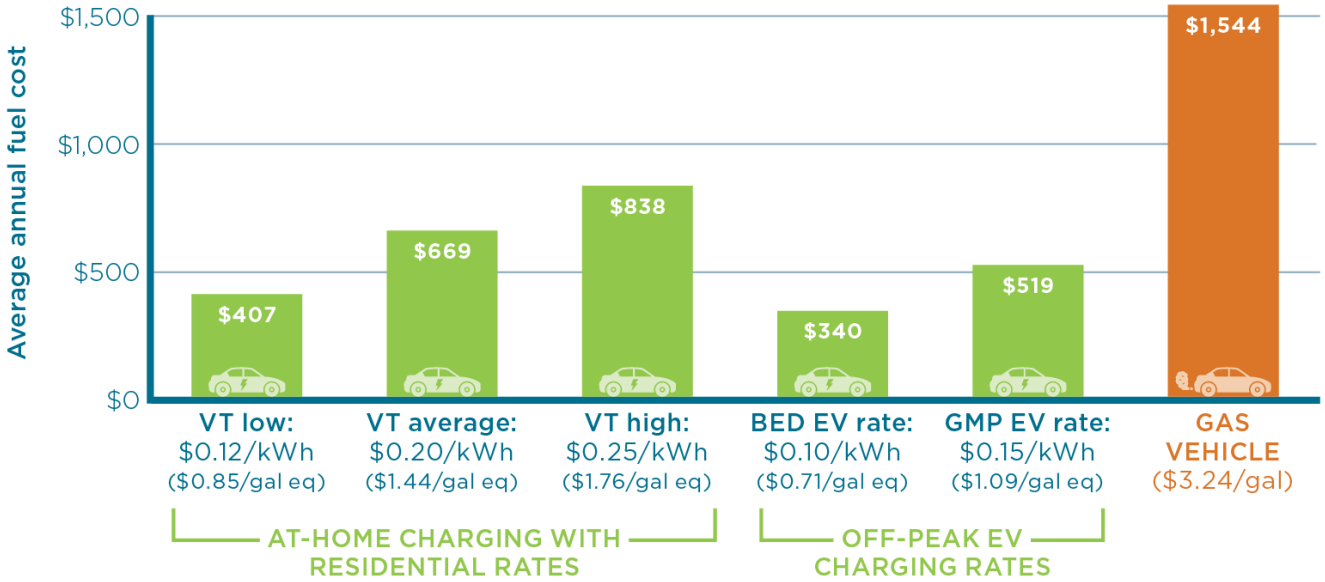


Sources: Vehicle costs represent the base MSRP for 2025 models. Gasoline emissions factor from EIA; electricity emissions factor calculated based on Vermont's GHG Emissions Inventory (VT ANR, 2025). Fuel costs calculated based on 2024 average gasoline prices for New England ($3.24/gal) and average VT electricity prices ($0.22/kWh) from EIA. Operations and maintenance costs estimated based on AAA 2024 Your Driving Costs study. Operating costs and fuel costs are calculated based on 2023 VT average annual mileage of 11,153 miles from the Federal Highway Administration. For EV infrastructure fee ($89/year), VT Act 148 of 2025. **Notes:** Charging costs for EVs can be even lower than presented with the use of EV charging rates offered by some VT utilities. Vehicle efficiency rates are from manufacturer reporting; however, actual efficiency rates are often lower in colder temperatures. For vehicle lifetimes beyond 12 years, average total EV savings relative to gas vehicles would be higher than presented here, with additional accumulated annual fuel and maintenance savings. Vehicle purchase costs for EVs can be lower after incentives — for the latest information about EV incentives, visit driveelectricvt.com.

ENERGY ACTION NETWORK


Lifetime costs of a comparable gas vs. electric vehicle
$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
$-
Year 0 (purchase)
Year 1
Year 2
Year 3
Year 4
Year 5
Year 6
Year 7
Year 8
Year 9
Year 10
Year 11
Year 12
2025 Chevrolet Equinox (Gas)
2025 Chevrolet Equinox (EV)

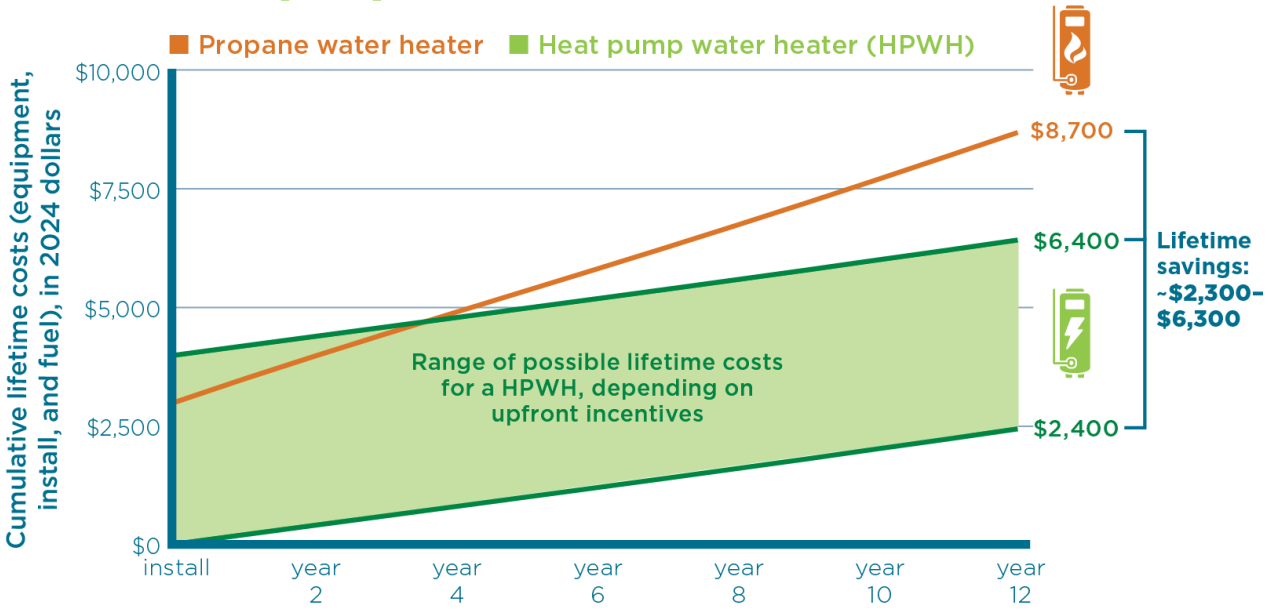
Annual vehicle fueling costs at various Vermont electricity rates, 2024



Sources: Electricity rates from Vermont electric utility rate filings; Gasoline prices are an average of New England monthly prices in 2024 from EIA; Annual costs based on Vermont average VMT of 11,153 miles from the Federal Highway Administration and average vehicle efficiency rates from the 2021 Vermont Transportation Energy Profile. **Notes**: As of 2025 Burlington Electric Department (BED) and Green Mountain Power (GMP) are the only two VT utilities that offer EV charging rates, though other utilities are also developing EV rates. $/gallon equivalent ($/gal eq) denotes how the price per kWh would compare to the price per gallon of gasoline at average vehicle efficiencies. In addition to electricity rates, utility bills also include fees and charges, which are not shown on this graph. It is not uncommon for charges and fees to make up 10% of total electricity bills.

ENERGY ACTION NETWORK

Lifetime cost comparison: heat pump water heater vs. propane water heater



Sources: Annual energy load and efficiency assumptions from the Efficiency Vermont "2023 Technical Reference Manual." Prices shown are in 2024 dollars and reflect projections from EIA's 2023 Annual Energy Outlook for 2025-2036. **Notes:** While installed costs of propane water heaters can vary, there is greater variation in heat pump water heater installed costs due to the availability of incentives. Different installed costs for heat pump water heaters reflect federal tax credits and state-level incentives for various income levels, including Switch and Save and Weatherization Assistance Program incentives that have historically brought the upfront cost as low as $0. Equipment and installation cost estimates as of 2024. Heat pump water heaters cool and dehumidify the space where they operate. This graph does not include the "heating penalty" whereby a heat pump water heater increases the heating load in the winter, and does not include any cooling and dehumidification benefit that can result from heat pump water heater use in the summer, as the energy impact varies widely based on the efficiency of one's space heating equipment, and whether one would be using equipment to cool or dehumidify.

ENERGY ACTION NETWORK

The funding stack, including other state programs and the federal rebate, that was in place to support low- and moderate-income consumers purchase an EV has dwindled

Potential cost of a used EV after incentives

	Standard incentive	< $57,000 income incentive
Used 2022 Chevrolet Bolt EV 1LT Hatchback 4D: Typical listing price	**$20,043**	**$20,043**
Federal: Tax credit	-$4,000	-$4,000
Electric utility: Rebate*	-$250 to -$1,500	-$900 to -$2,500
State: MileageSmart**	$0	-$2,500 to -$5,000
State: Replace Your Ride (if applicable*)	$0 to -$2,500	$0 to -$5,000
Total incentives	**-$4,250 to -$8,000**	**-$7,400 to -$16,500**
Cost after incentives	**$12,043 to $15,793**	**$3,543 to $12,643**

What a difference a year makes…

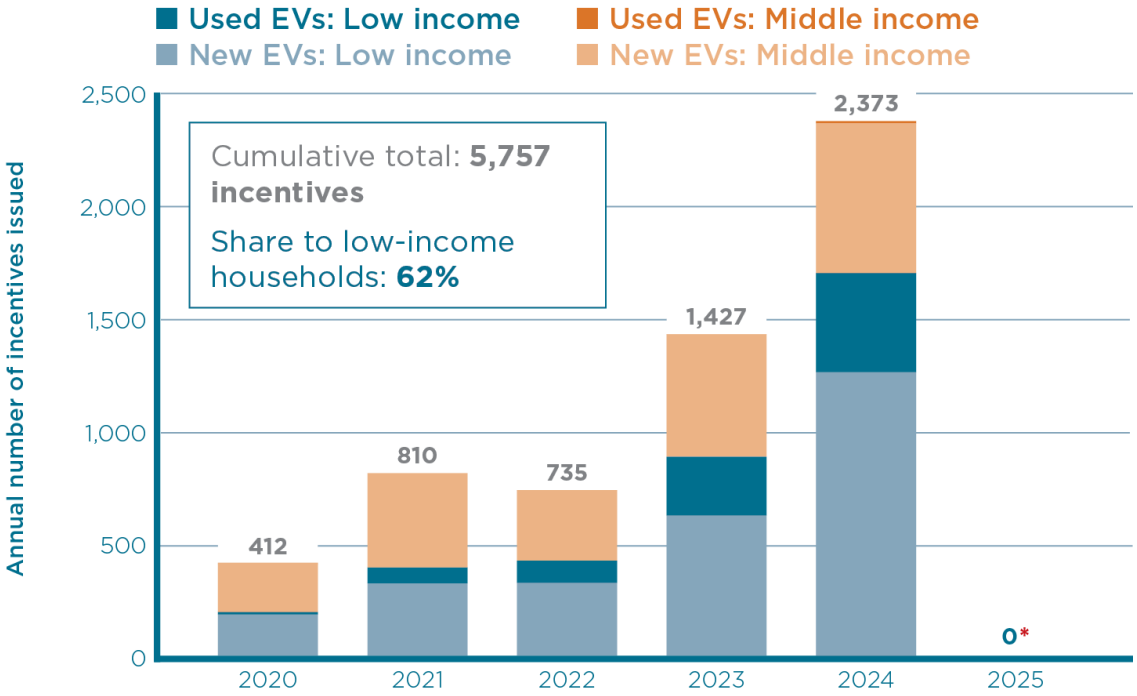
Example cost of a used EV in Vermont after incentives

	Standard incentive	< 80% Area Median Income incentive	
Used 2023 Nissan LEAF S Hatchback 4D: Typical listing price	$16,598	$16,598	Incentive status
Electric utility: Rebate*	-$250 to -$1,500	-$900 to -$2,500	Expected to continue
~~Federal: Tax credit ($4,000)~~	$0	$0	Expired Sept. 30, 2025
~~State: MileageSmart (up to $5,000)~~	$0	$0	Fully expended in 2024
~~State: Replace Your Ride (up to $5,000)~~	$0	$0	Fully expended in 2024
Total incentives available	-$250 to -$1,500	-$900 to -$2,500	
Cost after incentives	**$15,098 to $16,348**	**$14,098 to $15,698**	

Sources: Incentive amounts and eligibility: Drive Electric VT; Pre-incentive vehicle cost: Kelley Blue Book, typical listing price for a used 2023 Nissan LEAF S Hatchback 4D. **Notes:** MileageSmart and Replace Your Ride were state incentive programs that were fully expended in 2024 and new funding has not been allocated as of 2025. *Exact incentives vary by utility. To learn more about incentives, visit driveelectricvt.com.

ENERGY ACTION NETWORK

State EV incentives issued by income level in VT, 2020–2025

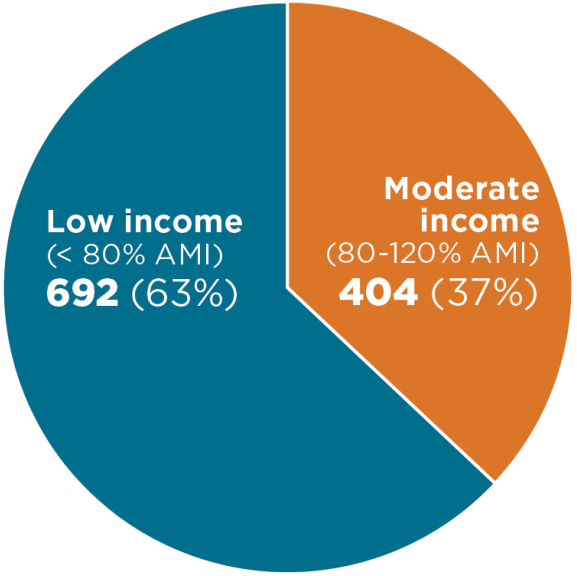


*Funding for state EV incentives was fully expended in 2024. As of the publication of this report new funding has not yet been allocated.

ENERGY ACTION NETWORK

Source: Vermont Agency of Transportation, 2025. **Notes:** Data include Vermont's incentive program for new EVs, MileageSmart, and Replace Your Ride. Specific income eligibility and low income definitions vary by program. Data do not include incentives provided by the Electrify Your Fleet program.

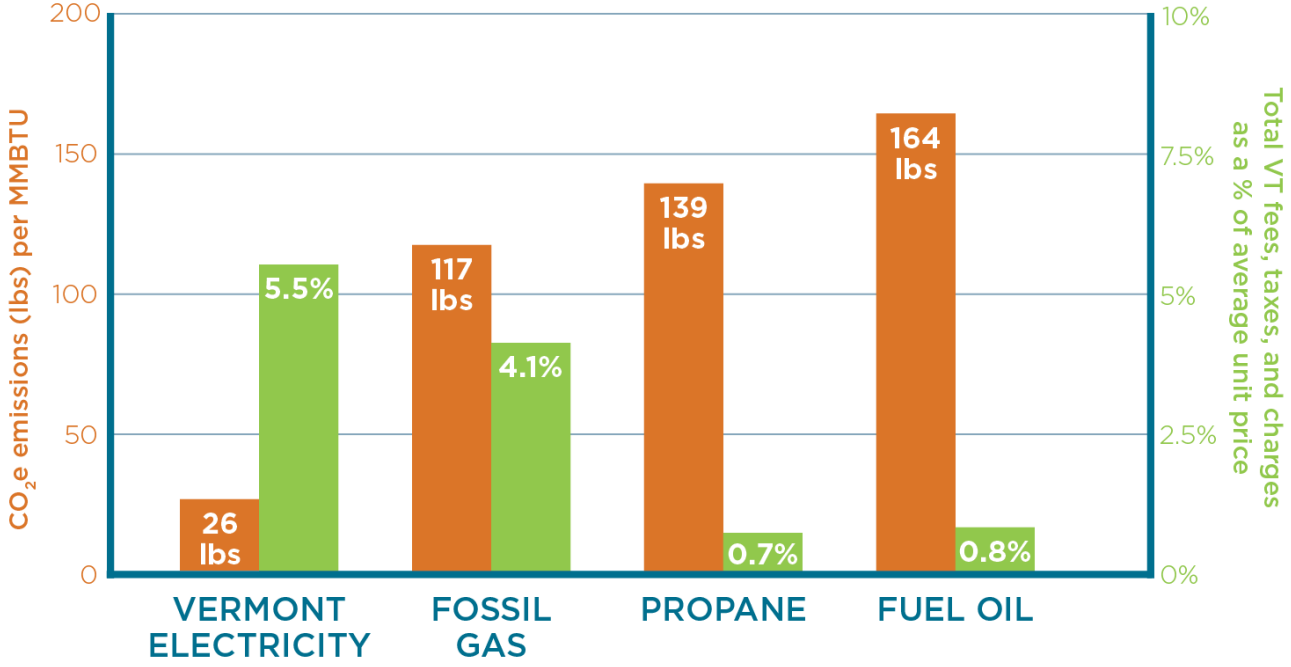
Incentives provided through Vermont's Switch and Save program for heat pump water heaters



Source: Efficiency Vermont, 2025.
Notes: The Switch and Save program offered rebates for up to 100% of the cost of a heat pump water heater for income-eligible customers when replacing an existing water heater in 2024 and 2025. Data include incentives processed through Efficiency Vermont, Burlington Electric Department, and VGS, from April 2024 through March 2025. AMI = area median income.

ENERGY ACTION NETWORK

Vermont's most polluting energy sources pay the least in fees, taxes, and charges



Sources: Thermal fuels fees and taxes: Vermont Department of Taxes, 2024; 2024 Energy Efficiency Charge for electricity and fossil gas: PUC Determination of 2024 Energy Efficiency Charge Rates; emissions factors for fossil fuels: EPA; emissions factor for Vermont electricity: Vermont Agency of Natural Resources, "Vermont Greenhouse Gas Emissions Inventory and Forecast, 1990-2022," 2025. **Note:** Unit price of fuels is based on the annual average residential rates in 2024.

ENERGY ACTION NETWORK

Thank you!

Questions?

jduval@eanvt.org

https://eanvt.org

EAN Vermont Energy Dashboard

View data by:

Town | County | RPC*

Select measure

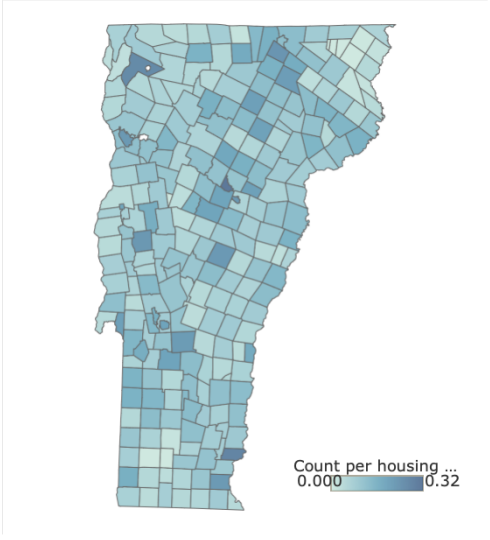
- Cold-climate heat pumps
- Heat pump water heaters
- **Weatherization**
- Electric vehicles

Select year

2024

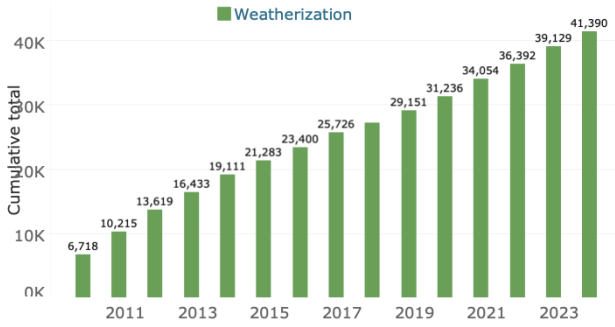
Weatherization by town as of 2024

Click on a town to filter



* RPC = Regional Planning Commission

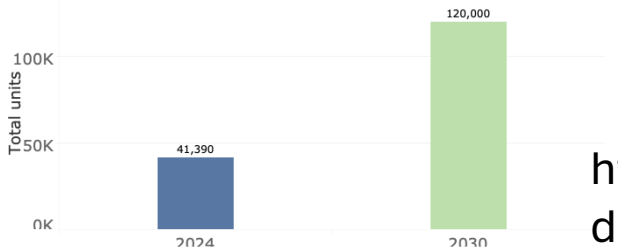
Pace of adoption



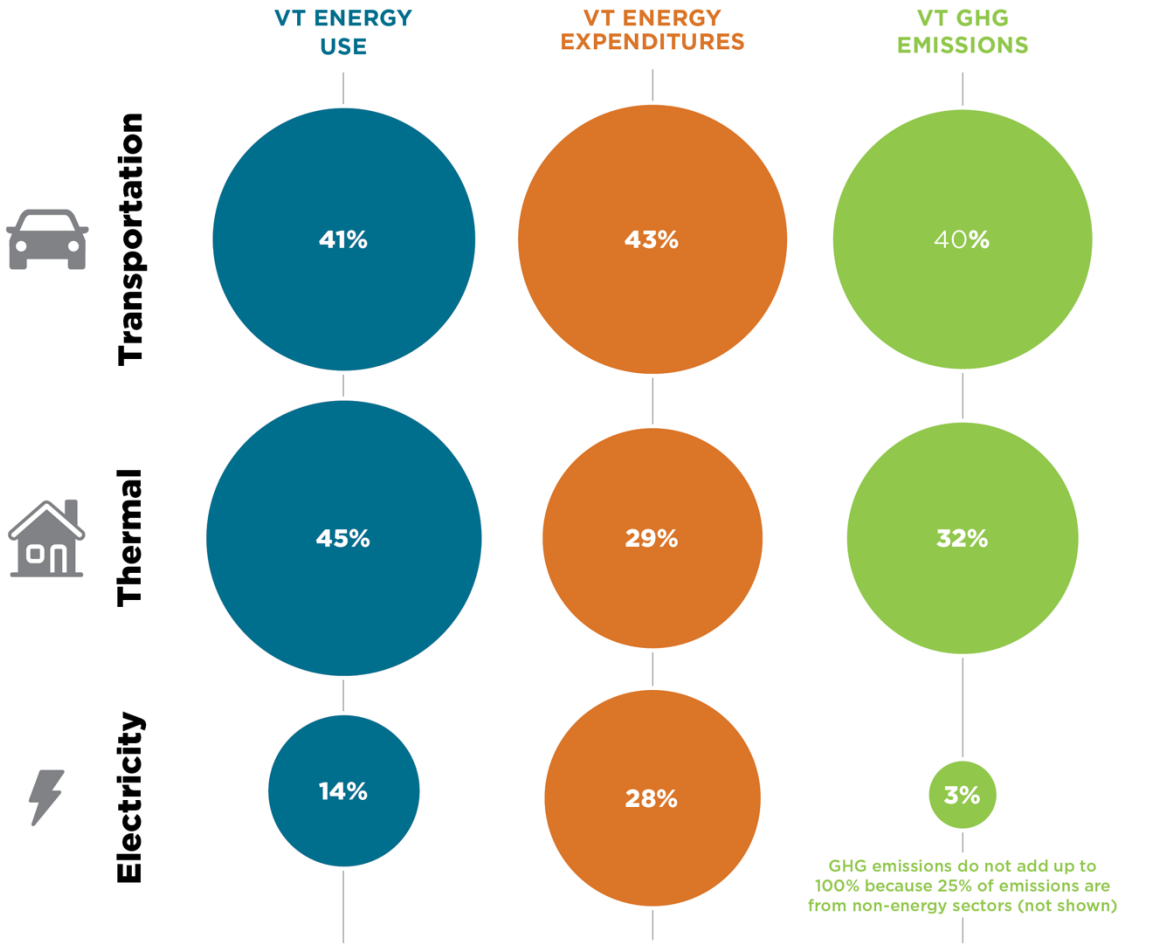
Cumulative Total Weatherization as of 2024:

41,390

Weatherization: Actual to date statewide vs. future targets in the VT Climate Action Plan



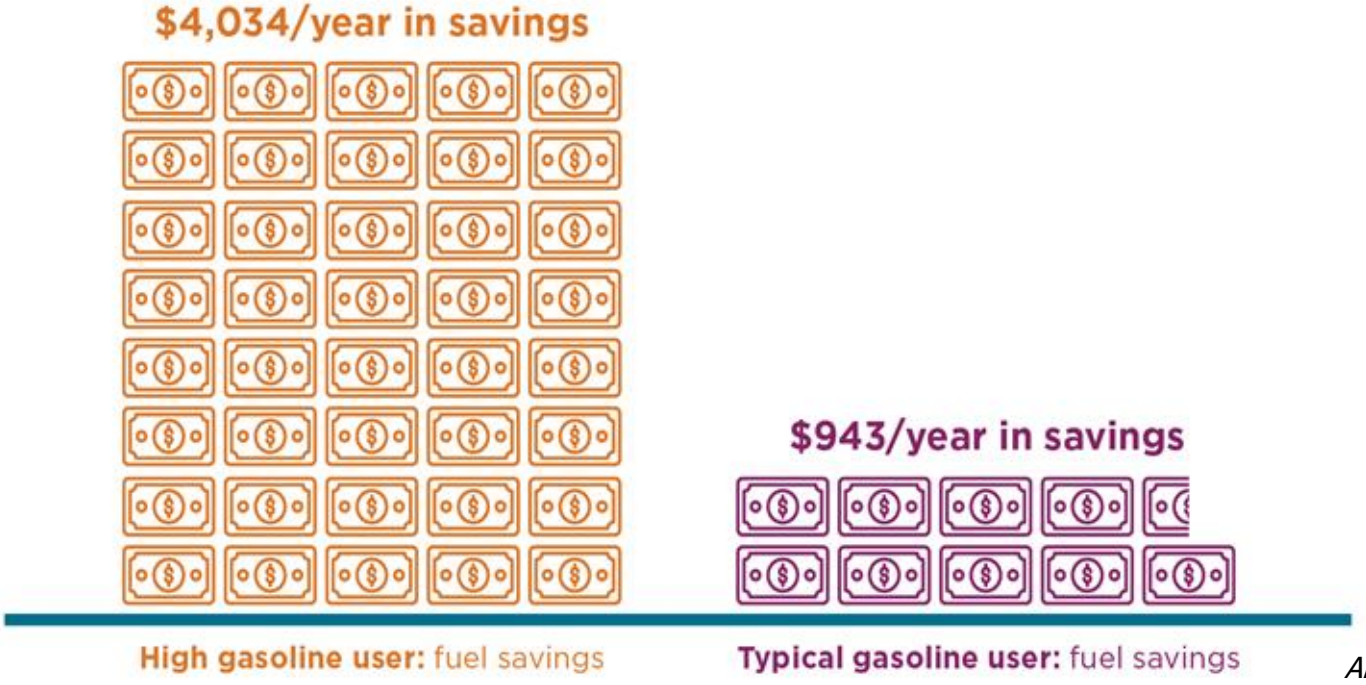
https://eanvt.org/dashboards/



Sources: For 2023 energy use: Vermont Department of Taxes, 2025; EIA State Energy Data System, 2025; Vermont Department of Public Service, 2025. For 2023 energy expenditures: Vermont Department of Taxes; VGS; Vermont Department of Public Service; and EIA State Energy Data System, 2025. For 2022 GHG emissions: Vermont Agency of Natural Resources, "Vermont Greenhouse Gas Emissions Inventory and Forecast: 1990-2022," 2025. **Note:** This graph reflects the share of statewide total energy expenditures by sector. Previous versions of this graph showed only *household* energy expenditures by sector.

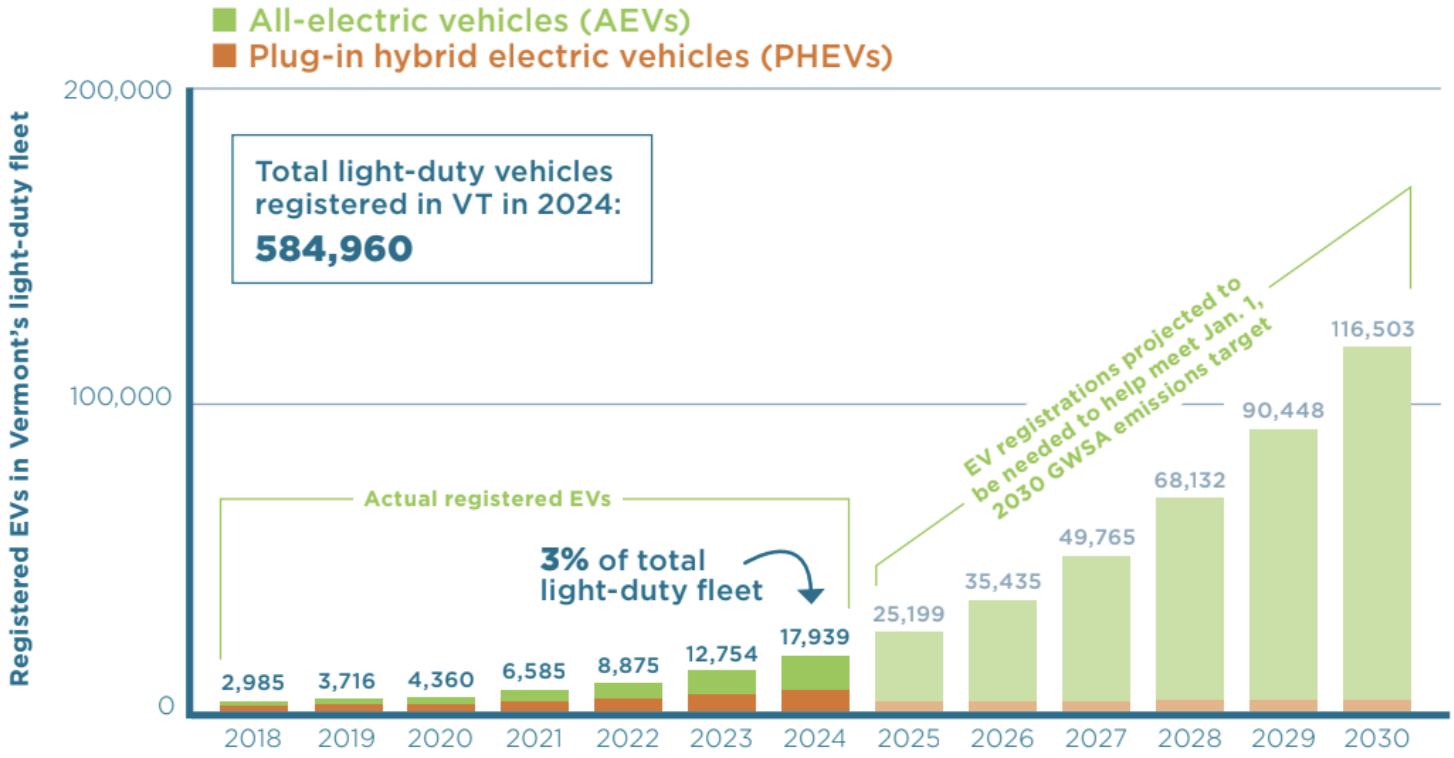
ENERGY ACTION NETWORK

Average annual fuel savings from switching to an EV: Vermont high gasoline users vs. typical gasoline users



Analysis by Coltura

Vermont EV registrations and future Pathways targets



Sources: Drive Electric Vermont, 2025; Energy Futures Group/Cadmus for VT Agency of Natural Resources, "Vermont Pathways Report 2.0," 2022; VT Agency of Natural Resources, 2025; Atlas Public Policy, EValuateVT Dashboard, 2025.

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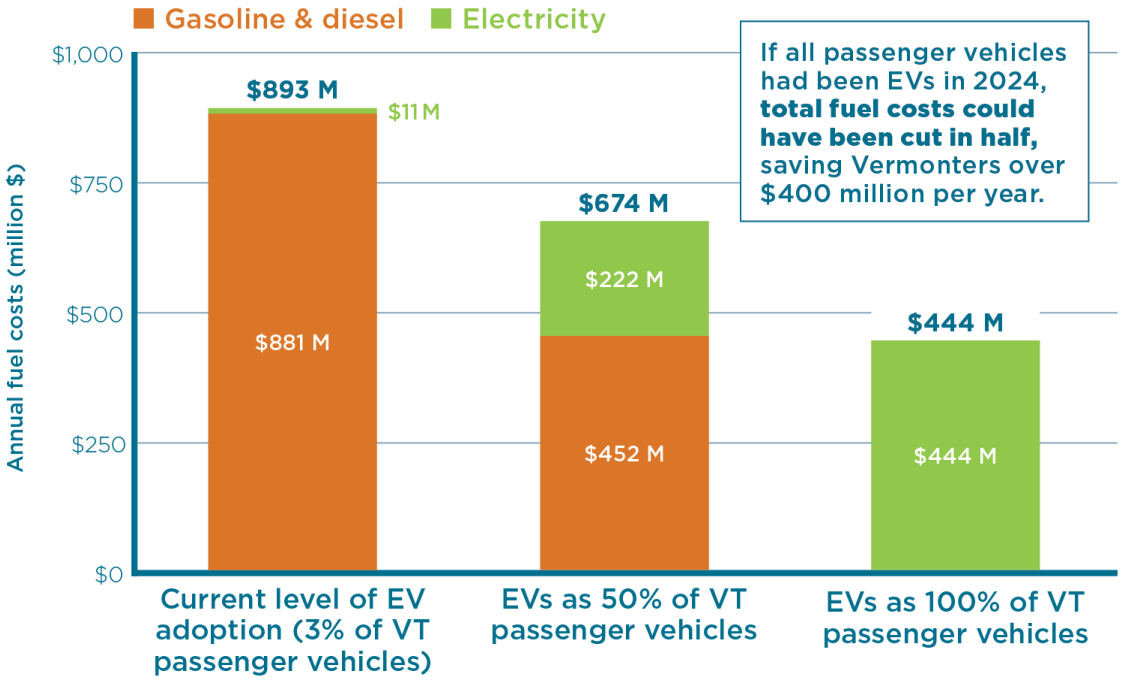
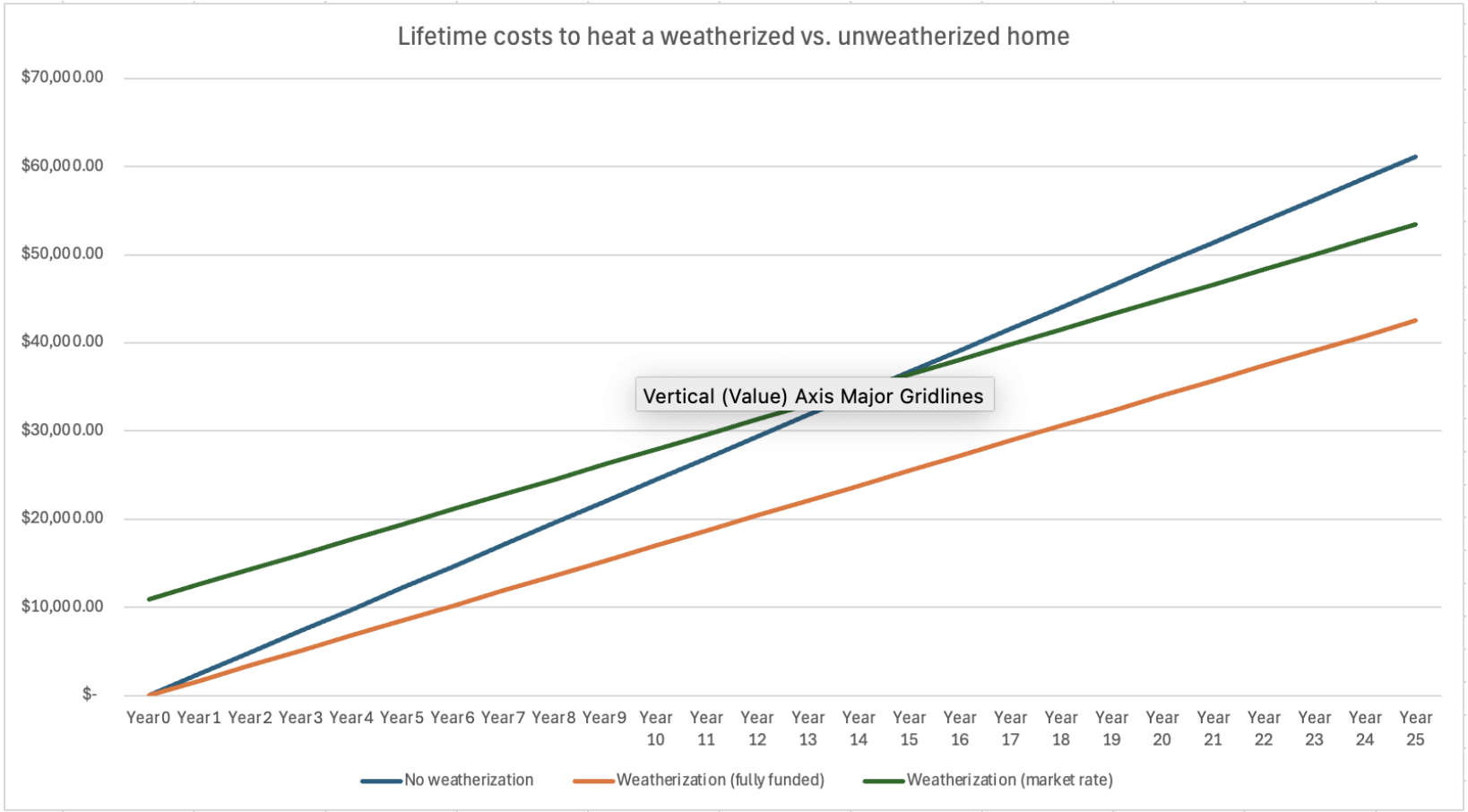
Statewide transportation fuel costs under different EV adoption scenarios (2024 prices)

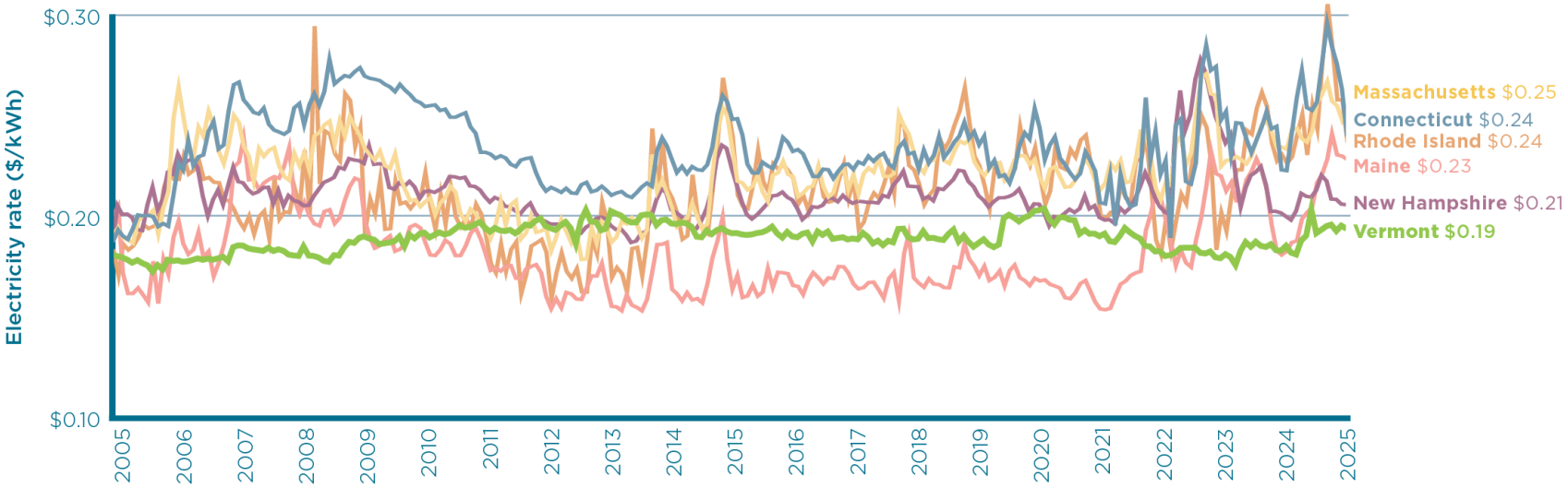


Sources: Current VT vehicle registration data from the Vermont Department of Motor Vehicles via Drive Electric Vermont; scenarios assume average electricity, gasoline, and diesel prices in 2024 from EIA; average annual VMT of 11,153 from the Federal Highway Administration, 2023; average vehicle fuel efficiency from "Vermont Transportation Energy Profile 2021." **Note:** Electrification scenarios model light-duty fossil fuel vehicles being replaced by all-electric vehicles using 2024 as a reference year. As of 2024, there were approximately 585,000 light-duty vehicles registered in Vermont. Total electricity cost estimates do not incorporate potential transmission costs that could accompany increased electric load.

ENERGY ACTION NETWORK


Lifetime costs to heat a weatherized vs. unweatherized home
$70,000.00
$60,000.00
$50,000.00
$40,000.00
$30,000.00
$20,000.00
$10,000.00
$-
Vertical (Value) Axis Major Gridlines
Year0 Year1 Year2 Year3 Year4 Year5 Year6 Year7 Year8 Year9 Year 10 Year 11 Year 12 Year 13 Year 14 Year 15 Year 16 Year 17 Year 18 Year 19 Year 20 Year 21 Year 22 Year 23 Year 24 Year 25
No weatherization
Weatherization (fully funded)
Weatherization (market rate)

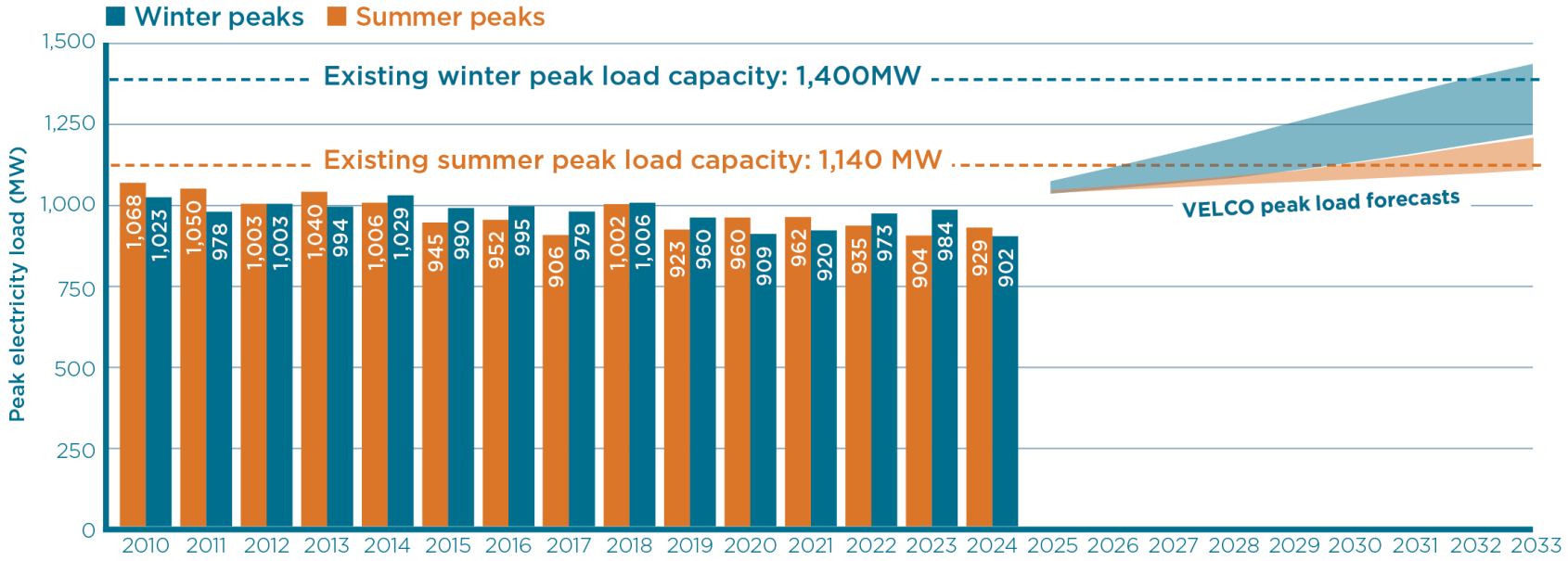
Average monthly retail electricity rates by New England state



Sources: U.S. Energy Information Administration, Average retail price of electricity, all sectors, 2025; U.S. Bureau of Labor Statistics, CPI for all urban consumers, 2025. All prices are adjusted for inflation and presented in June 2025 dollars.

ENERGY ACTION NETWORK

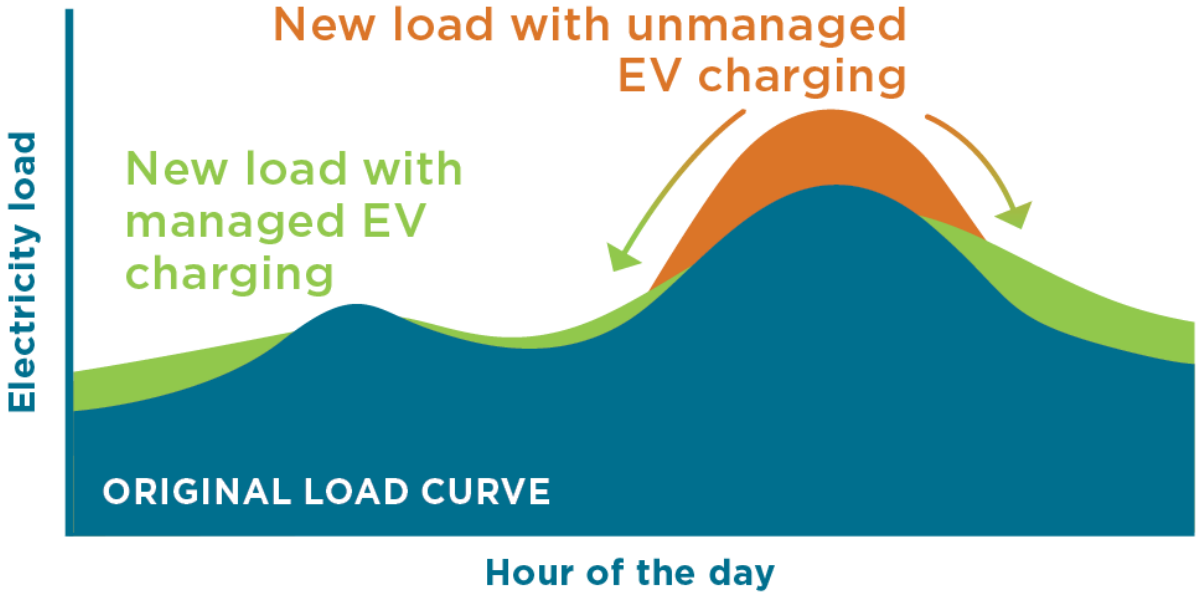
Vermont historical and forecasted peak loads



Source: VELCO, 2025; Vermont Long-Range Transmission Plan, 2024. **Notes:** The peak load forecasts represent a low and a high scenario. The low "continued growth" forecast represents a business-as-usual scenario, and the high "VT Roadmap" forecast represents electrification consistent with Vermont climate goals. Peak load capacity is greater in winter than in summer because colder temperatures reduce the electrical resistance of power lines and improve the efficiency of heat dissipation, allowing more power to be transmitted without the risk of overheating or cable sag.

ENERGY ACTION NETWORK

Managed EV charging avoids electricity demand during peaks

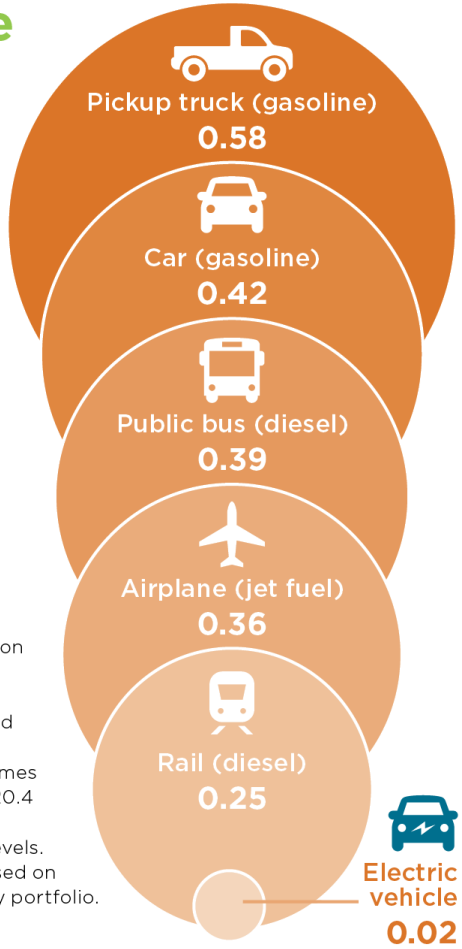


Note: Scenario for illustrative purposes.

ENERGY ACTION NETWORK

Pounds of CO_2e per passenger-mile by vehicle type (fuel emissions only)

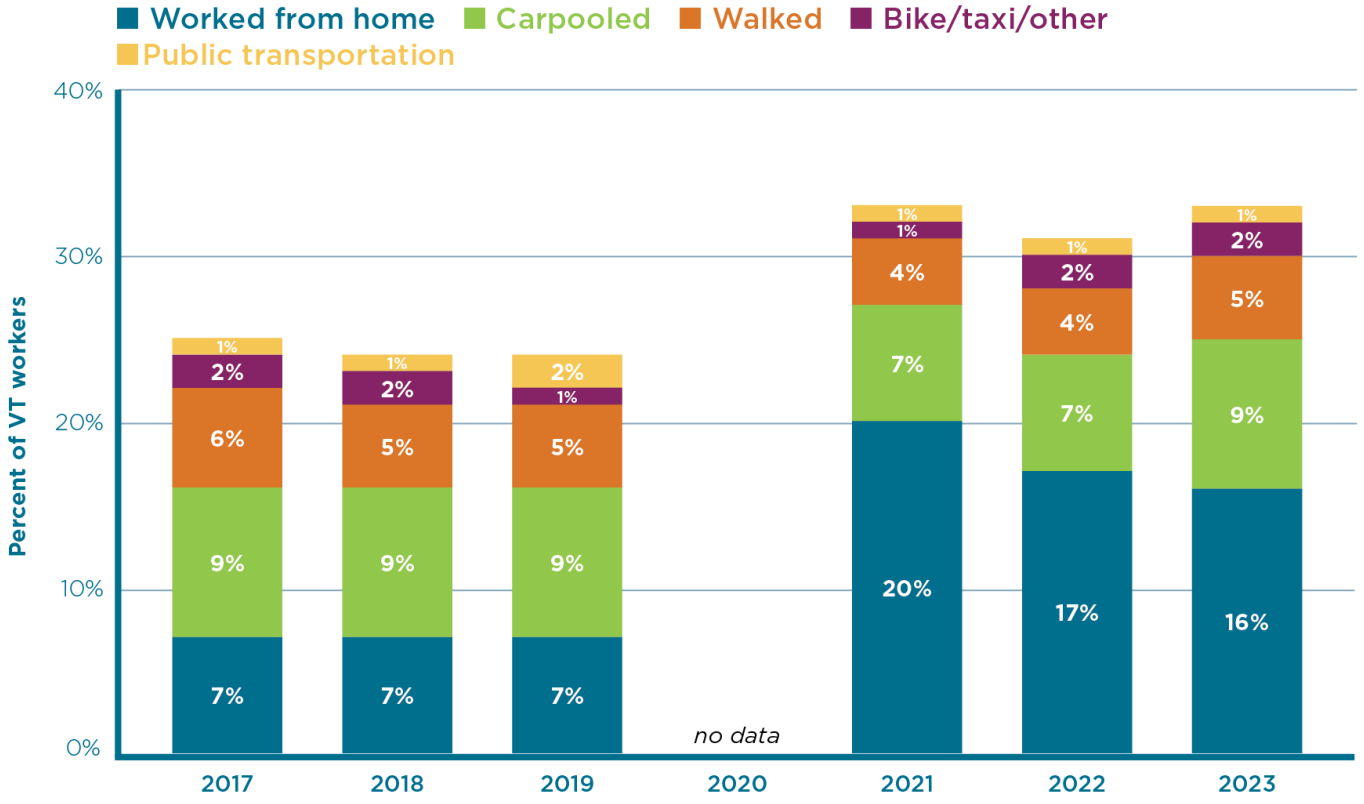
Walk/bike **0**



Sources: U.S. Department of Energy, "Transportation Energy Data Book: Edition 40," 2022; Congressional Budget Office, 2022. Fuel emissions factors from EIA. Estimates for pickup trucks, gas cars, and EVs calculated using VT average vehicle occupancy of 1.58. Estimate for rail assumes 23.2 passengers, for airplane assumes 120.4 passengers. **Notes:** Emissions can vary significantly depending on occupancy levels. Electric vehicle emissions calculated based on the emissions intensity of VT's electricity portfolio.

ENERGY ACTION NETWORK

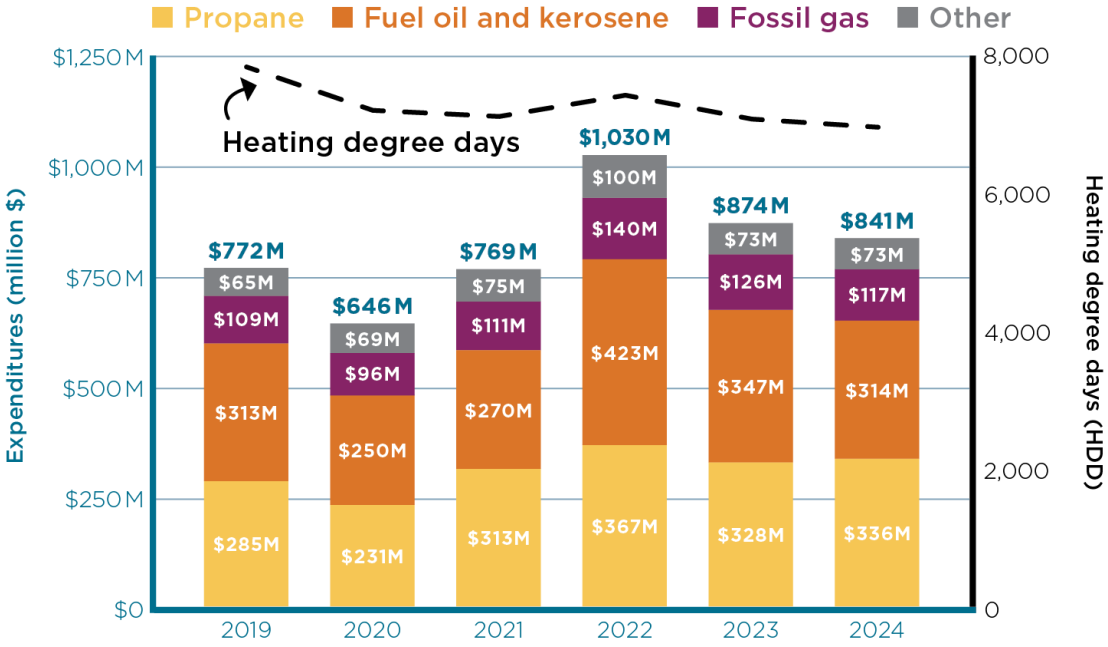
VT commute modes pre- and post-pandemic (other than single-occupancy vehicle)



Source: U.S. Census Bureau, American Community Survey 1-year estimates, 2017-2023. **Notes:** 2020 data not available due to the pandemic. Remaining commute mode share is by single-occupancy vehicles.

ENERGY ACTION NETWORK

Vermont statewide fossil heating fuel expenditures, 2019–2024

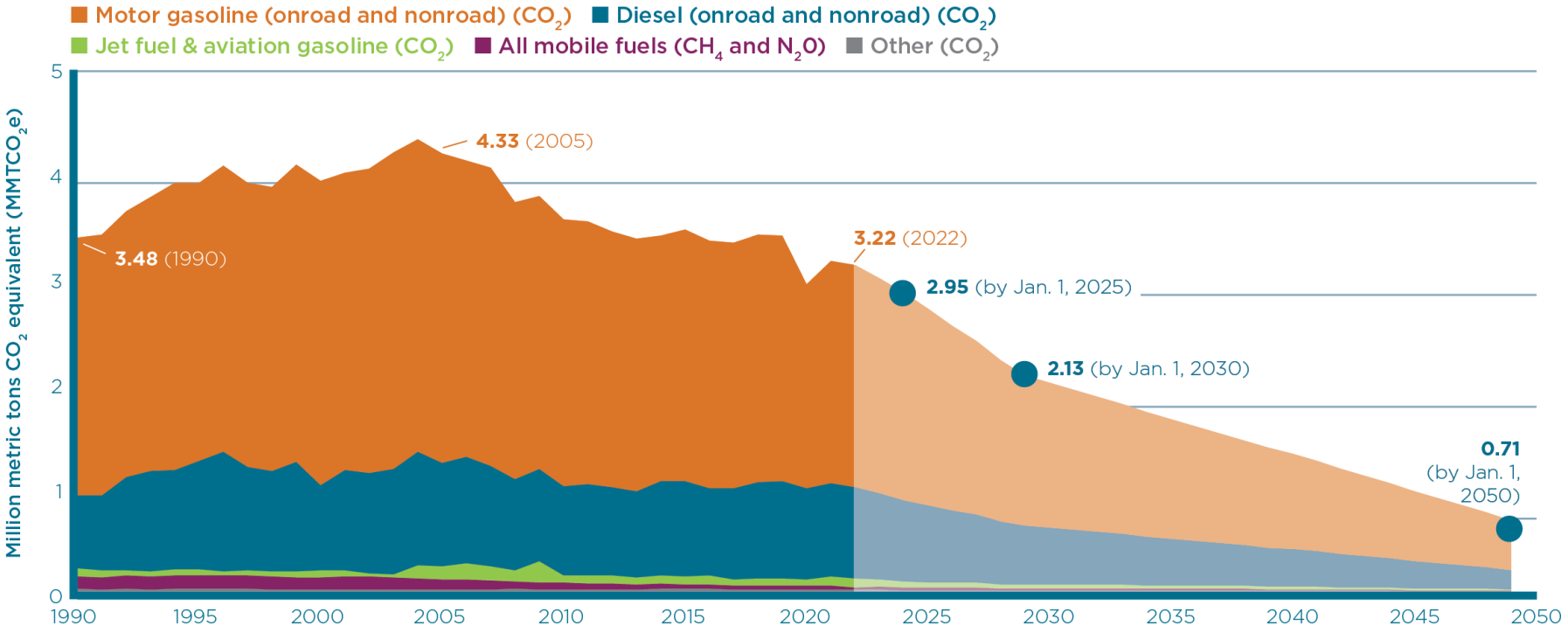


Sources: Fuel sales volumes from the Vermont Department of Taxes, VGS, and EIA; annual expenditures estimated based on monthly average fuel prices for Vermont from the Vermont Department of Public Service, VGS, and EIA; Vermont population-weighted heating degree days from NOAA Climate Prediction Center.

Notes: Heating degree days are a measure that compares the mean outdoor temperature on a given day to a standard temperature of 65 degrees Fahrenheit. A higher number of heating degree days indicates a colder year. Kerosene makes up only 3%–4% of total "fuel oil and kerosene" gallons sold. Prices shown are nominal and not adjusted for inflation.

ENERGY ACTION NETWORK

Historical VT transportation GHG emissions and future sector targets

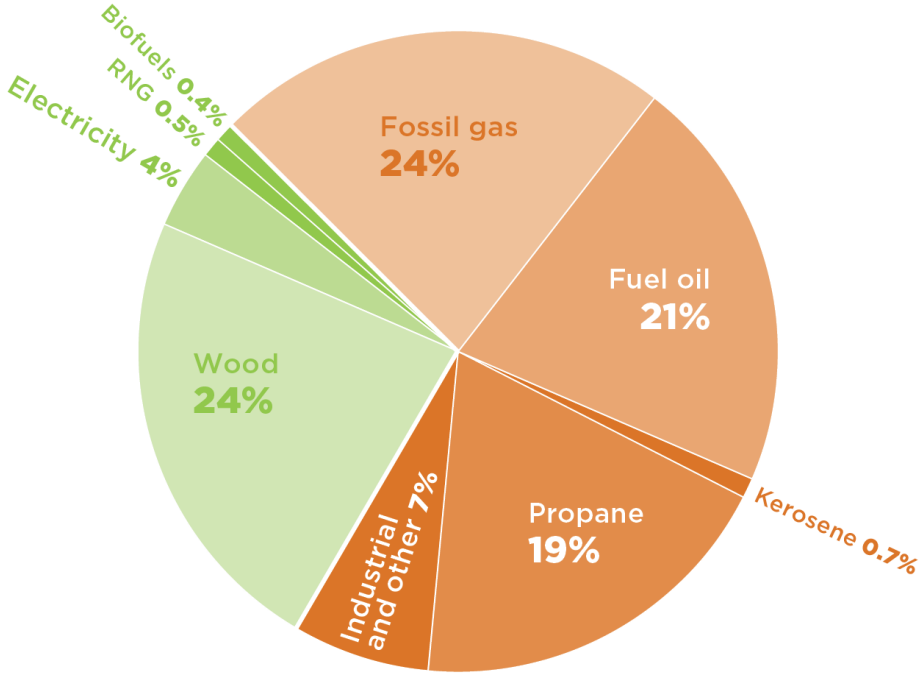


Source: Vermont Agency of Natural Resources, "Vermont Greenhouse Gas Emissions Inventory and Forecast: 1990-2022," 2025. **Note:** The VT Climate Council set sectoral emissions targets for GWSA compliance, which are represented by the blue dots on the graph.

ENERGY ACTION NETWORK

VT thermal energy sources, 2023

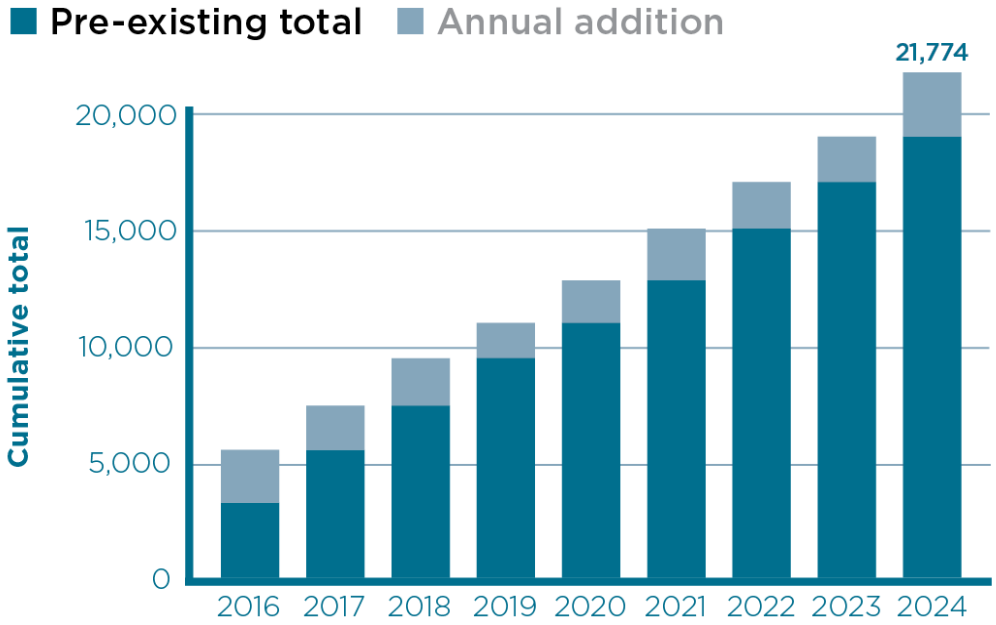
TOTAL: 53 TRILLION BTU

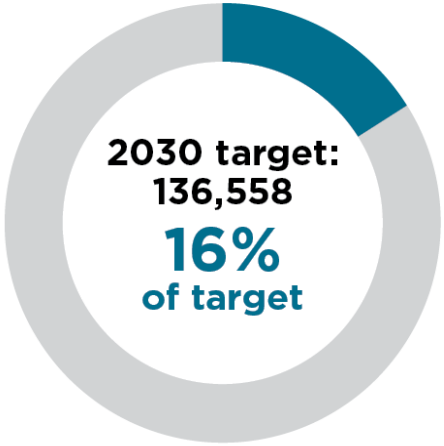


Sources: VT Department of Taxes, 2025; EIA State Energy Data System, 2025; VGS: 2025; Efficiency Vermont, 2025. **Notes:** Percentages may not add up to 100% due to independent rounding. Electricity used for thermal purposes is estimated based on the number of heat pumps and heat pump water heaters installed in Vermont, as well as the number of homes estimated to have electric resistance heat or hot water. "Industrial and other" includes residual fuel oil, asphalt and road oil, lubricants, and special naphthas.

ENERGY ACTION NETWORK

Residential heat pump water heaters: Historical uptake and Climate Action Plan pathways



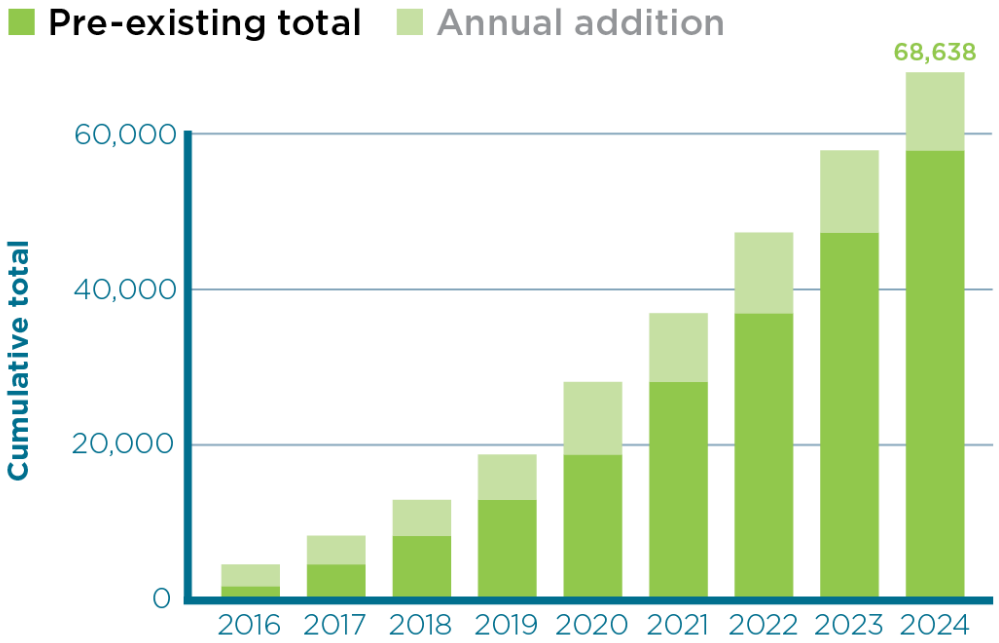


Sources: Cold-climate heat pump and heat pump water heater incentive data from Efficiency Vermont, 2025 and Burlington Electric Department, 2025. 2030 targets from Energy Futures Group/VT ANR, "Vermont Pathways Analysis Report 2.0," 2022.

Notes: Data include residential measures only. The Pathways model contains the scenario that was modeled to meet GWSA requirements. However, Vermont's emissions reduction requirements could theoretically be met with a different mix of measures.

ENERGY ACTION NETWORK

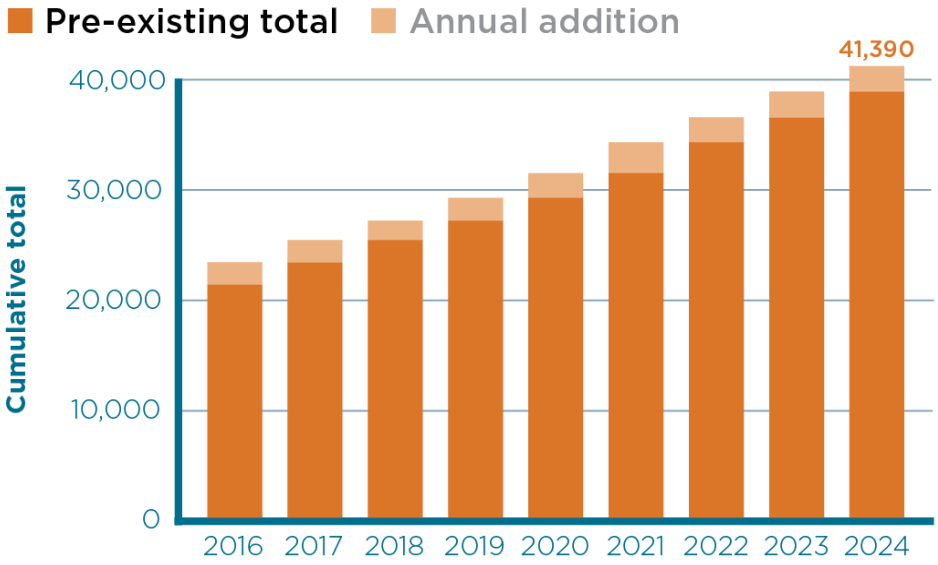
Residential cold climate heat pumps: Historical uptake and Climate Action Plan pathways



Sources: Cold-climate heat pump and heat pump water heater incentive data from Efficiency Vermont, 2025 and Burlington Electric Department, 2025. 2030 targets from Energy Futures Group/VT ANR, "Vermont Pathways Analysis Report 2.0," 2022. **Notes:** Data include residential measures only. The Pathways model contains the scenario that was modeled to meet GWSA requirements. However, Vermont's emissions reduction requirements could theoretically be met with a different mix of measures.

ENERGY ACTION NETWORK

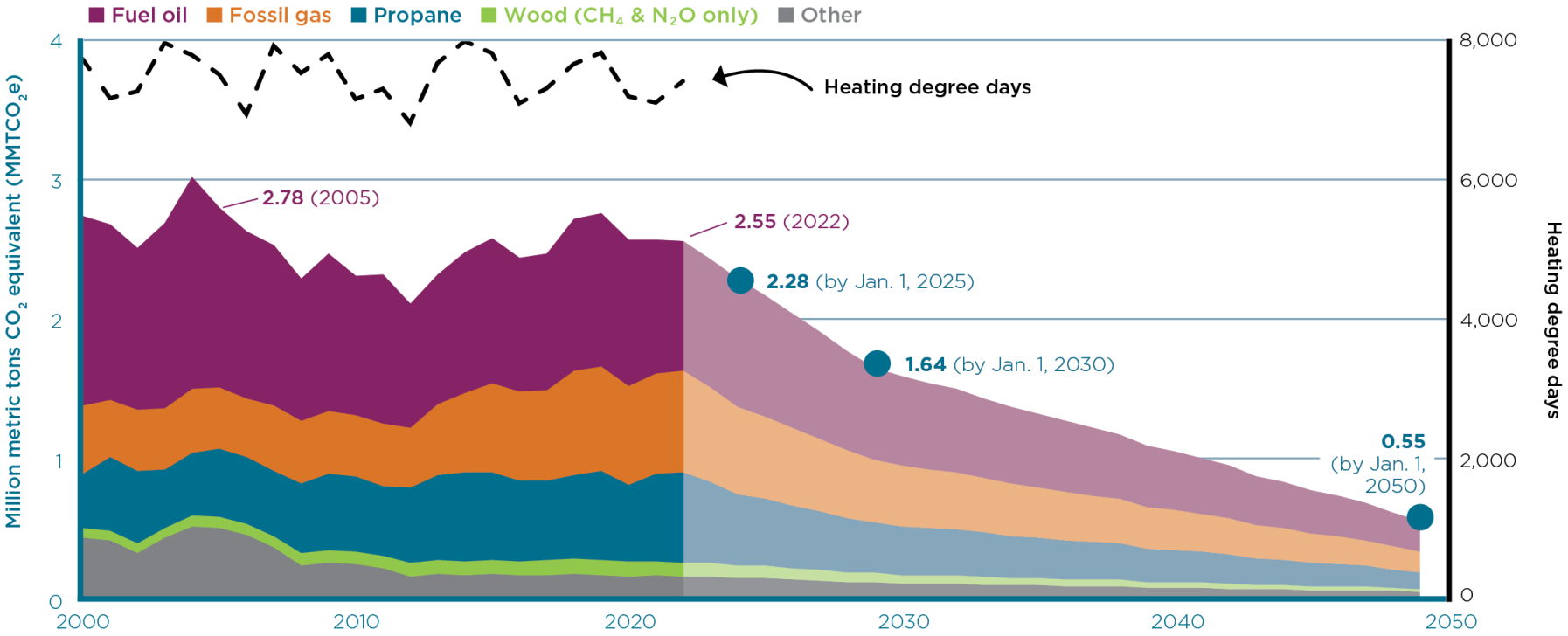
Housing units comprehensively weatherized: Historical uptake and Climate Action Plan pathways



Sources: Weatherization data from Efficiency Vermont, Burlington Electric Department, VGS, Vermont Weatherization Assistance Program (WAP), and 3E Thermal. 2030 targets from Energy Futures Group/VT ANR, "Vermont Pathways Analysis Report 2.0," 2022.**Notes:** Data include residential measures only. The Pathways model contains the scenario that was modeled to meet GWSA requirements. However, Vermont's emissions reduction requirements could theoretically be met with a different mix of measures. Comprehensive weatherization is defined as those weatherization projects which, overall, achieve a minimum of 25% energy savings, as established in 10 V.S.A. § 581 and interpreted by the Public Service Department.

ENERGY ACTION NETWORK

Historical VT thermal GHG emissions and future sector targets

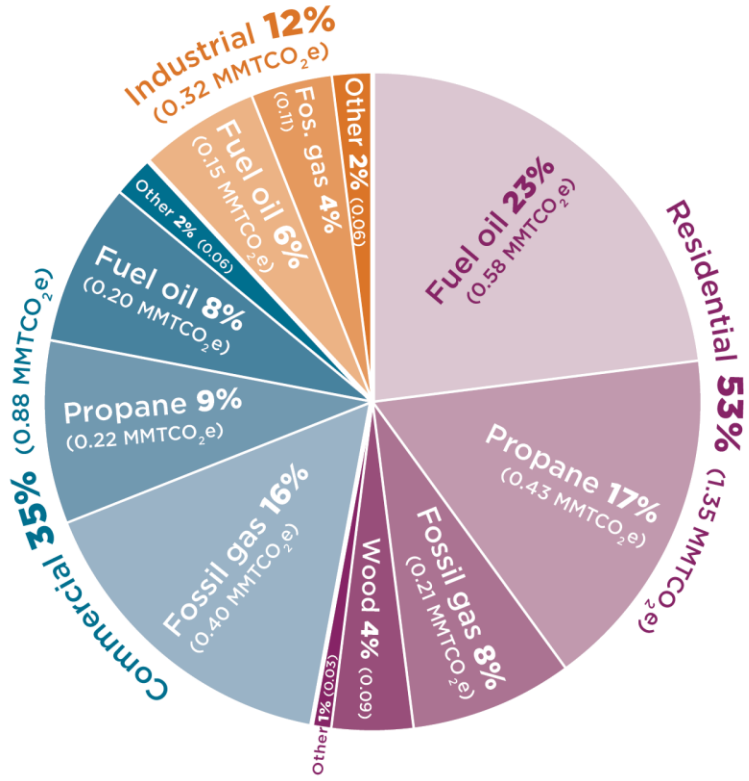


Sources: Vermont Agency of Natural Resources, "Vermont Greenhouse Gas Emissions Inventory and Forecast: 1990-2022," 2025. Heating degree days: NOAA Climate Prediction Center, 2025. **Notes:** Heating degree days are a measure of how cold the temperature was on a given day, and compares the mean outdoor temperature to a standard temperature of 65F. It is measured by subtracting the mean temperature from the standard temperature and aggregated over the entire year. The VT Climate Council set sectoral emissions targets for GWSA compliance, which are represented by the blue dots on the graph.

ENERGY ACTION NETWORK

Vermont thermal GHG emissions by sector and fuel type, 2022

TOTAL THERMAL EMISSIONS 2.55 $MMTCO_2e$



Source: Vermont Agency of Natural Resources, "Vermont Greenhouse Gas Emissions Inventory and Forecast: 1990-2022," 2025. **Notes:** Percentages may not add up to 100% due to independent rounding. Emissions from electricity used for thermal purposes are not counted within the thermal sector because they are counted within the electricity sector.

ENERGY ACTION NETWORK

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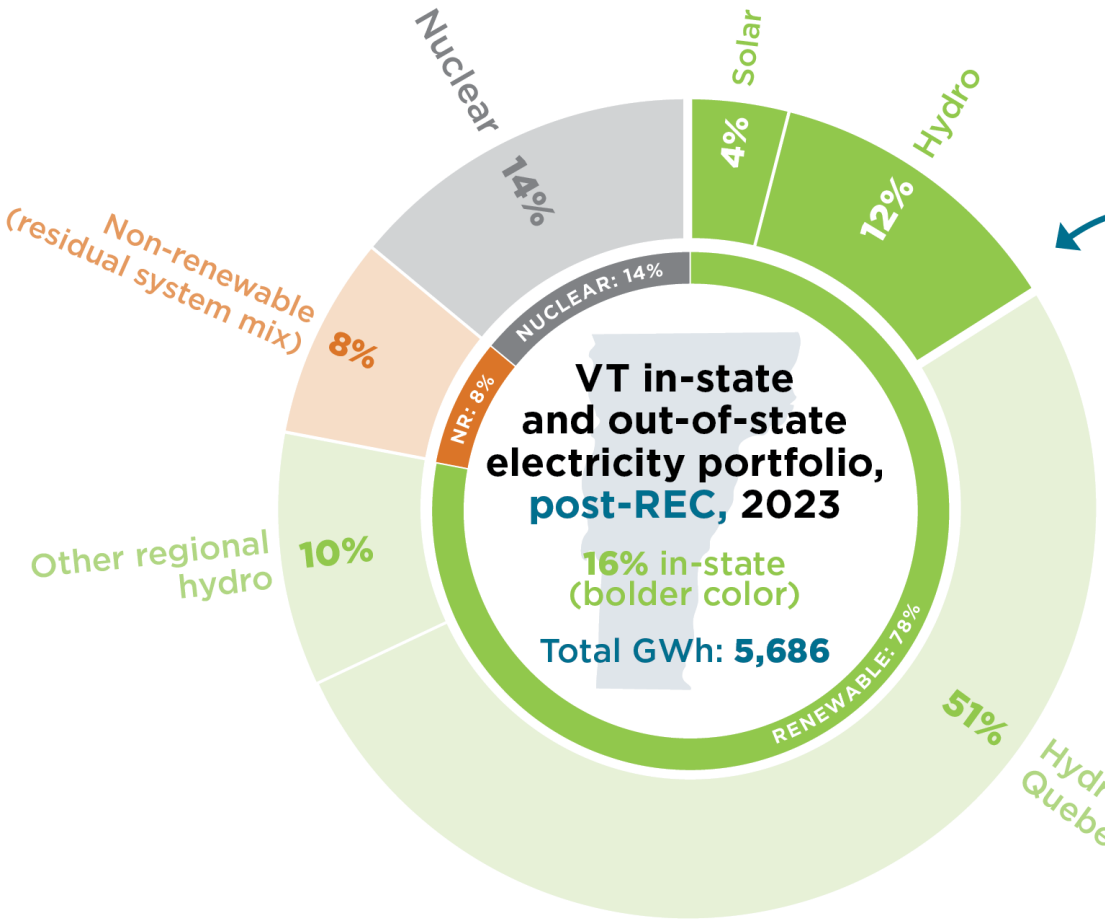
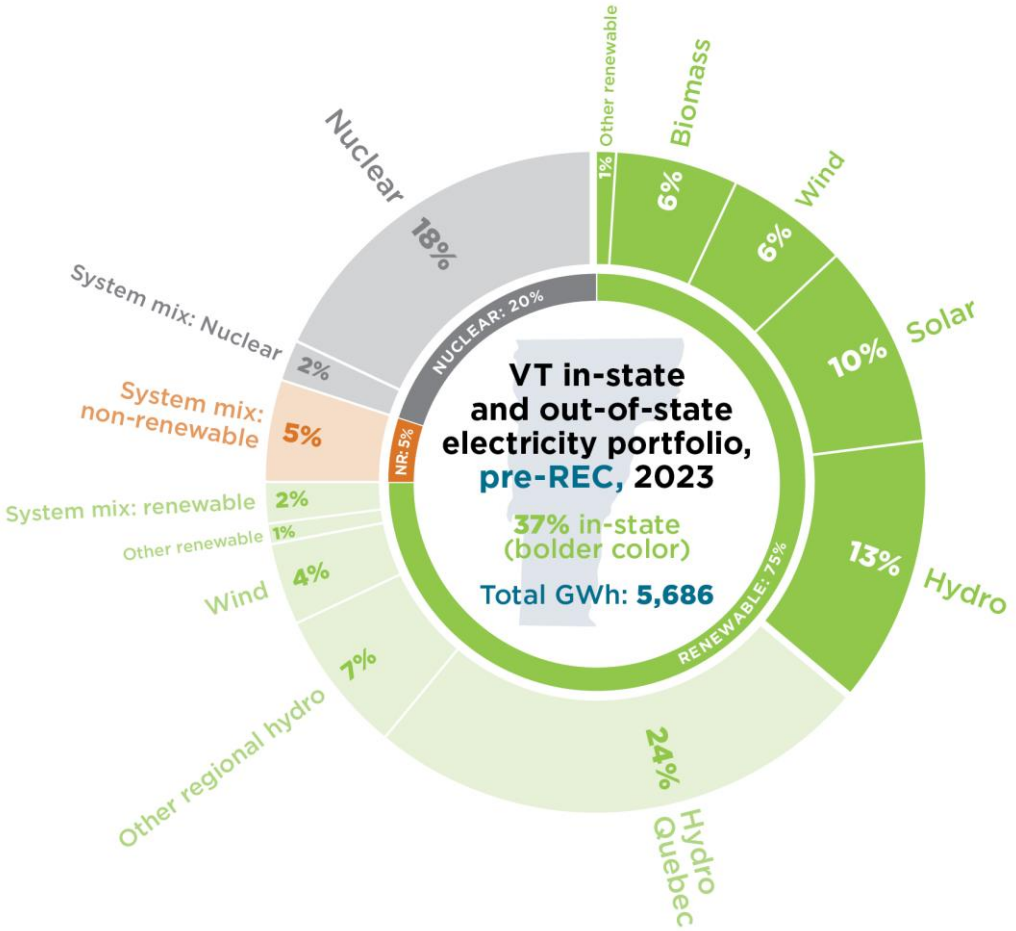


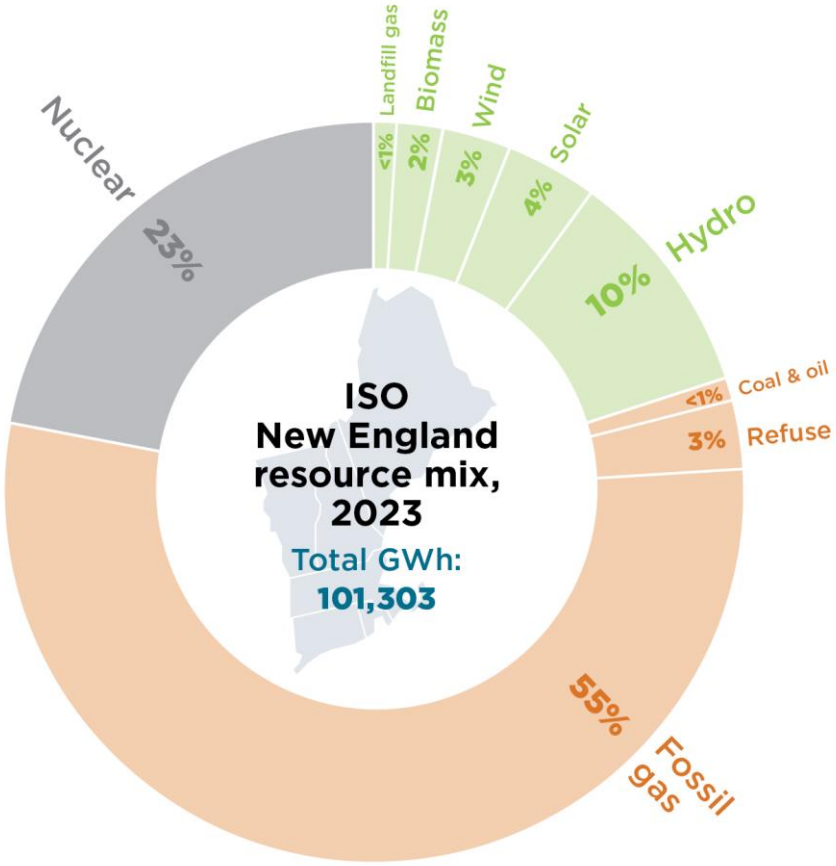
Vermont's post-REC electricity mix is what legally determines Renewable Energy Standard compliance and is what is officially used to measure electricity sector emissions in Vermont's GHG Inventory.

Sources: Vermont Department of Public Service, 2023 RES Compliance; NEPOOL GIS Residual Mix, 2023. **Notes:** The residual system mix consists of the unclaimed certificates in the ISO-NE region from NEPOOL GIS after REC trading and is 99% non-renewable (NR). Non-renewable is primarily energy from fossil fuels. Totals may not add up to 100% due to independent rounding.



Sources: Vermont Department of Public Service, 2023 RES Compliance; ISO-NE, "Net Energy and Peak Load by Source Report," 2023. **Notes:** System mix refers to the ISO New England regional electricity mix. Non-renewable is primarily energy from fossil fuels. Totals may not add up to 100% due to independent rounding.

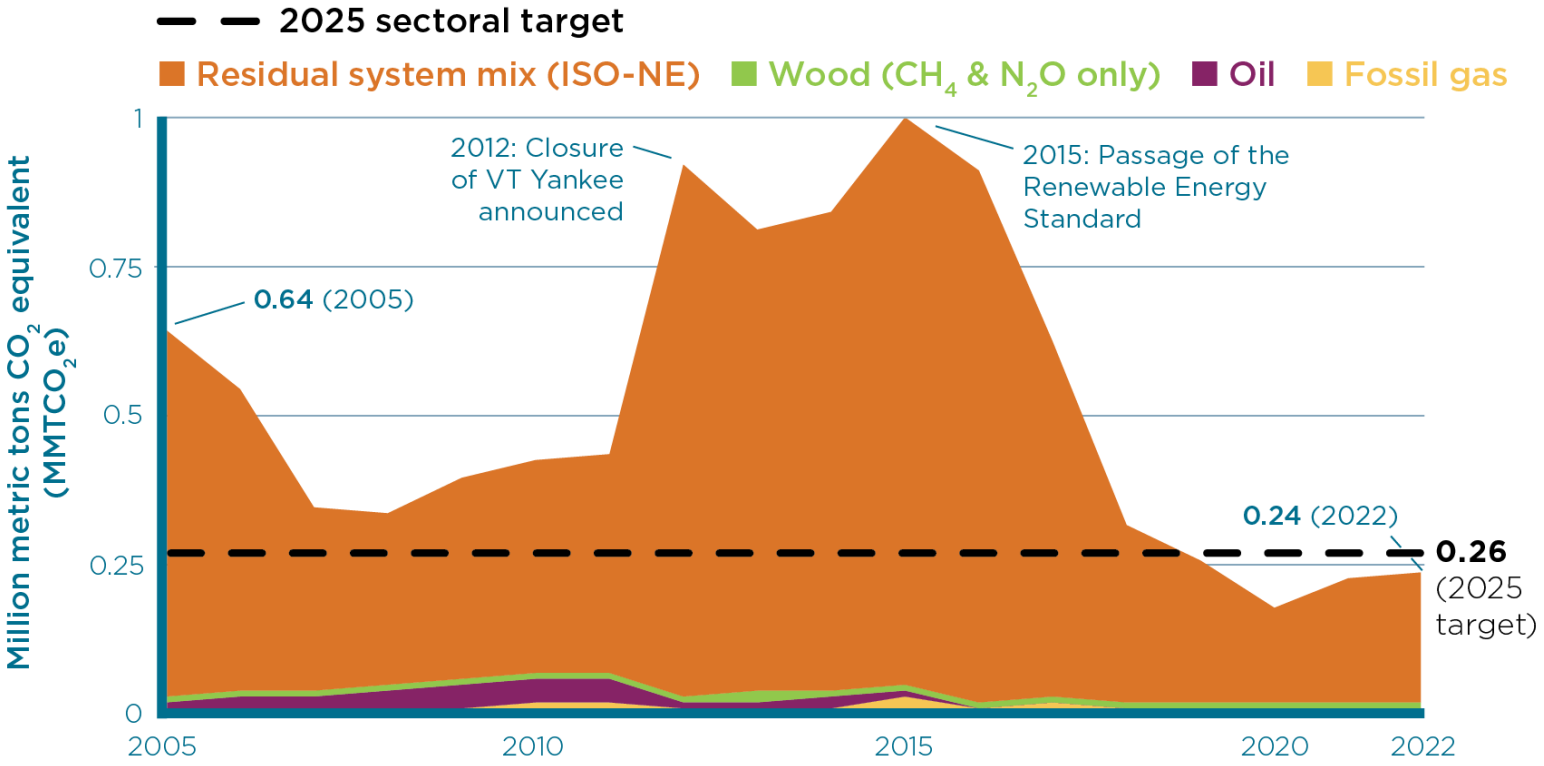
ENERGY ACTION NETWORK



Source: ISO-NE, "Net Energy and Peak Load by Source Report," 2024. **Notes:** ISO New England is New England's regional grid operator. Totals may not add up to 100% due to independent rounding.

ENERGY ACTION NETWORK

VT electricity GHG emissions (2005–2022) vs 2025 sectoral target



Source: Vermont Agency of Natural Resources, "Vermont Greenhouse Gas Emissions Inventory and Forecast: 1990-2022," 2025.

ENERGY ACTION NETWORK

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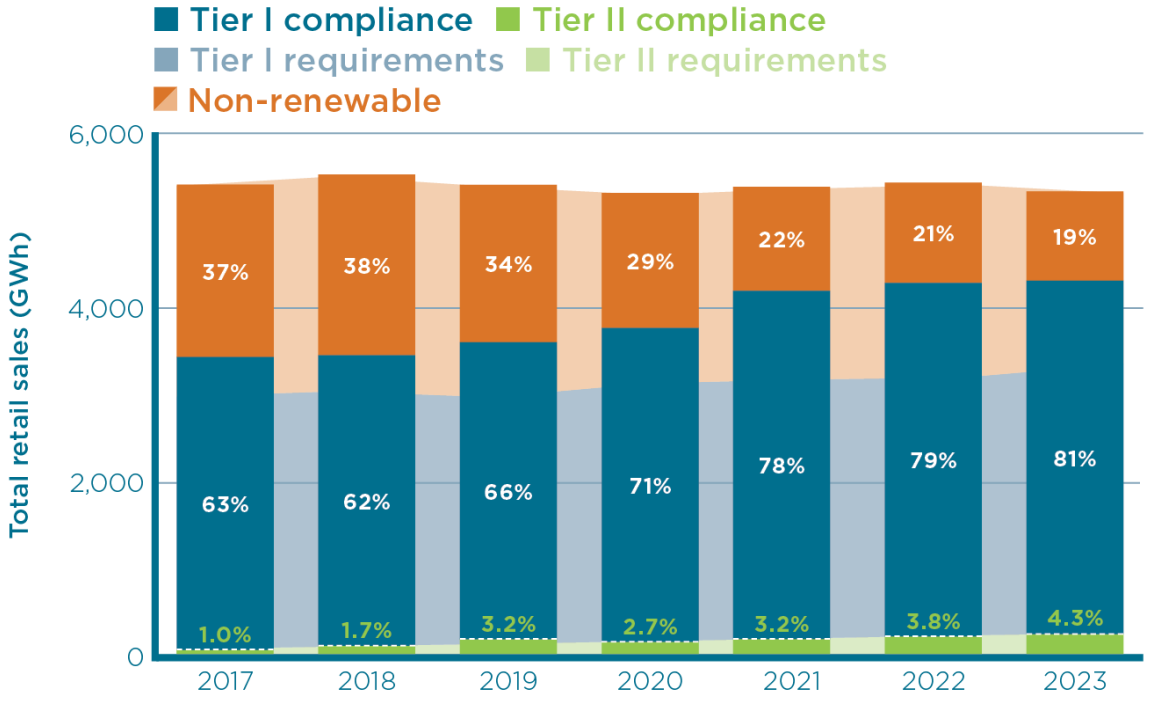
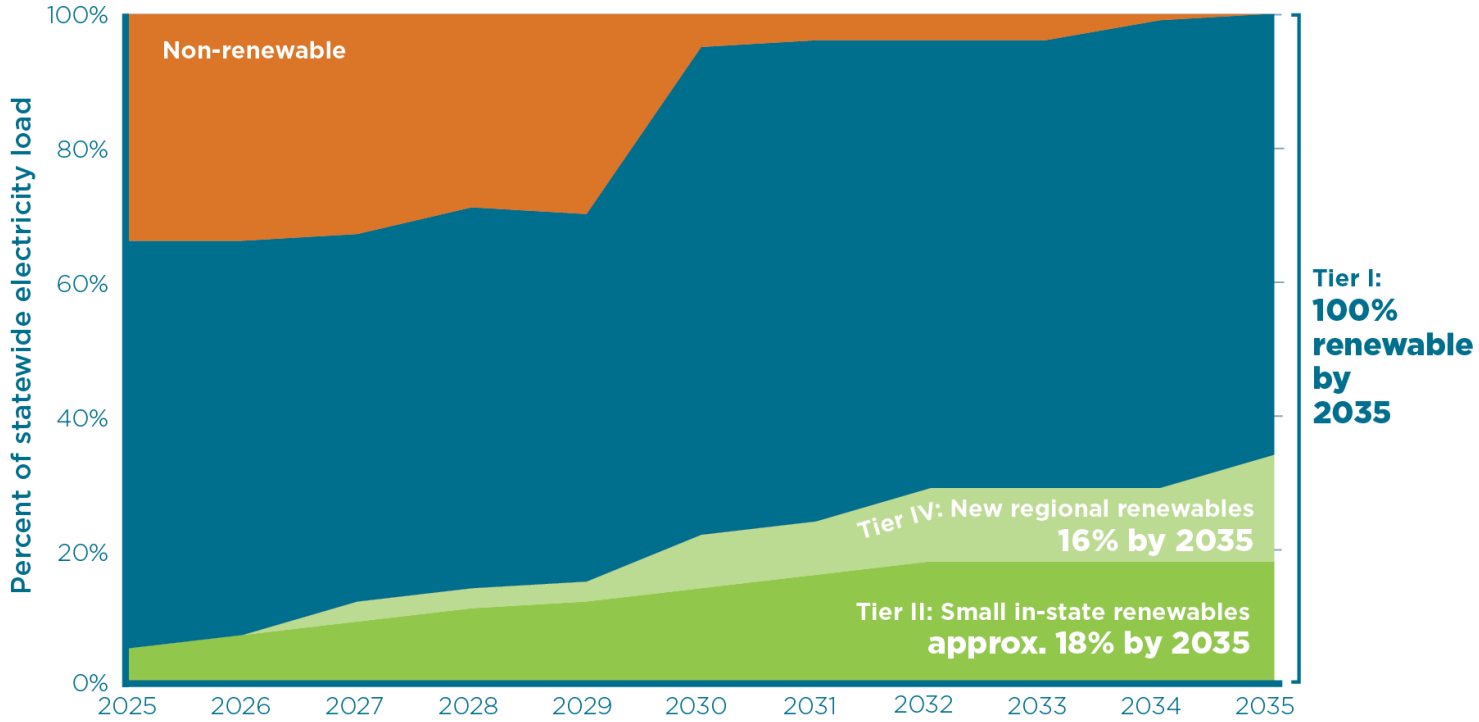
VT Renewable Energy Standard requirements and compliance, 2017–2023



Sources: Vermont Department of Public Service, 2025. RES requirements from 30 V.S.A. § 8005 (a) (1) (C). **Notes:** Distributed renewable generation that qualifies for Tier II also qualifies for and is included in Tier I. The percentages shown on the blue bars represent total Tier I generation, including Tier II (shown in green). For purposes of RES compliance, non-renewable electricity includes nuclear.

ENERGY ACTION NETWORK

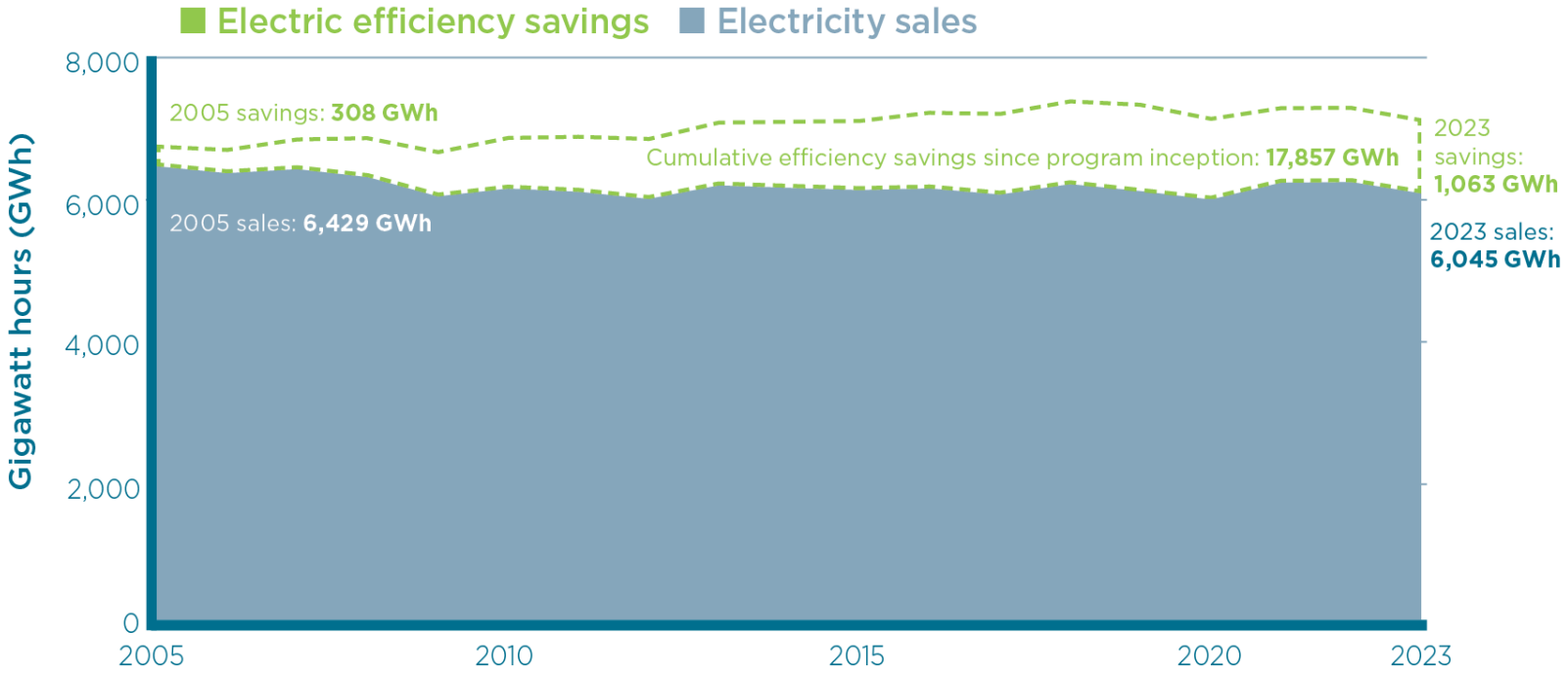
Updated Vermont Renewable Energy Standard (Act 179) requirements



Source: Vermont General Assembly, Act 179, 2024. **Notes:** Renewable generation that qualifies for Tiers II and IV also qualifies for and is included in Tier I. Actual requirements in the updated RES vary by utility. With the exception of a subset of small hydro facilities, Tier II is limited to in-state renewables brought online after 1/1/2010. Percentages shown for each tier are estimates based on the current size of the load served by each utility relative to Vermont's total electricity load.

ENERGY ACTION NETWORK

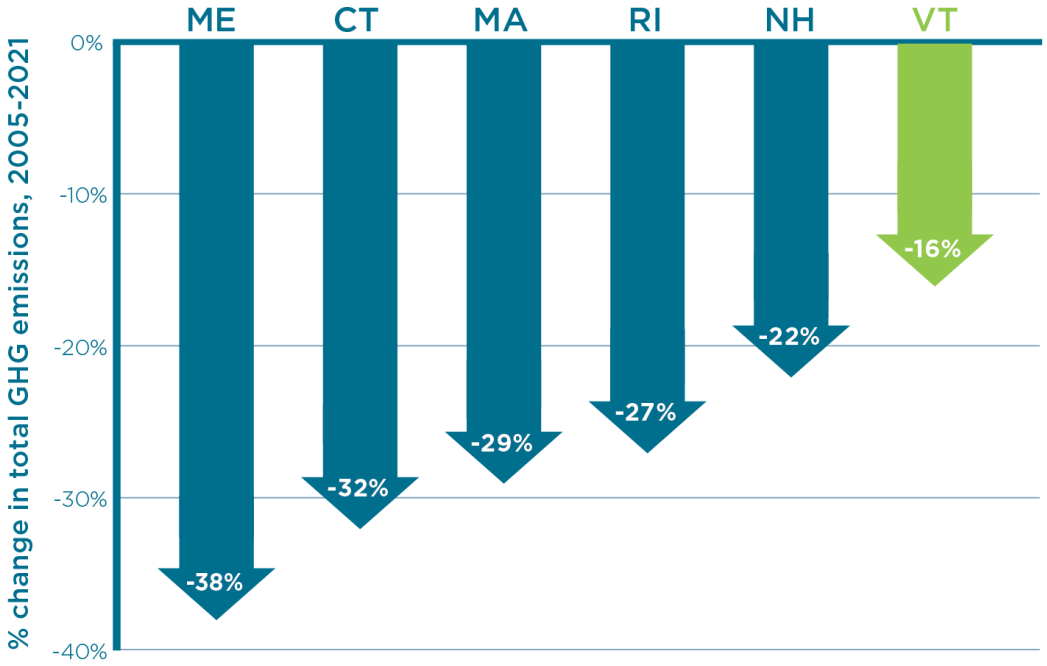
Electricity savings from Vermont electric efficiency utilities, 2005–2023



Source: Vermont Department of Public Service, "2025 Annual Energy Report." Data includes Efficiency Vermont and Burlington Electric Department (BED). **Note:** Efficiency Vermont programs began in 2000 and BED programs began in 1990.

ENERGY ACTION NETWORK

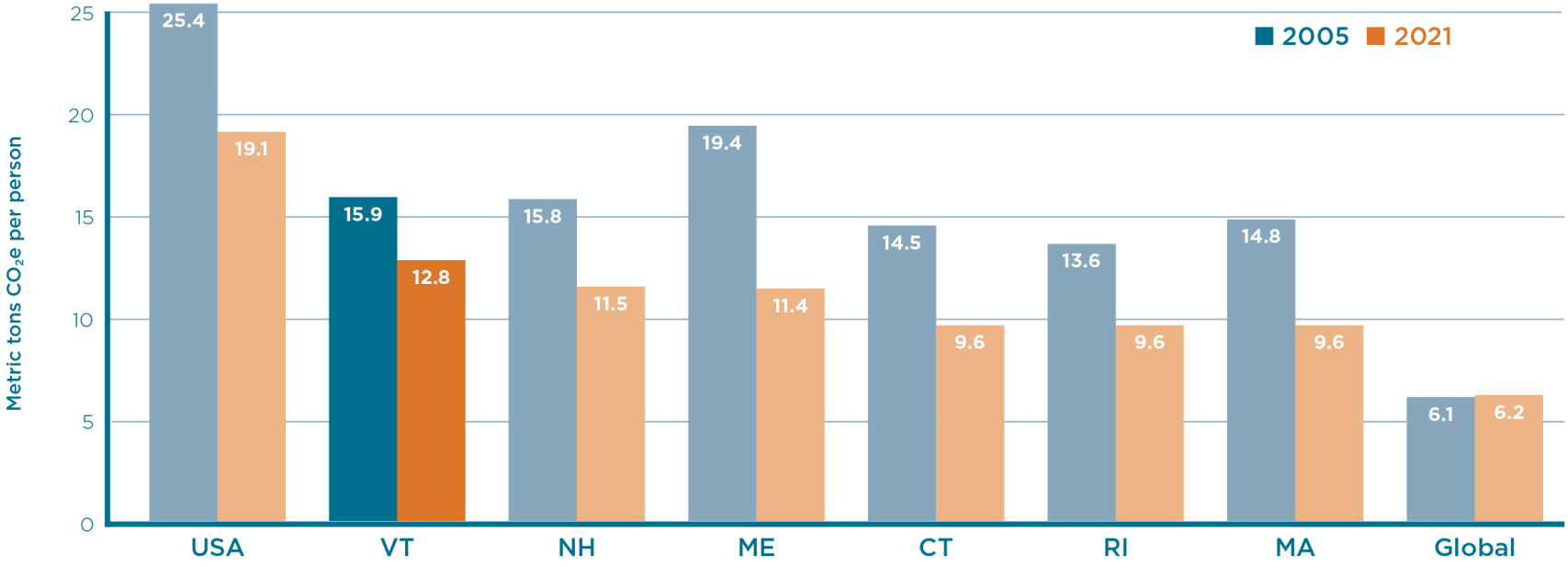
Percent reduction in total GHG emissions, 2005–2021



Sources: Vermont ANR, "Vermont Greenhouse Gas Emissions Inventory and Forecast: 1990-2021," 2024; Connecticut DEEP, "Connecticut Greenhouse Gas Emissions Inventory: 1990-2021," 2024; Maine DEP, "Tenth Biennial Report on Progress Toward Greenhouse Gas Reduction Goals," 2024; Massachusetts DEP, "Massachusetts Annual Greenhouse Gas Emissions Inventory: 1990-2021," 2024; Rhode Island DEM, "2022 Rhode Island Greenhouse Gas Inventory," 2024; New Hampshire DES, "State of New Hampshire Priority Climate Action Plan," 2024; U.S. Census Bureau, "Annual Estimates of the Resident Population for the United States, Regions, States, District of Columbia, and Puerto Rico," 2024. **Note:** 2021 is the most recent year for which comparable emissions data is available for all New England states.

ENERGY ACTION NETWORK

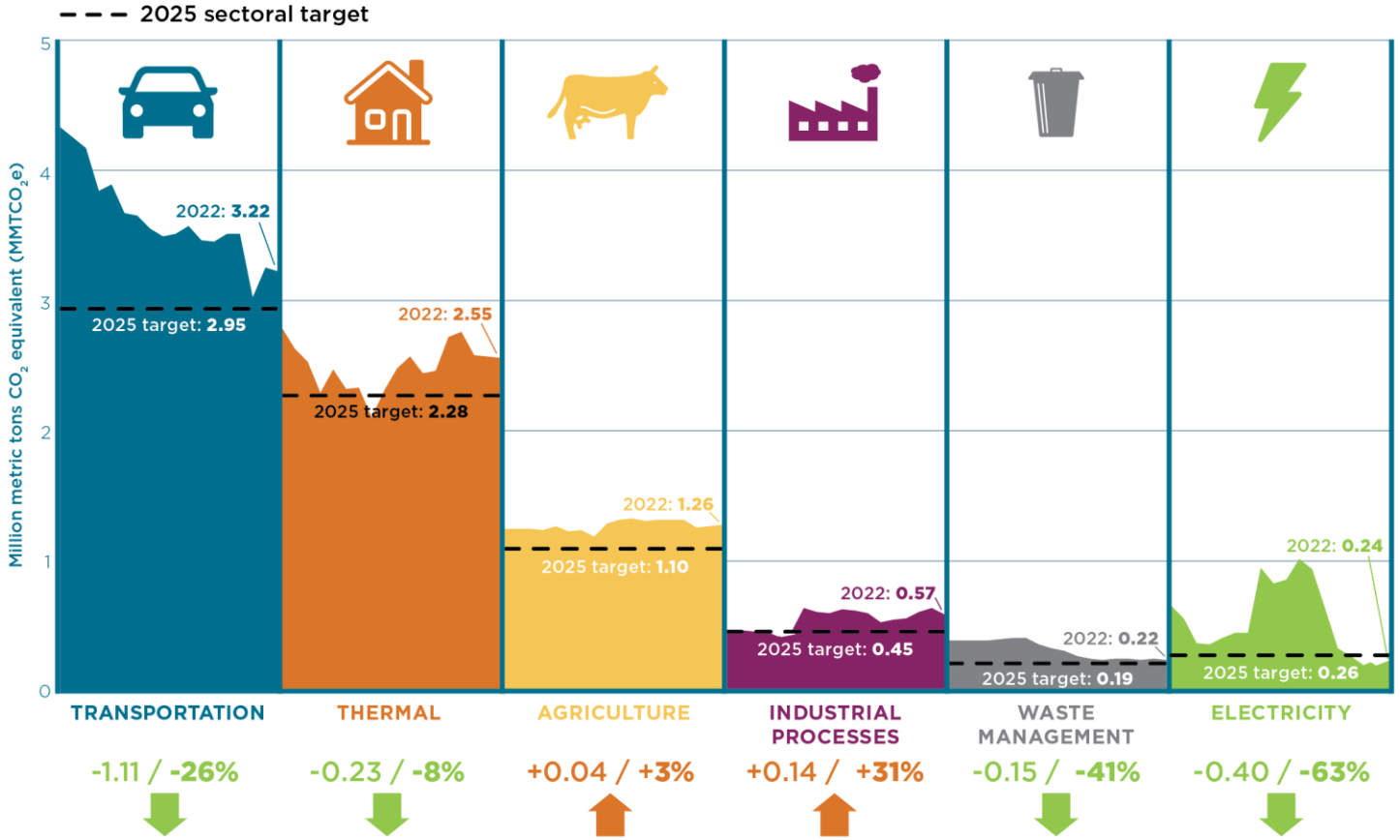
Per capita GHG emissions, 2005 vs. 2021



Sources: U.S. EPA, "Inventory of Greenhouse Gas Emissions and Sinks: 1990-2022," 2024; Vermont ANR, "Vermont Greenhouse Gas Emissions Inventory and Forecast: 1990-2021," 2024; New Hampshire DES, "State of New Hampshire Priority Climate Action Plan," 2024; Maine DEP, "Tenth Biennial Report on Progress Toward Greenhouse Gas Reduction Goals," 2024; Connecticut DEEP, "Connecticut Greenhouse Gas Emissions Inventory: 1990-2021," 2024; Rhode Island DEM, "2022 Rhode Island Greenhouse Gas Inventory," 2024; Massachusetts DEP, "Massachusetts Annual Greenhouse Gas Emissions Inventory: 1990-2021," 2024; Gütschow, et al., "The PRIMAP-hist national historical emissions time series v2.6 (1750-2023)," 2024 via Climate Watch; U.S. Census Bureau, "Annual Estimates of the Resident Population for the United States, Regions, States, District of Columbia, and Puerto Rico," 2024. **Note:** 2021 is the most recent year for which comparable emissions data is available for all New England states.

ENERGY ACTION NETWORK

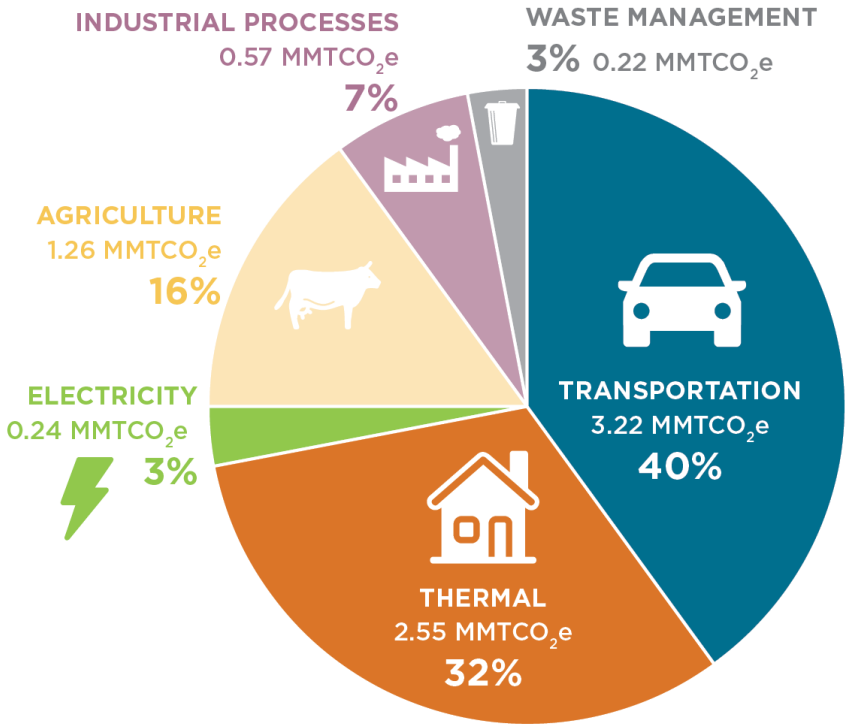
Vermont GHG emissions by sector, 2005–2022



Source: Vermont Agency of Natural Resources, "Vermont Greenhouse Gas Emissions Inventory and Forecast: 1990-2022," 2025. **Note:** A small amount of emissions from the "fossil fuel industry" category (i.e., fugitive emissions from fossil gas pipelines in VT), accounting for 0.4% of Vermont's overall emissions in 2022, is not visible on this graph.

VT's GHG emissions by sector, 2022

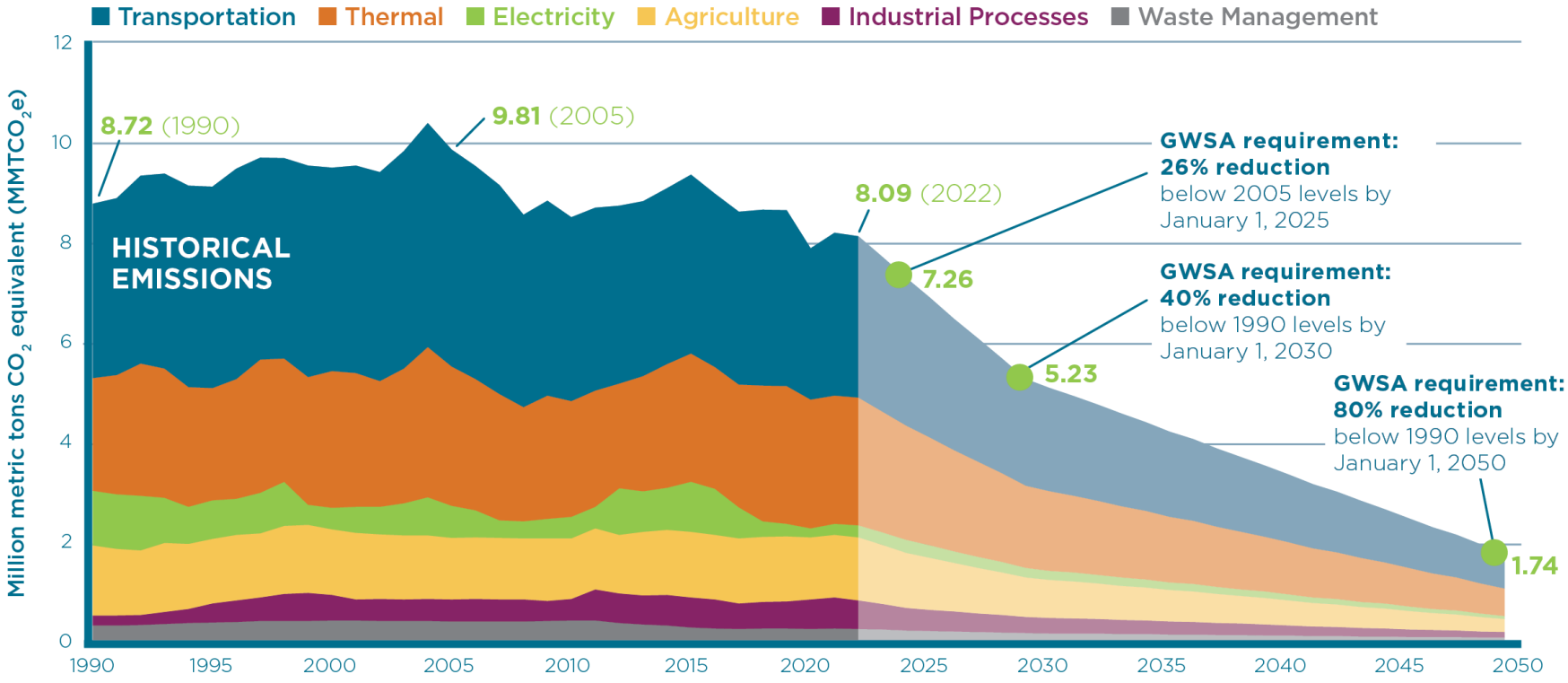
Total emissions: 8.09 $MMTCO_2e$



Source: Vermont Agency of Natural Resources, "Vermont Greenhouse Gas Emissions Inventory and Forecast: 1990-2022," 2025. **Note:** A small amount of emissions from the "fossil fuel industry" category (i.e., fugitive emissions from fossil gas pipelines in VT), accounting for 0.4% of Vermont's overall emissions in 2022, is not visible on this graph.

ENERGY ACTION NETWORK

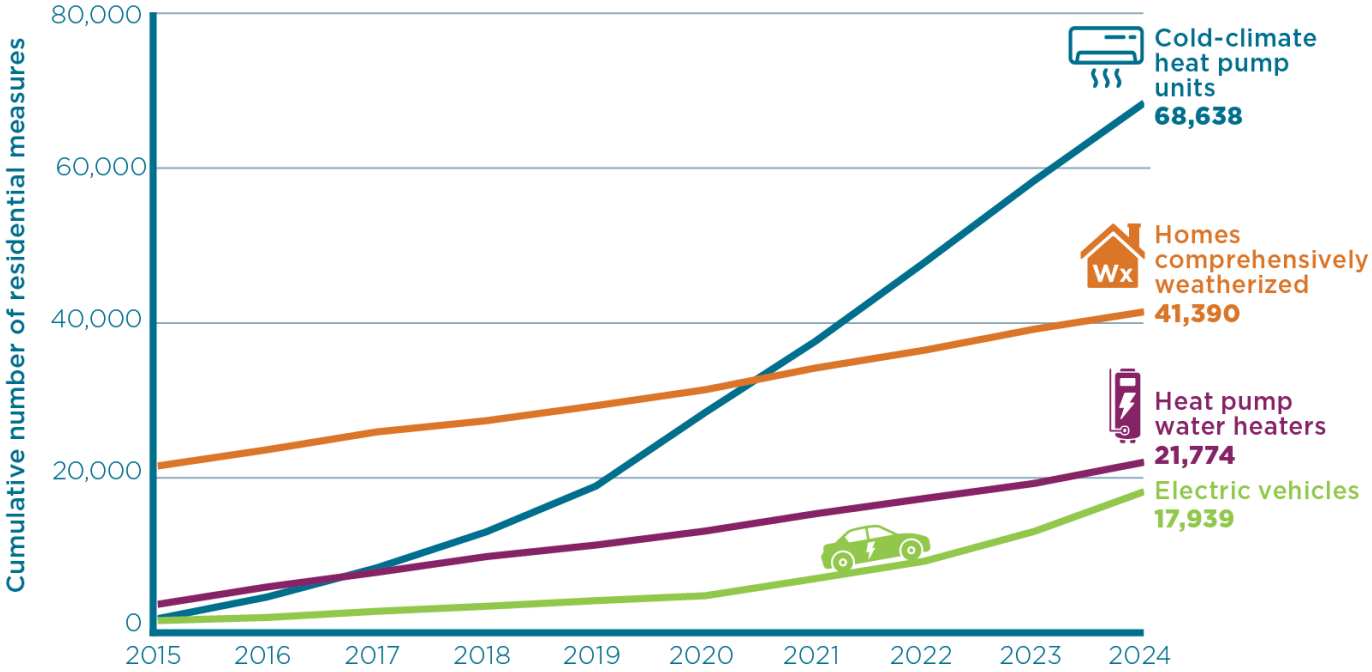
Vermont's historical GHG emissions and future requirements



Source: Vermont Agency of Natural Resources, "Vermont Greenhouse Gas Emissions Inventory and Forecast: 1990-2022," 2025. **Note:** A small amount of emissions from the "fossil fuel industry" category (i.e., fugitive emissions from fossil gas pipelines in VT), accounting for 0.4% of Vermont's overall emissions in 2022, is not visible on this graph.

ENERGY ACTION NETWORK

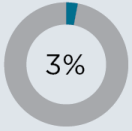
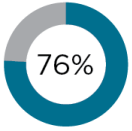
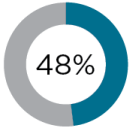
Recent adoption trendlines for key clean energy solutions in Vermont



Sources: Cold-climate heat pumps and heat pump water heaters: Efficiency Vermont, Burlington Electric Department, and VGS; Electric vehicles: Vermont Department of Motor Vehicles via Drive Electric Vermont; Weatherization: Efficiency Vermont, Burlington Electric Department, VGS, 3E Thermal, and OEO. **Notes:** Data include residential measures only. The heat pump totals represent the number of outdoor units installed, not the number of individual indoor heads. Individual homes may have multiple outdoor units.

ENERGY ACTION NETWORK

Comparison of cap-and-invest policies in select states/provinces

	 VT	 CA	 Quebec	 WA	 OR
Year implemented	2009	2012	2013	2023	2025
Sectors currently covered	Electricity only*	Multiple sectors	Multiple sectors	Multiple sectors	Multiple sectors
Percent of statewide GHG emissions covered by cap	 3%	 80%	 76%	 70%	 48% (at start)
Revenue for reinvestment (as of 2024, in U.S. dollars)	$40 million	$32 billion	$7.5 billion	$3 billion	N/A

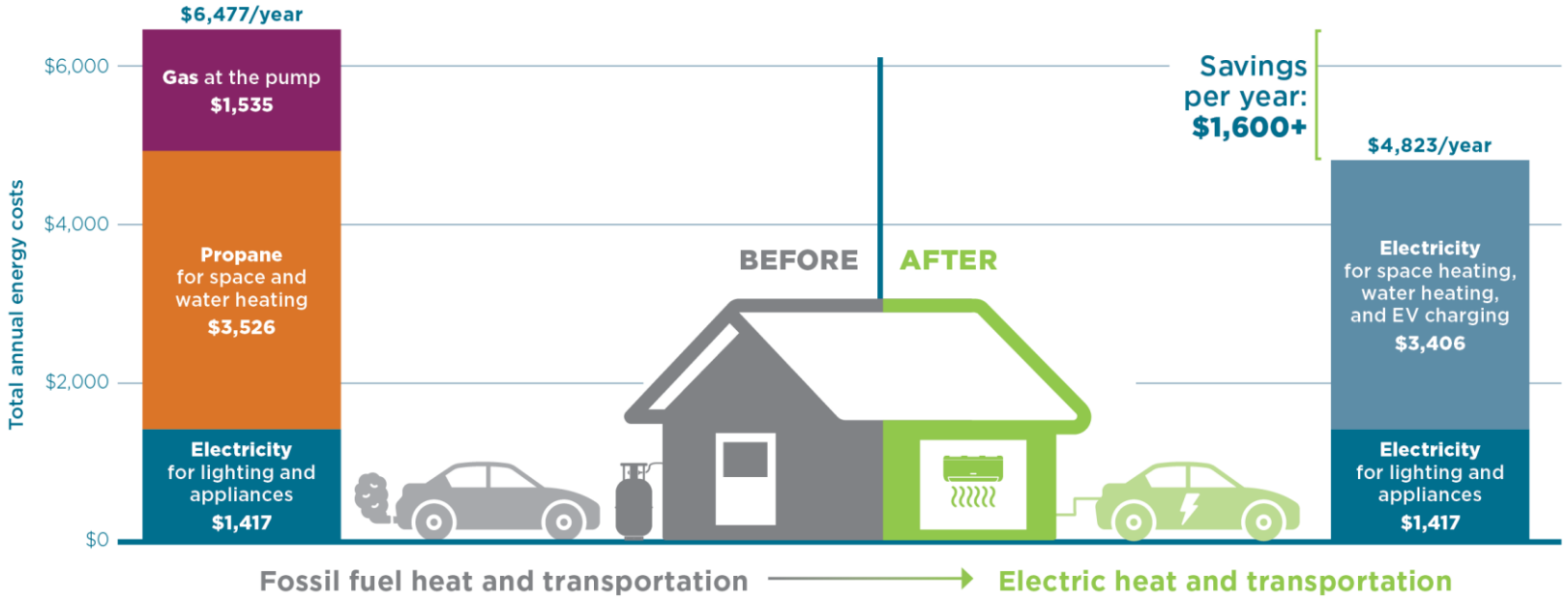
*Vermont participates in the Regional Greenhouse Gas Initiative (RGGI), which is a multi-state cap-and-invest program for the power sector.

ENERGY ACTION NETWORK

Sources: Regional Greenhouse Gas Initiative; California Air Resources Board; Oregon Department of Environmental Quality; Washington Department of Ecology; Quebec Ministry of the Environment; International Carbon Action Partnership. **Notes:** The first compliance year of Oregon's Climate Protection Program (CPP) began on Jan 1, 2025. In future compliance years, a larger share of statewide emissions will be covered. Unlike other programs shown, the CPP distributes a set number of pollution allowances for free rather than auctioning them.

Electrification can bring down overall energy costs, even as electricity bills increase

Estimated annual costs for a sample VT single-family household



Sources: Energy bill savings calculated based on the average monthly prices for propane, gasoline, and electricity in 2024, from the Vermont Department of Public Service and EIA. Electricity costs for lighting and appliances reflect statewide average annual household electricity expenditures (Efficiency Vermont, 2023 "Vermont Energy Burden Report"). Annual transportation fuel costs calculated using average fuel efficency of 23.4 MPG for vehicles registered in VT from "Vermont Transportation Energy Profile 2021" and VT average annual vehicle miles traveled (VMT) of 11,084 miles/year in 2022 from the Federal Highway Administration. **Note:** Actual energy cost savings will depend on a number of factors, including a household's electricity rate. The 76% of Vermont households that are in GMP and BED territories have access to lower electric rates for managed EV charging, which can reduce costs further. Upfront equipment/vehicle costs vary based on model and incentive eligibility; because of this variance, upfront costs are not quantified here. Energy cost savings estimates are for a one car household. Estimated savings would be higher for households replacing multiple gas vehicles with electric vehicles.

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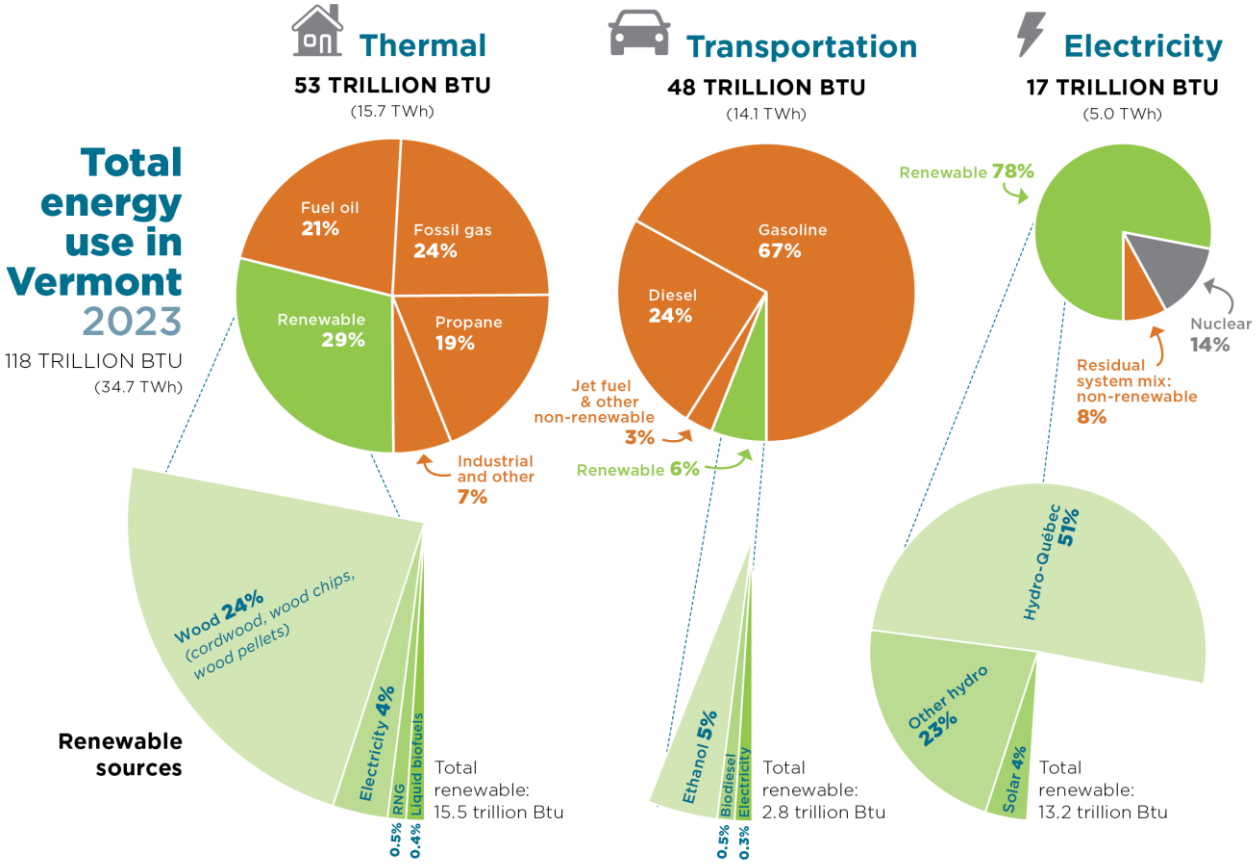

Sources: EIA State Energy Data System, 2025; Efficiency Vermont, 2025; Vermont Department of Public Service, 2025; Vermont Department of Taxes, 2025; EAN, 2025. **Notes:** The electricity pie chart does not include electricity used for thermal and transportation purposes, as that electricity usage is shown in the respective thermal and transportation pie charts. Percentages may not sum exactly to 100% due to independent rounding. Electricity used for thermal purposes is estimated based on the number of cold-climate heat pumps and heat pump water heaters installed in VT, as well as the estimated number of homes with electric resistance heat/hot water. Electricity used for transportation is estimated based on the number of electric vehicles registered in VT. The electricity pie chart shows Vermont's electricity portfolio after accounting for Renewable Energy Credits (RECs). One result of this is that wind and biomass generation in Vermont do not show up as electricity resources, since RECs from those resources are primarily sold out of state. Fuel oil includes a small amount of kerosene, which accounts for 0.7% of total thermal energy use. "Industrial and other" includes residual fuel oil, asphalt and road oil, lubricants, and special naphthas.

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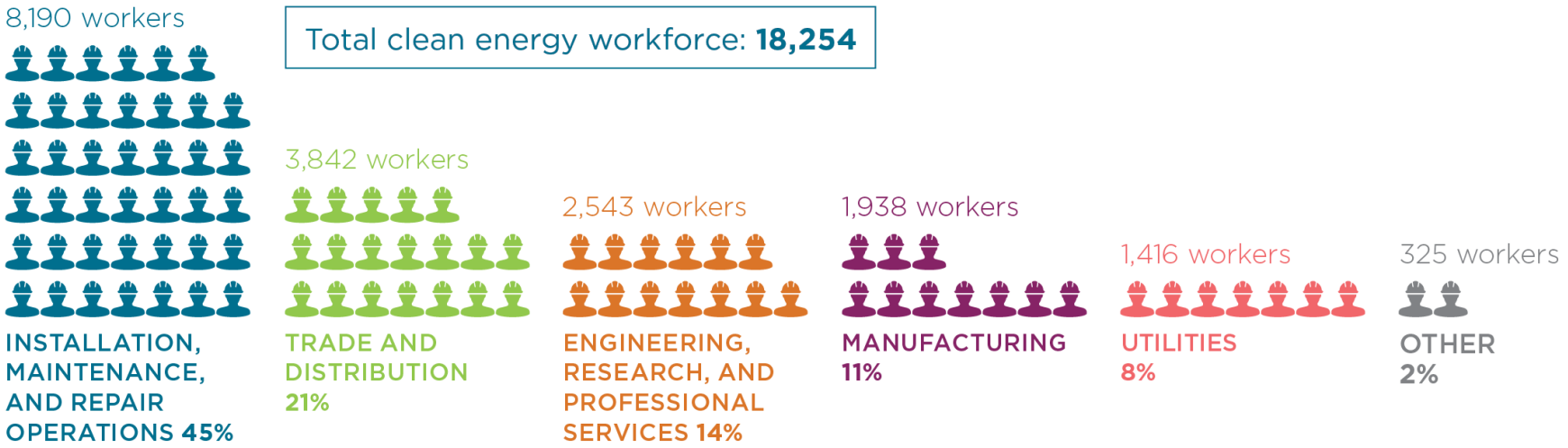
Vermont's clean energy workforce, 2024



Source: Vermont Department of Public Service Clean Energy Development Fund, "Vermont Clean Energy Industry Report," 2024. **Notes:** Percentages do not add up to 100% due to independent rounding. Each worker icon on the graph represents 200 workers.

ENERGY ACTION NETWORK

Climate-related disaster declarations by U.S. county, 2011–2024

National rank	County	Total number of disasters
#1	Washington County, VT	22
#2	Merrimack County, NH	19
#3	Lamoille County, VT	17
#4	Essex County, VT	16
	Franklin County, KY	16
	Johnson County, KY	16
	Orleans County, VT	16

Source: Rebuild by Design, "Atlas of Accountability," 2024.
Notes: Data represent climate-related federally-declared disasters. The vast majority of disaster declarations in Vermont have been related to severe storms and flooding.

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