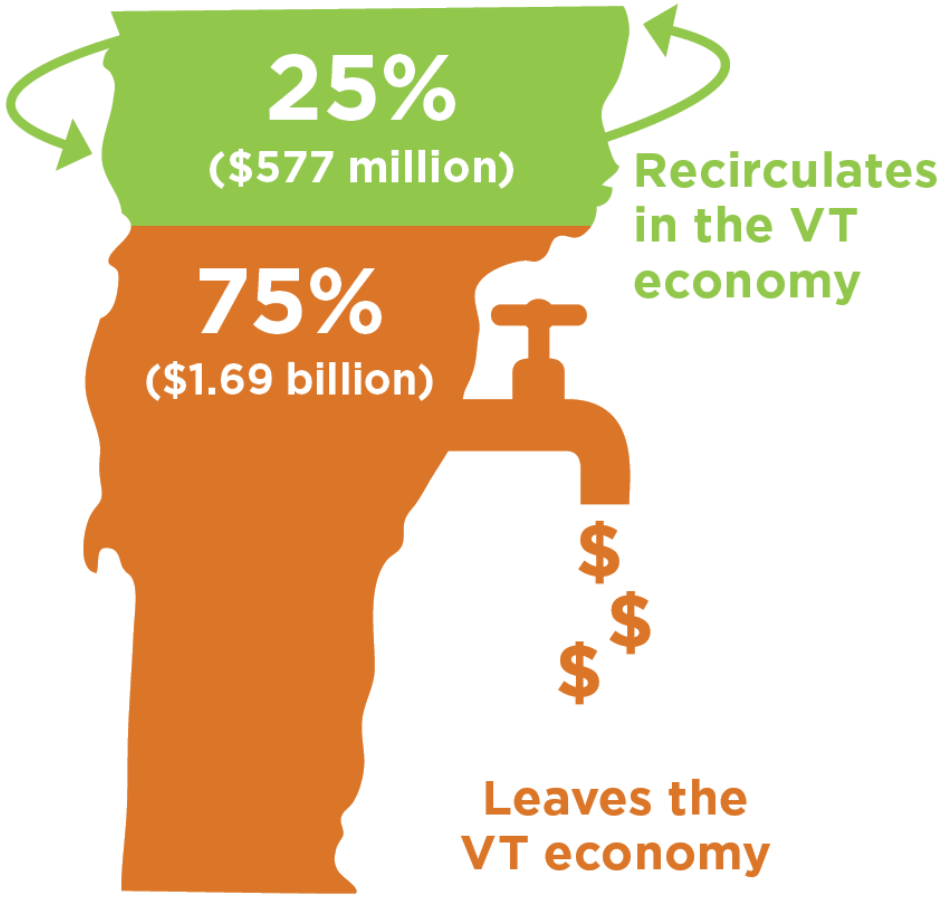
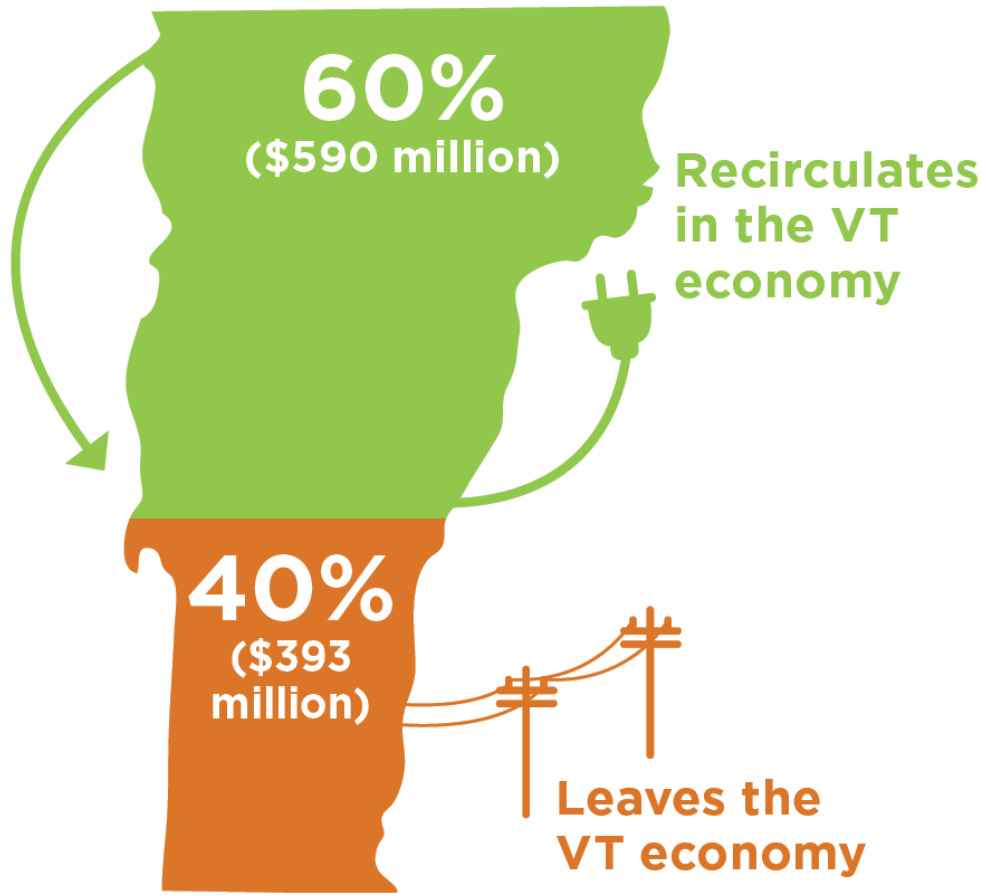
Vermont fossil fuel spending, 2023



Sources: Fossil fuel spending: Vermont Department of Taxes, 2024; VGS, 2024. Dollar recirculation share: Ken Jones, Senior Fellow for Economic Analysis, 2024. **Note:** This graph includes spending on thermal and transportation fuels only.

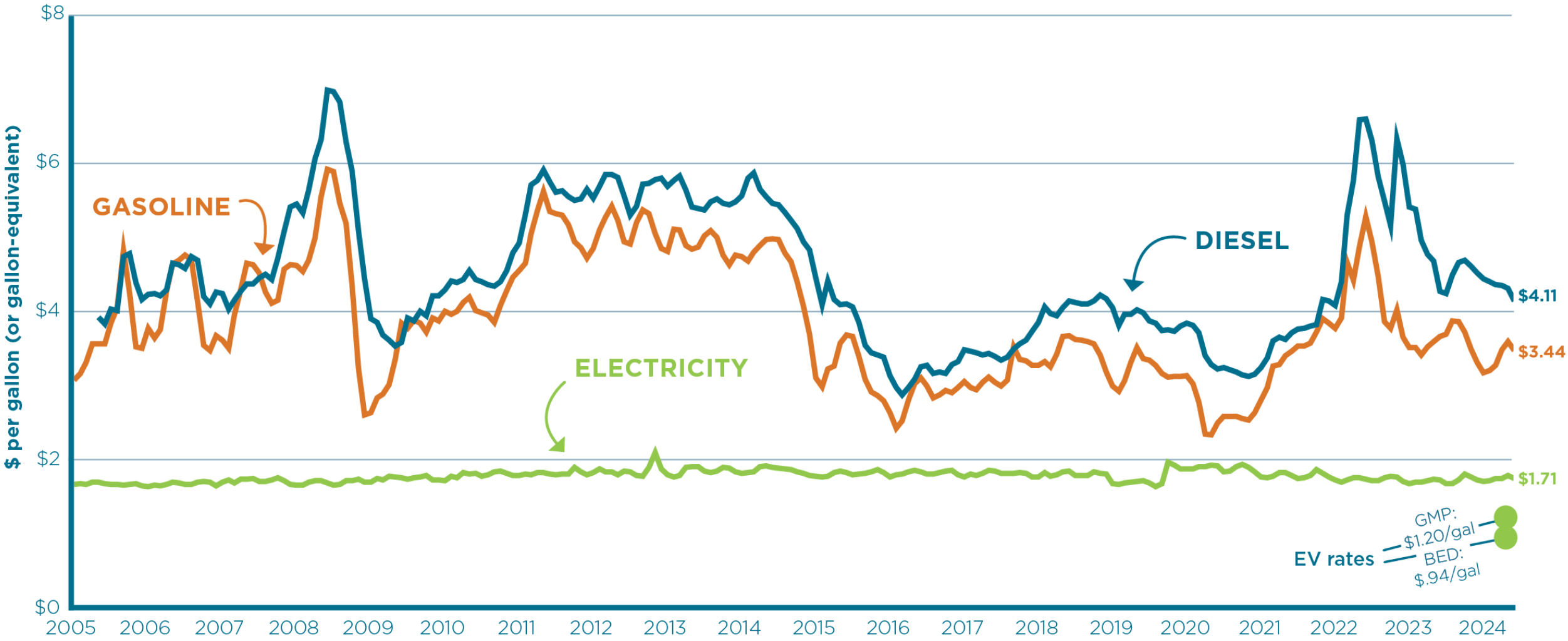
Vermont electricity spending, 2023



Sources: Electricity spending: Vermont electric utilities. Dollar recirculation share: Ken Jones, Senior Fellow for Economic Analysis, 2024. **Note:** Dollar recirculation share was updated in January 2025 to reflect out-of-state transmission costs.

ENERGY ACTION NETWORK

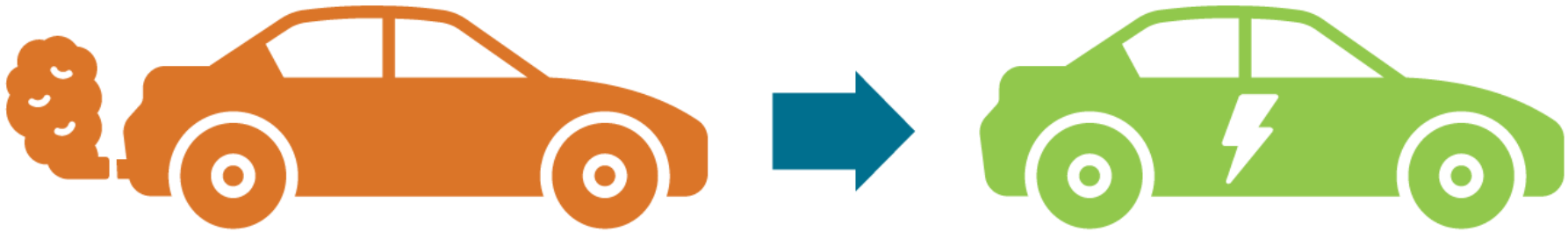
Cost comparison of different transportation fuels over time in VT (adjusted for inflation, June 2024 dollars)



Sources: VT gas and electric prices: EIA, 2024. Diesel: Vermont Agency of Transportation, 2024. EV rates: Green Mountain Power and Burlington Electric Department, 2024. **Note:** Data through June 2024. Prices shown are in June 2024 dollars, using the U.S. Bureau of Labor Statistics Consumer Price Index.

ENERGY ACTION NETWORK

Lifetime cost savings of switching to an electric vehicle



Estimated savings on fuel and maintenance: ~ $9,500

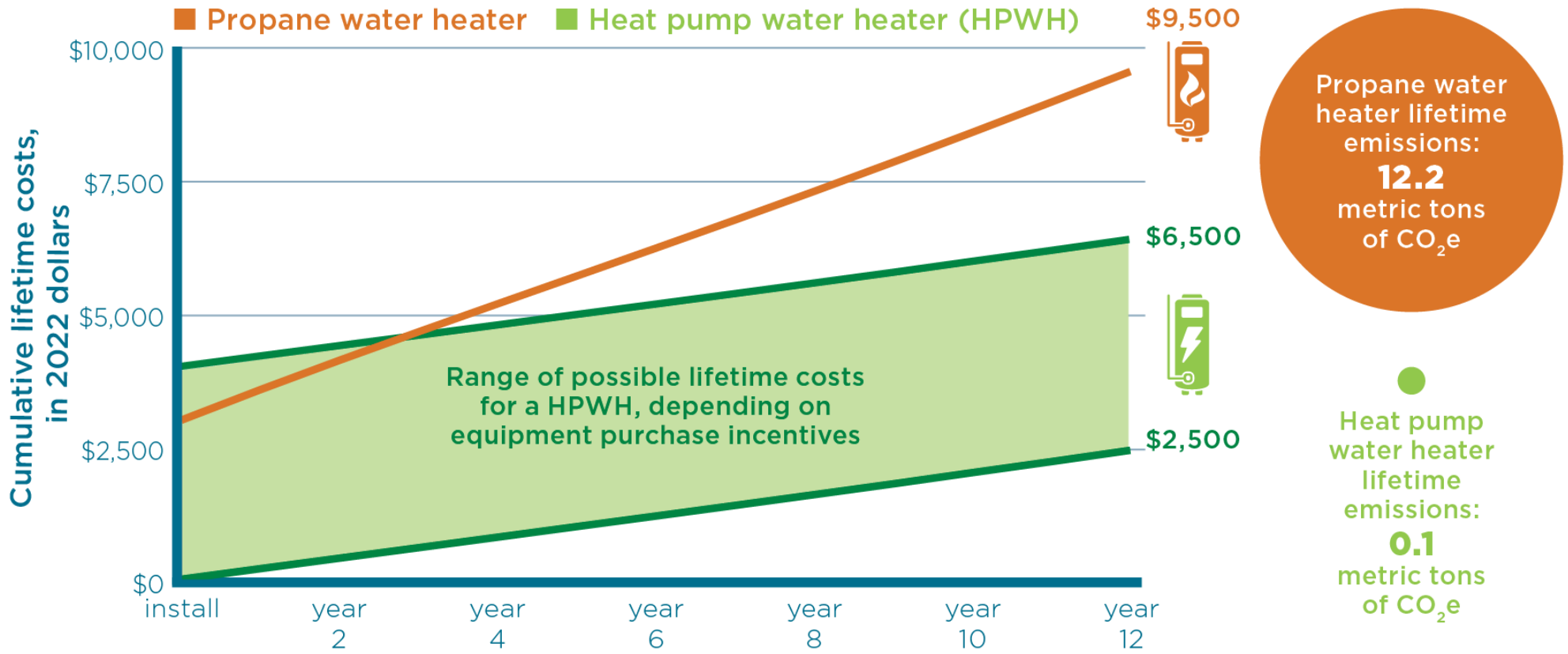
+

Avoided social costs from reduced fuel-related GHG emissions over the life of the vehicle: ~ $7,000

Sources: Annual mileage assumed to be 11,084 based on 2022 data for Vermont from Federal Highway Administration; Fuel economy assumptions from the 2021 Vermont Transportation Energy Profile; Gasoline and electricity prices are 2023 averages for Vermont from EIA; 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 the 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 and savings presented in 2024 dollars.

ENERGY ACTION NETWORK

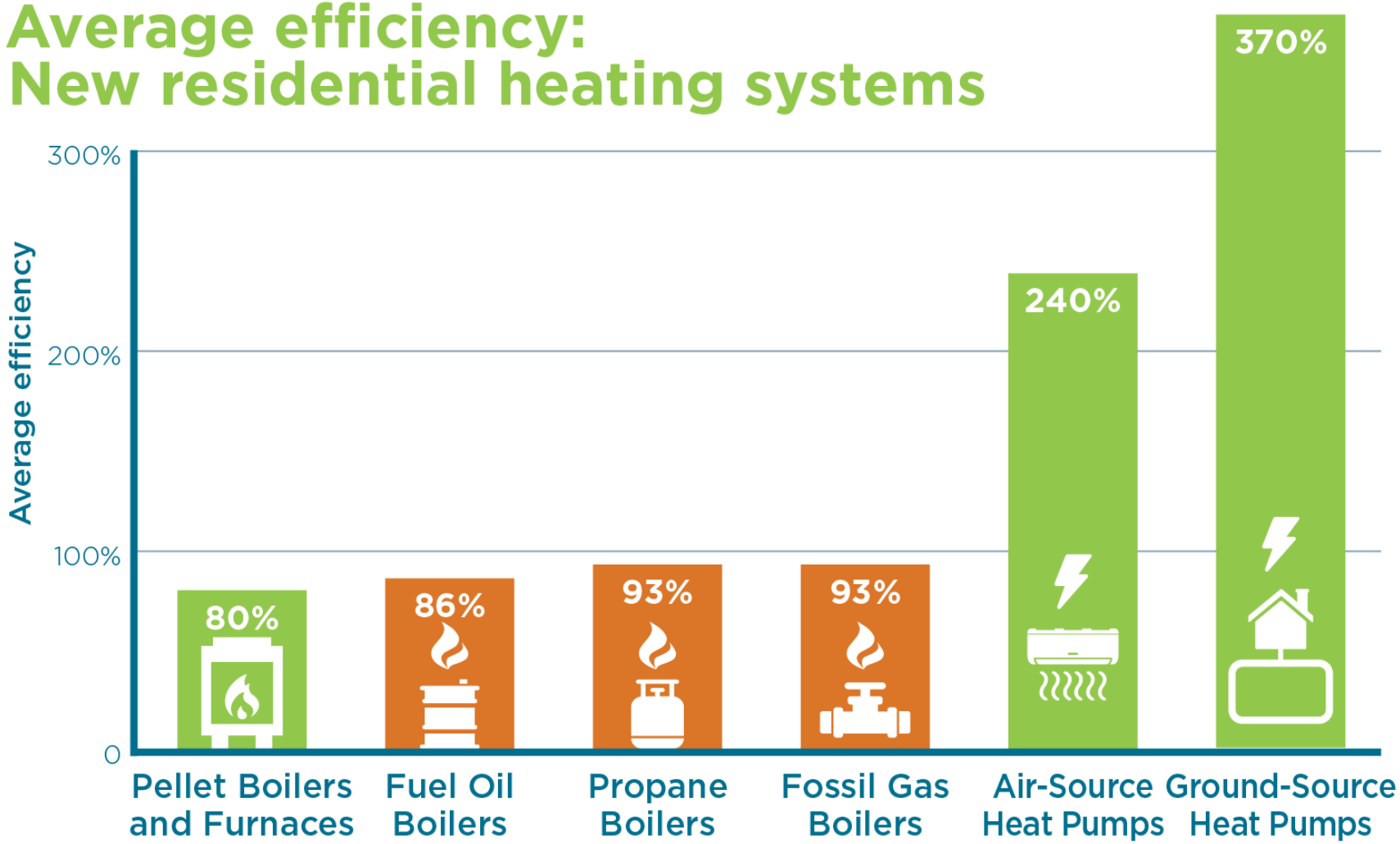
Lifetime costs of propane water heater vs. heat pump water heater (installed cost + fuel)



Sources: Annual energy load and efficiency assumptions from the Efficiency Vermont 2023 Technical Reference Manual; Propane emissions factor from EPA; Electricity emissions factors assume a linear reduction over time, reaching zero emissions by 2035 in accordance with Vermont's Renewable Energy Standard. Prices shown are in 2022 dollars and reflect projections from EIA's 2023 Annual Energy Outlook for 2024-2035. **Note:** 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 can bring the upfront cost as low as $0.

ENERGY ACTION NETWORK

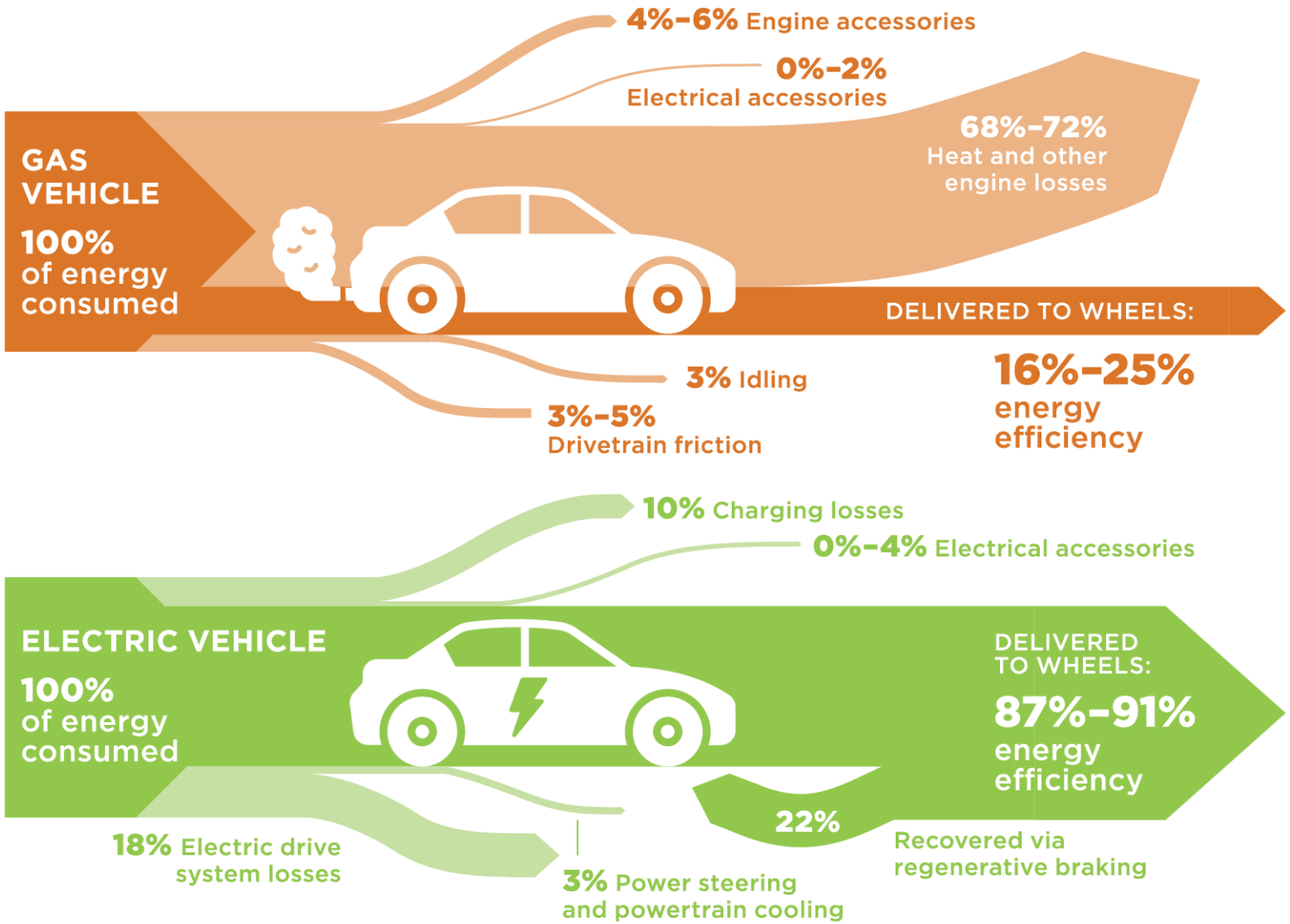
Average efficiency: New residential heating systems



Sources: Pellet stoves, air-source heat pumps, and fuel oil, propane, and fossil gas boiler efficiencies: Vermont Public Utility Commission, "TAG Tier III Annual Report," 2021. Ground-source heat pumps: US Energy Information Agency, "Updated Buildings Sector Appliance and Equipment Costs and Efficiencies," 2023. **Notes:** 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 course of the heating season.

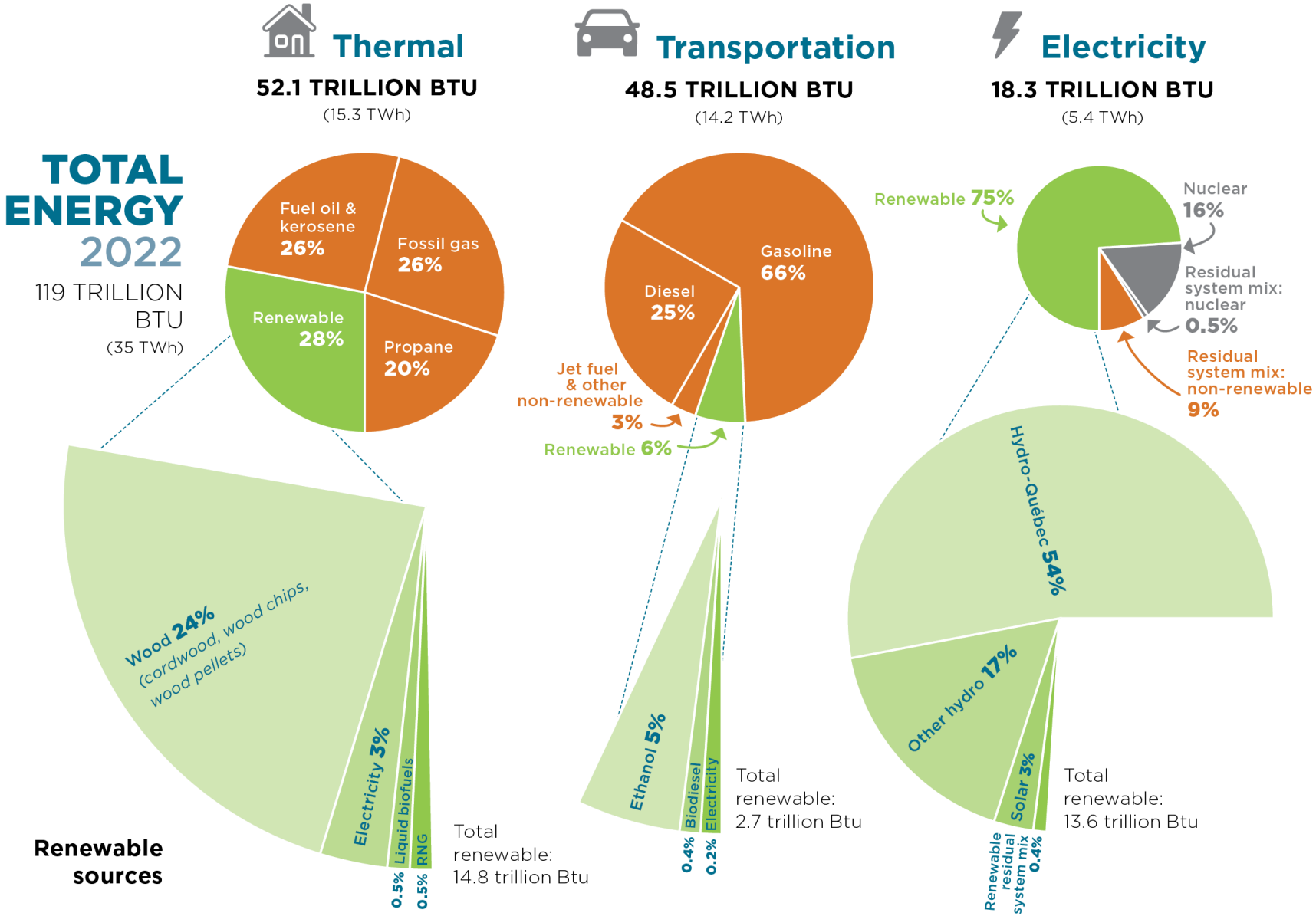
ENERGY ACTION NETWORK

Efficiency of energy use: Gas vehicles vs electric vehicles



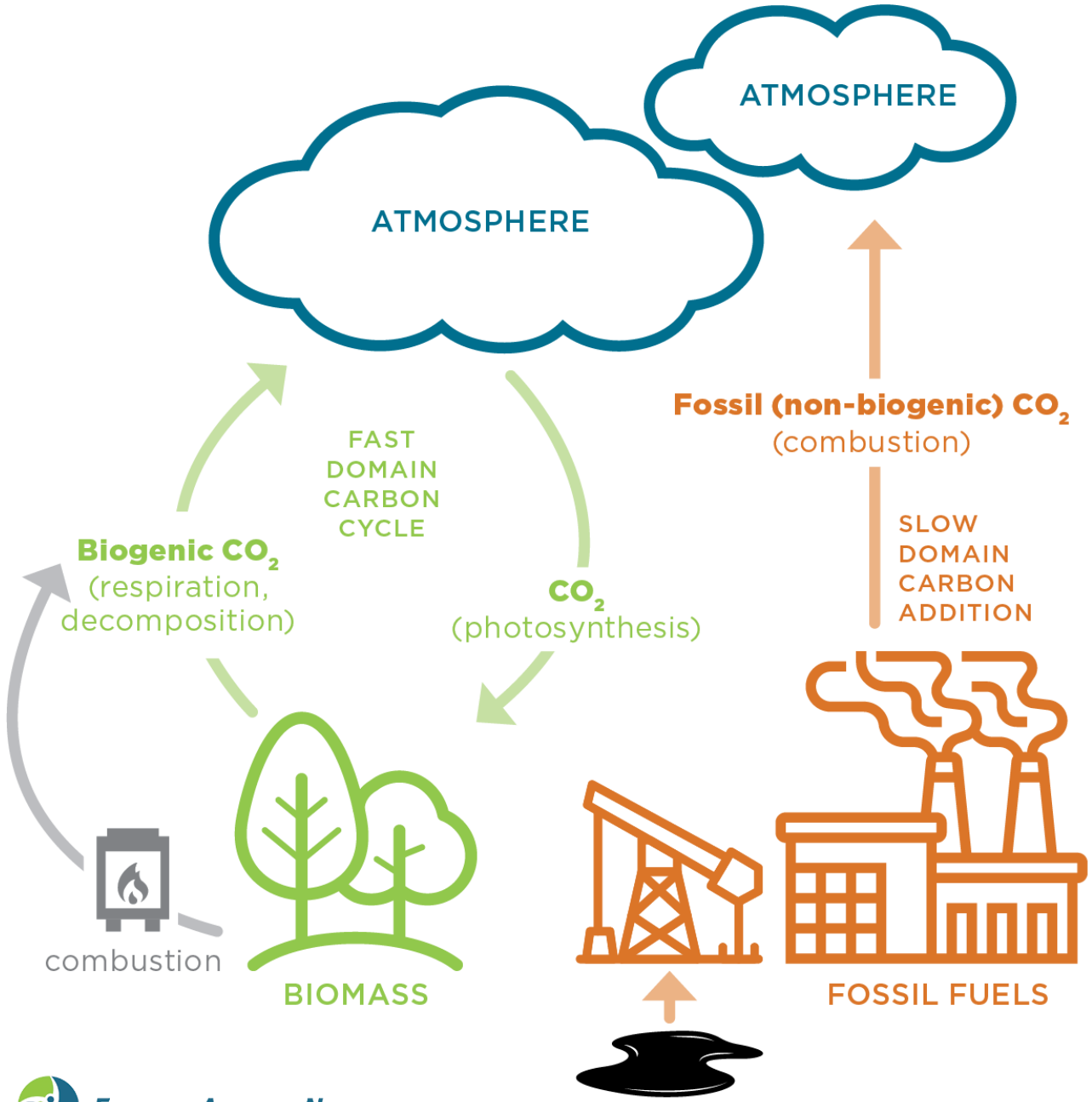
Source: Fueleconomy.gov. **Note:** Estimates shown are for combined city and highway driving.

ENERGY ACTION NETWORK

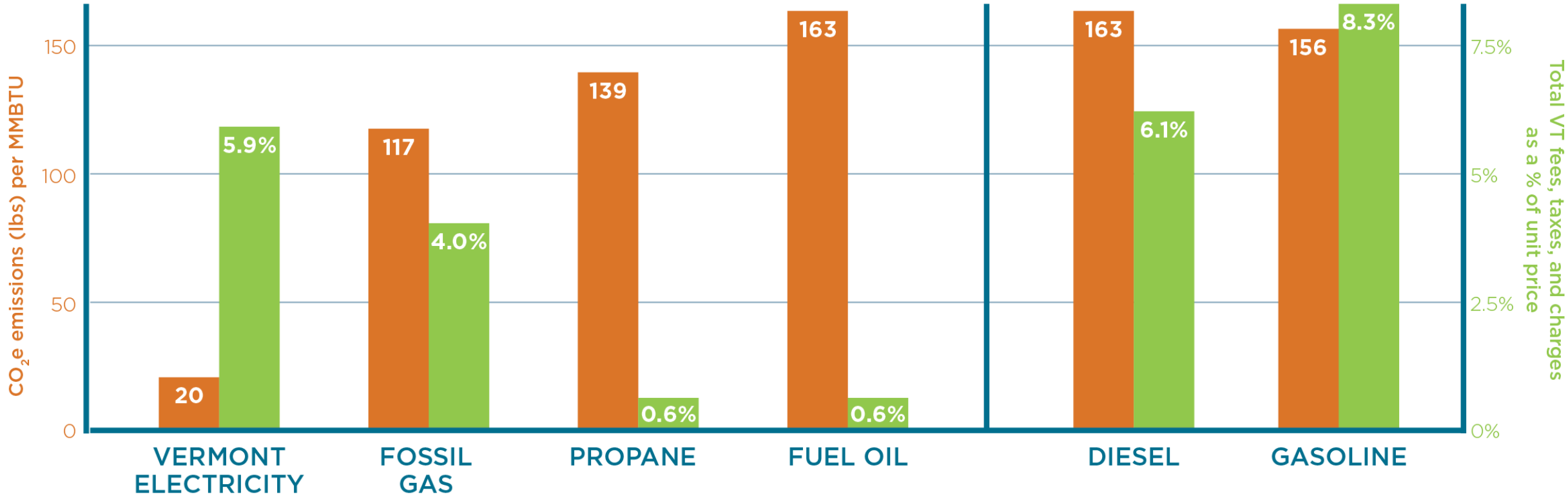


Sources: Energy Information Administration, 2024; Efficiency Vermont, 2024; Vermont Department of Public Service, 2024; Vermont Department of Taxes, 2024; EAN, 2024. **Notes:** The electricity pie chart does not include electricity used for thermal and transportation purposes, as that electricity usage is shown in the respective thermal and transportation pie charts. Percentages may not sum exactly to 100% due to independent rounding. The electricity pie chart shows Vermont's electricity portfolio after accounting for 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 0.6% of total thermal energy use.

ENERGY ACTION NETWORK


ATMOSPHERE
ATMOSPHERE
Fossil (non-biogenic) CO_2
(combustion)
SLOW
DOMAIN
CARBON
ADDITION
FAST
DOMAIN
CARBON
CYCLE
Biogenic CO_2
(respiration,
decomposition)
CO_2
(photosynthesis)
combustion
BIOMASS
FOSSIL FUELS
ENERGY ACTION NETWORK

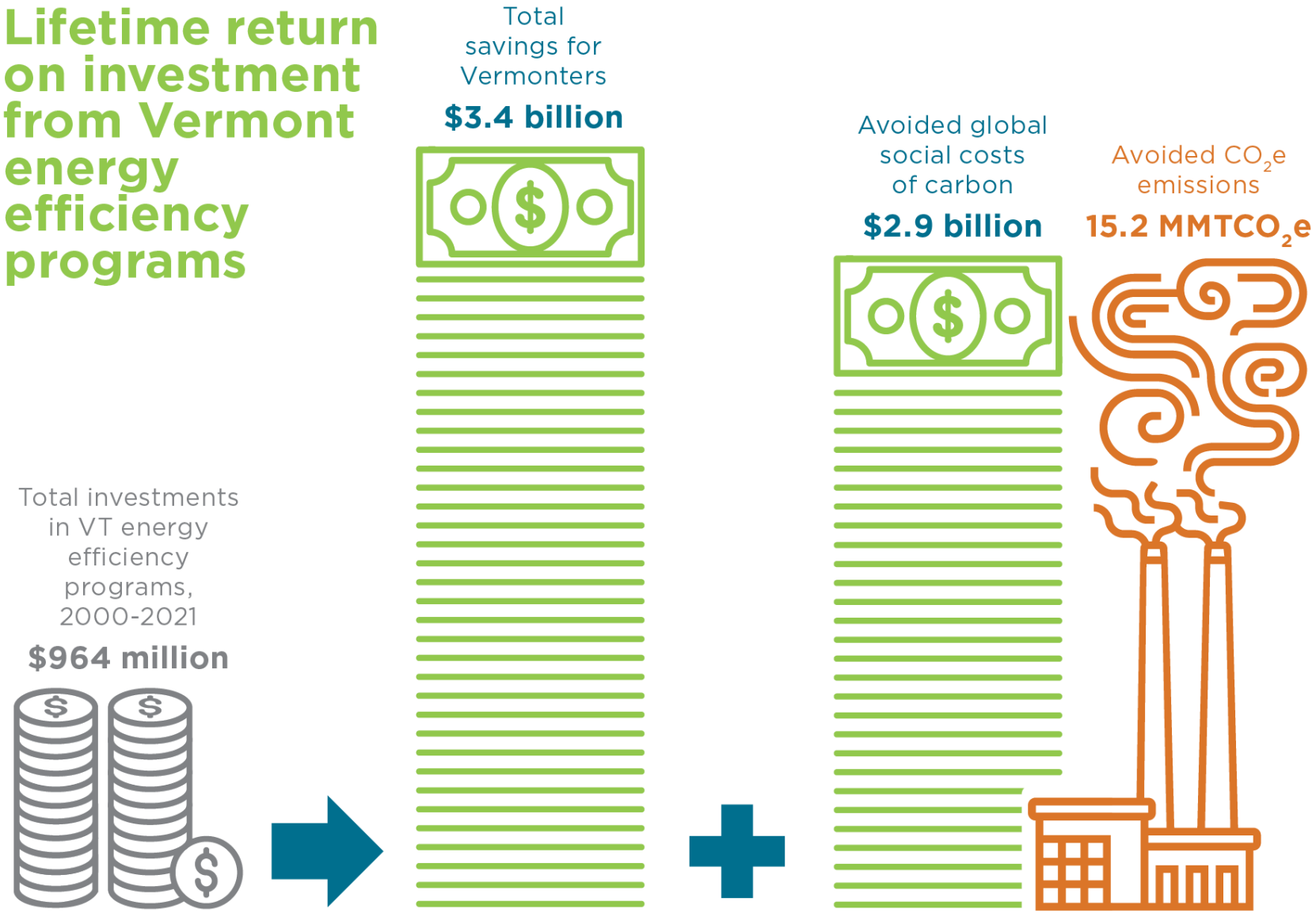
Vermont fees, taxes, and charges vs emissions



Sources: Emissions: For all fossil fuels: EIA, "Carbon Dioxide Emissions Coefficients". For VT electricity: "Assessing the GHG Impact of Beneficial Electrification in Vermont," EAN, 2023. Fees, taxes, and charges: Vermont Department of Taxes, 2023. 2022 Energy Efficiency Charge rates for electricity and fossil gas: PUC Determination of 2022 Energy Efficiency Charge Rates. Gas and diesel taxes and fees: Vermont Motor Fuels Tax, VFDA, 2023. **Note:** Unit price of fuels is based on the annual average in 2022. The totals for thermal fuels represent residential rates only.

ENERGY ACTION NETWORK

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 VT's electricity portfolio.

ENERGY ACTION NETWORK