

House Transportation Testimony

February 12, 2025

Vermont Agency of Natural Resources

Deirdra Ritzer, Air Quality Division

Rachel Stevens, Office of General Counsel

Agenda

- The History of Vermont's Adoption of Advanced Clean Cars I and II
- Overview Advanced Clean Cars II
- Progress to date on implementation of the standards
- Impacts and Benefits to Vermonters, Dealers & Manufacturers

Vermont's Commitment to Cleaner Vehicles

1996: Vermont first adopts Motor Vehicle Emission Standards for new cars & light-duty trucks

2005: Vermont adopts Greenhouse Gas Emission Standards for Motor Vehicles

2022: Vermont adopts updates to Advanced Clean Cars and Advanced Clean Trucks

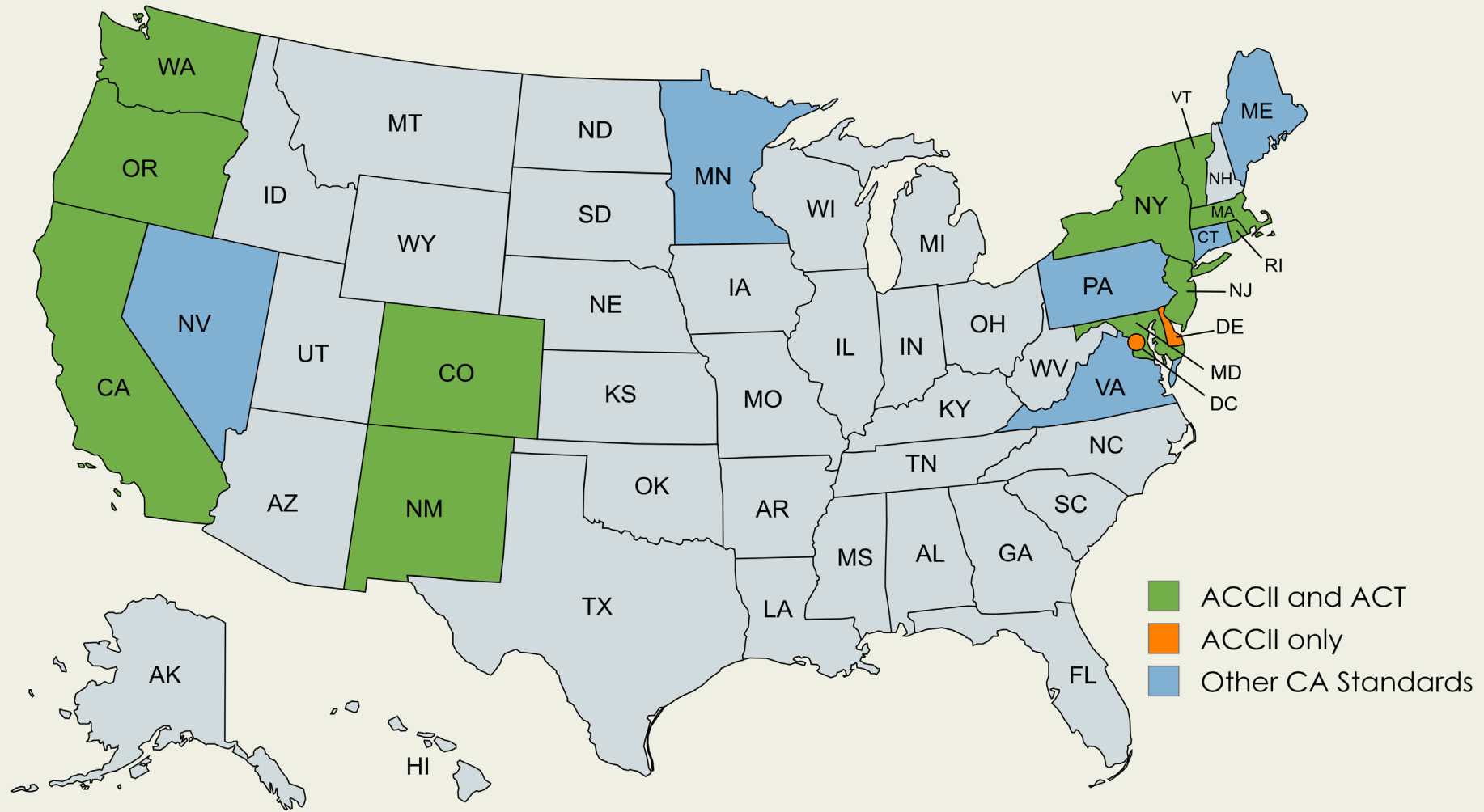
2000: Vermont adopts the Zero-Emission Vehicle Sales Requirement Rules and adds medium-duty vehicles

2012: Vermont adopts Advanced Clean Cars Program

2026: Advanced Clean Cars II and Advanced Clean Trucks go into effect

To date, 17 states have adopted California's stricter motor vehicle emissions rules





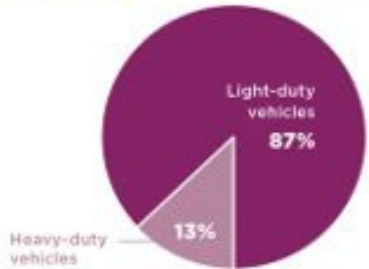
Map created with mapchart.net

Vermont is part of a larger effort – and a larger low emission vehicle market



Why are cleaner vehicles important?

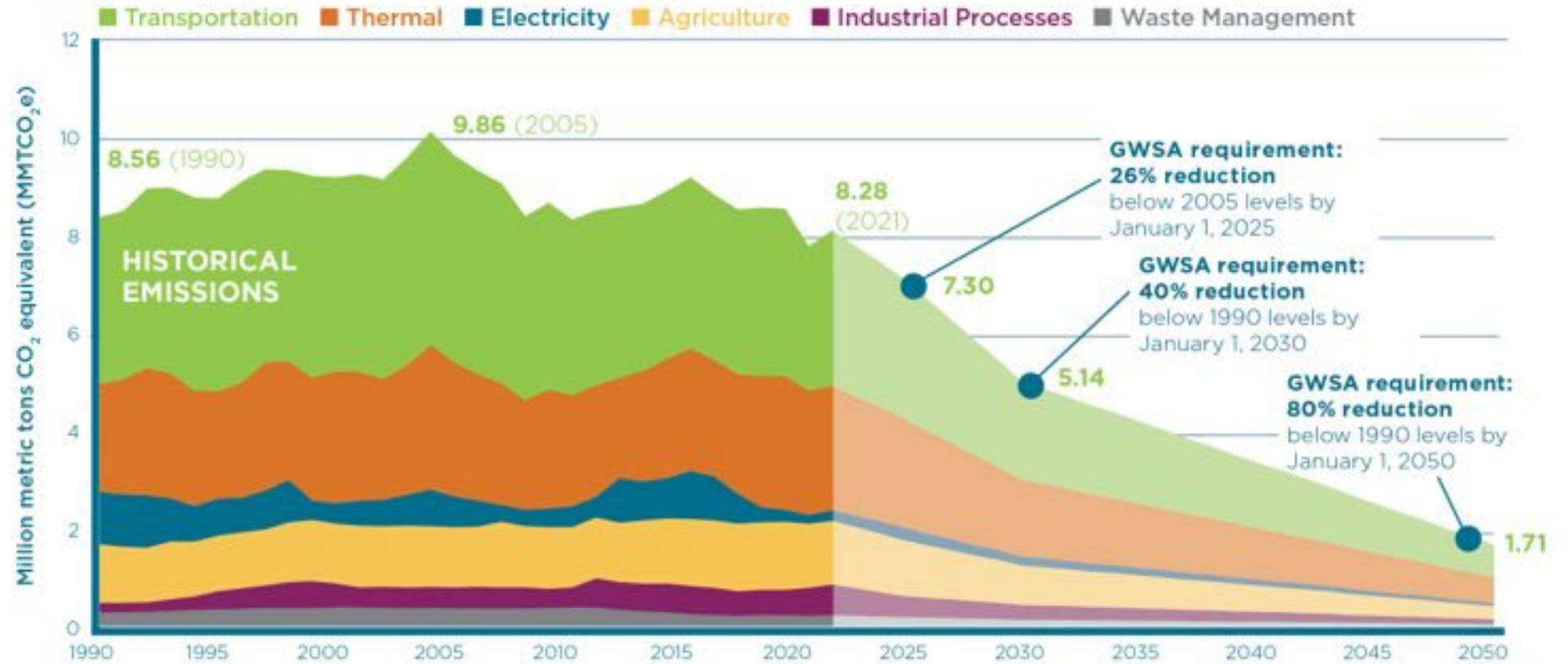
On-road transportation emissions in VT by vehicle weight class



Source: U.S. EPA, National Emissions Inventory, 2020.



Vermont's historical GHG emissions and future requirements



Source: Vermont Agency of Natural Resources, "Vermont Greenhouse Gas Emissions Inventory and Forecast: 1990-2021," 2024. 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 2021, does not show up on this graph.



Beyond GHG emissions, reducing air pollution

- Volatile organic compounds (VOCs) and nitrogen oxides (NO_x) combine to form ground level ozone (also known as smog) that triggers asthma attacks and damages lung tissue.
- Fine particulate matter (PM_{2.5}) causes respiratory and cardiovascular damage.
- These health impacts tend to have a greater impact on disadvantaged communities and frontline workers in Vermont.

Advanced Clean Cars II

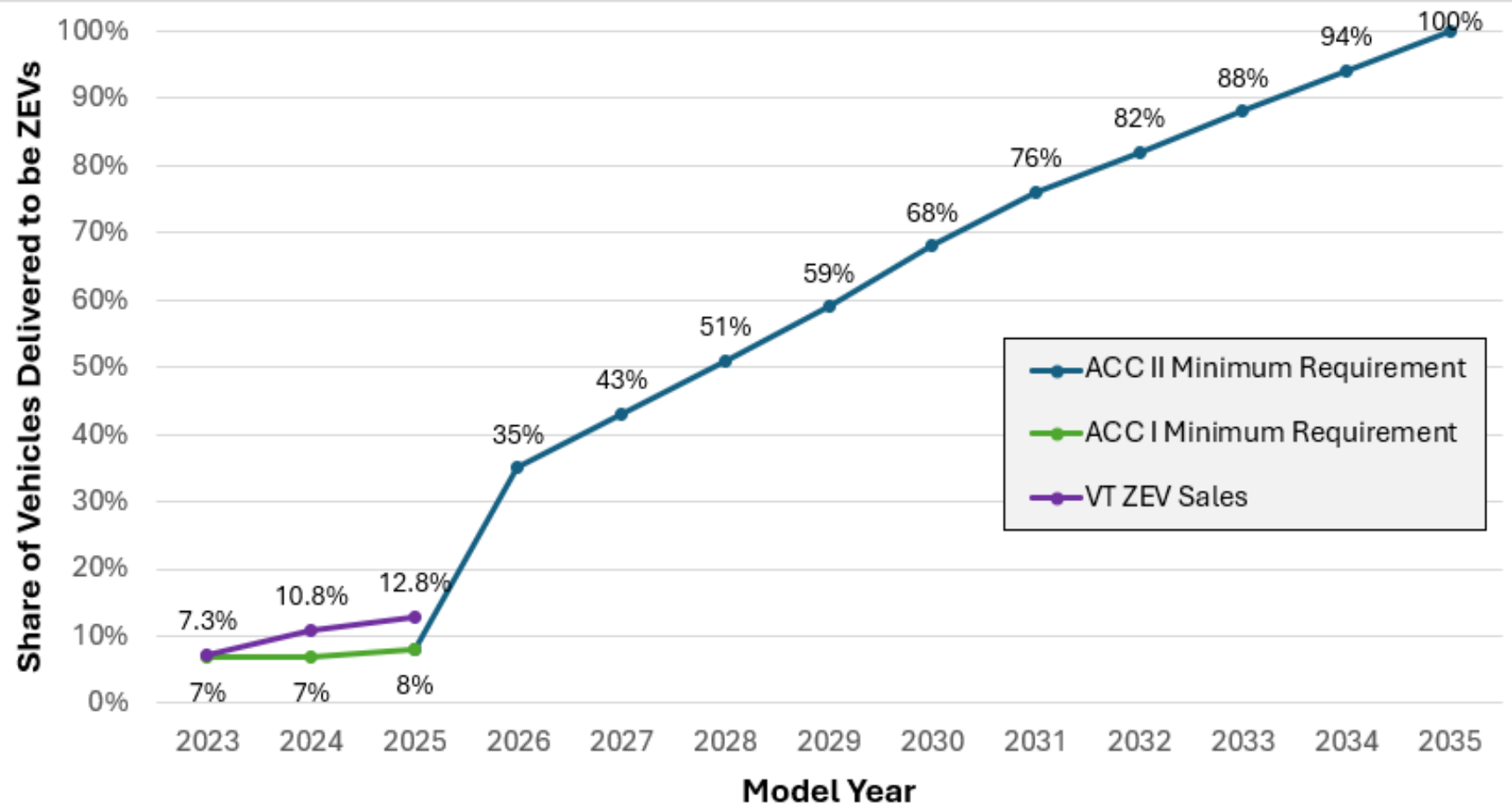
Requirements for auto manufacturers to:

- Deliver cleaner and more durable passenger cars and trucks
- Deliver more electric vehicles to Vermont



NOT an electric vehicle purchase mandate

Advanced Clean Cars II: Passenger Cars and Light-duty Trucks



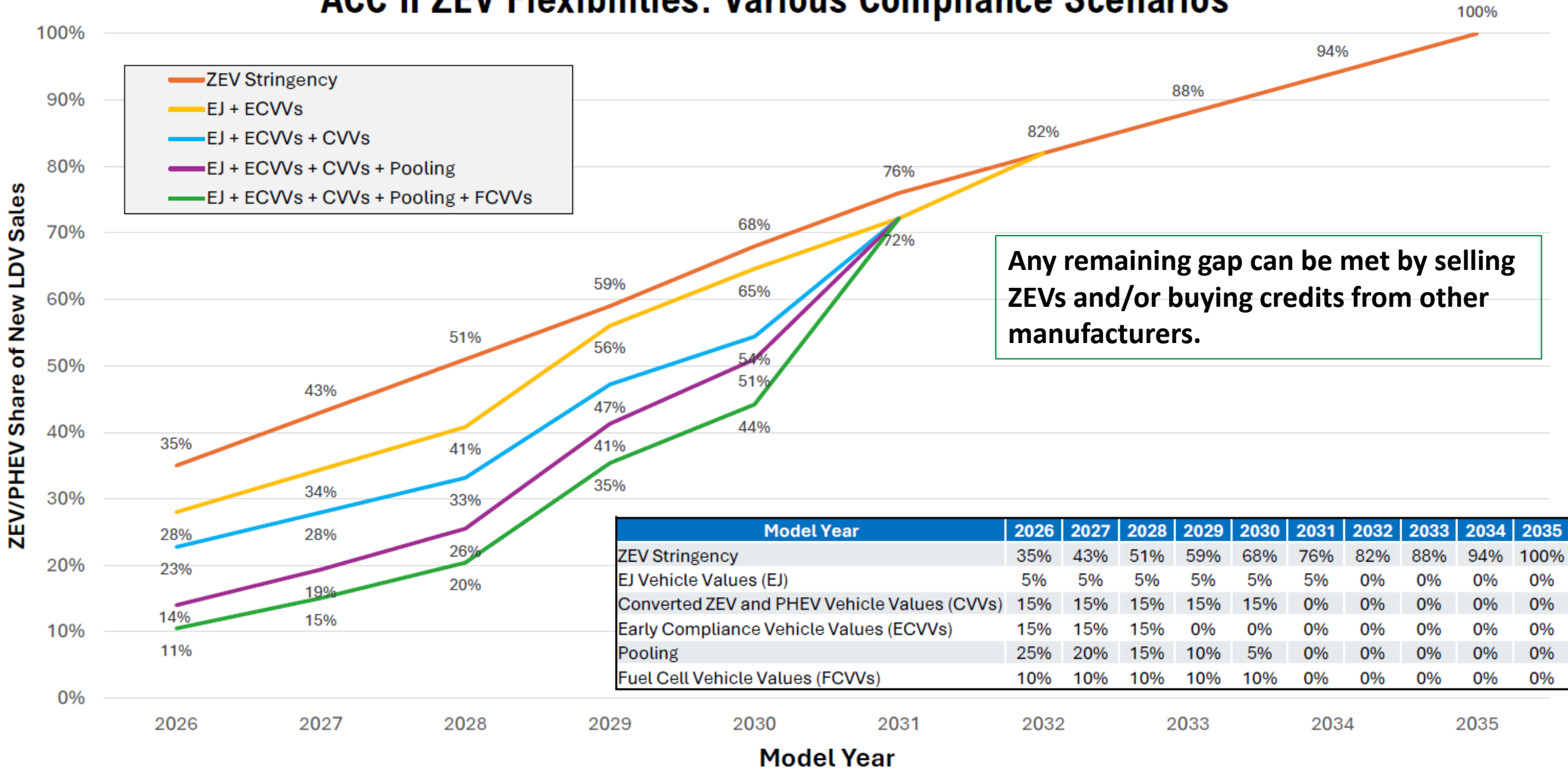
100% Zero-emission vehicles by 2035

“Zero emission vehicles” or “ZEVs” may include battery electric vehicles, plug-in hybrids, or hydrogen fuel cell vehicles.

ACCII Compliance Options

- The ACC II rule offers a variety of options to provide automakers with numerous pathways to meet their sales milestones, such as using credits or “values”.
- If stacked together, these compliance options can reduce a manufacturer’s ZEV sales requirement in model year 2026 by as much as 70 percent (i.e., from 35% to 11%).
- The remaining gap can be made up by selling ZEVs and/or purchasing credits.

ACC II ZEV Flexibilities: Various Compliance Scenarios



Any remaining gap can be met by selling ZEVs and/or buying credits from other manufacturers.

Vermont ACCI Credit Banks*

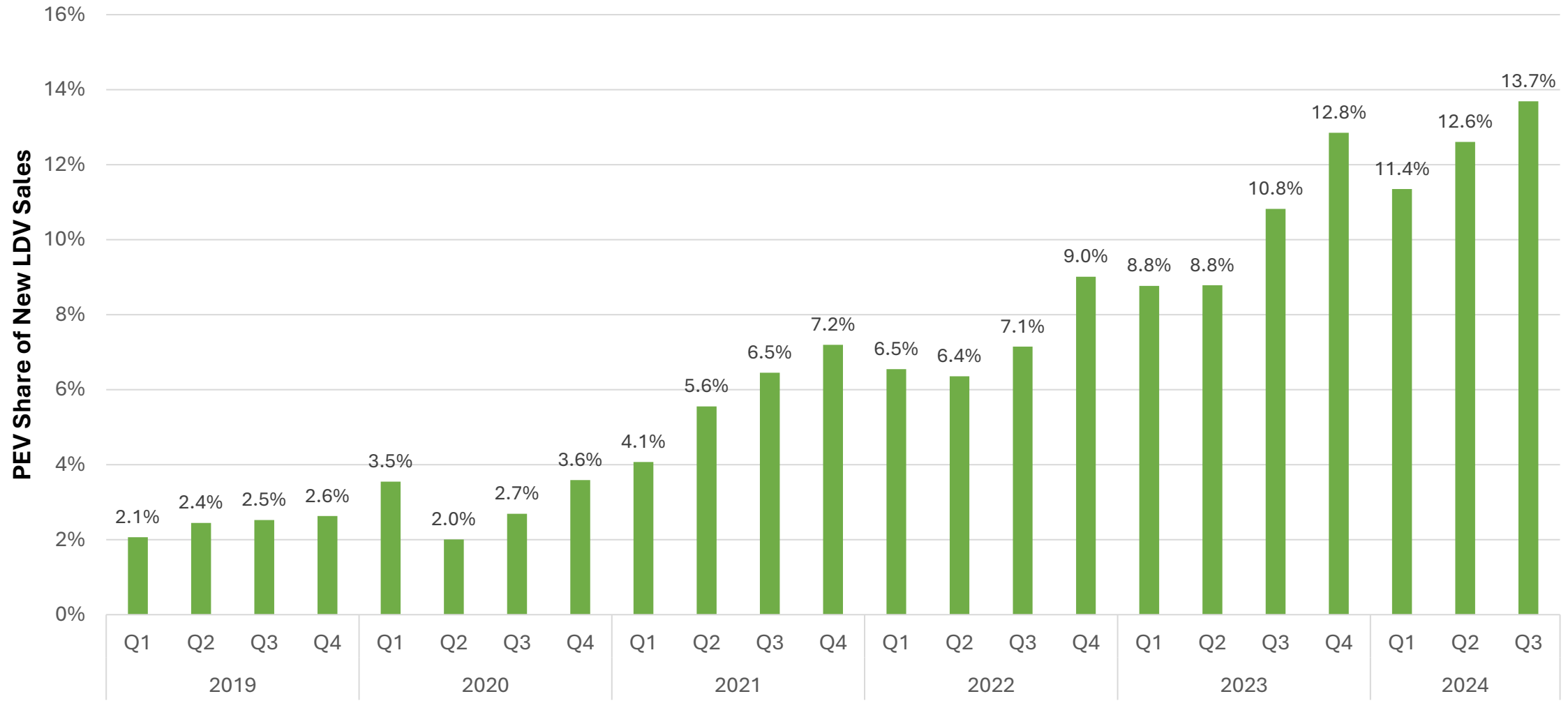
<u>Manufacturer</u>	<u>Total Credits</u>	<u>Manufacturer</u>	<u>Total Credits</u>
BMW	2129.33	Mercedes-Benz	5527.65
Fiat Chrysler	3207.17	Mitsubishi	0.00
Ford	3195.43	Nissan	1819.35
GM	6933.17	Rivian+	540.00
Honda	3581.11	Subaru	6503.49
Hyundai	1489.05	Tesla	6051.07
Jaguar Land Rover	0.00	Toyota	4926.74
Kia	1080.41	Volkswagen	4118.88
Lucid+	4.00	Volvo	393.15
Mazda	576.47		

+ Lucid and Rivian have no compliance obligations but may earn credits under ACCI.

*Model Year 2023 credits balances include Fuel Cell Vehicle, Battery Electric Vehicle, range extended BEVs, Neighborhood EV, Conversion of Advanced Technology Partial ZEV and Partial ZEV credits from prior year ZEV program requirements, and Transitional ZEV.



Light-Duty PEV Market Share in Vermont 2019 Q1 – 2024 Q3



LDV sales = Class 1-2a vehicles; PEV = battery-electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs). Source: Experian via Atlas Public Policy's EV Market Dashboard,



Vermonters have questions!

Can I afford an EV?

How will I charge my EV?

How will this impact my business?

Benefits for All Vermonters

- ✓ Greater EV availability
- ✓ Purchase incentives
- ✓ Greater durability
- ✓ Longer warranties
- ✓ Automaker Investments in cleaner mobility
- ✓ Lower fuel and upkeep cost



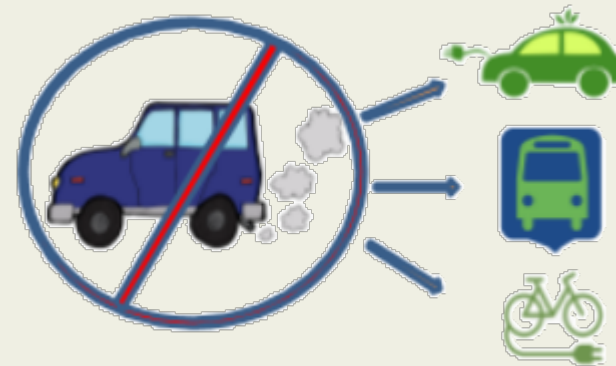
Addressing upfront costs today

The upfront cost of an EV is higher - purchase rebates and tax credits lower the upfront cost:

- ✓ Federal Government – up to \$7,500
- ✓ + additional incentives through your electric utility
- ✓ State of Vermont – up to \$10,000
 - ✓ New PEVs - up to \$5,000
 - ✓ Replace Your Ride - up to \$5,000
 - ✓ MileageSmart – up to \$5,000
 - ✓ Electric bikes – up to \$800

Drive
Electric
Vermont

mileagesmart ●●●●



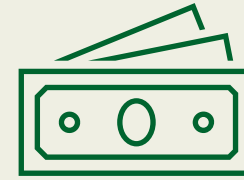
driveelectricvt.com/incentives

 VERMONT

Ownership costs are lower for EVs

The upfront cost of an EV is higher, BUT the overall **cost of EV ownership is lower** than a conventional vehicle

- ✓ Cheaper fuel
- ✓ Less moving parts and maintenance
- ✓ Enhanced warranty and useful life requirements



Save \$6,000-\$10,000 over the life of the vehicle

Cut maintenance costs in half over the life of the EV

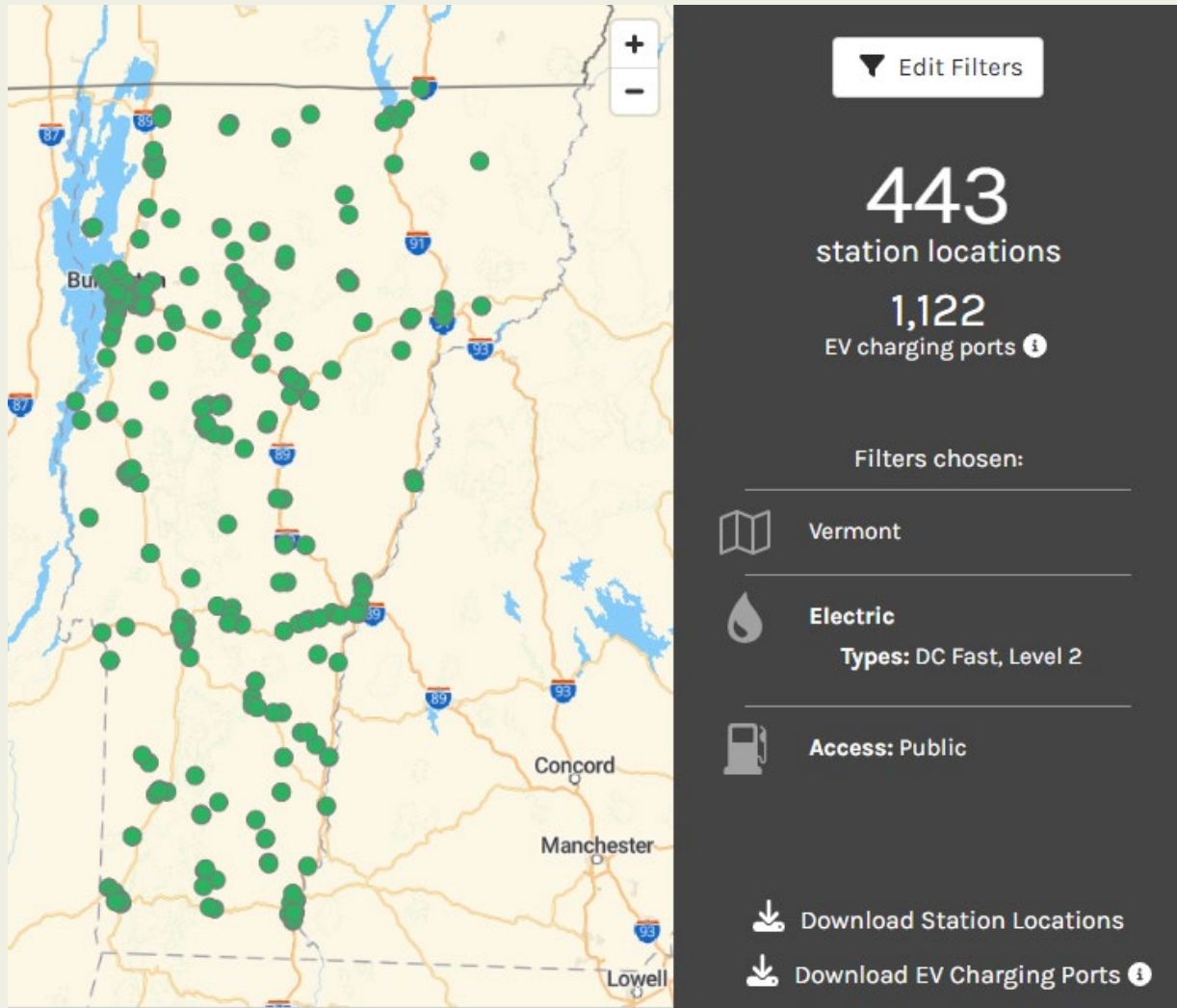
Source: Drive Electric Vermont

Re-fueling your EV at home

- ✓ Typical household travels 50 miles/day – most EVs have more than 200-mile range
- ✓ Most electric utilities offer EV charging equipment rebates and discounted off-peak rates to make fueling even cheaper
- ✓ Live in an apartment or condo? Grants are available now to support EV charging at multi-unit dwellings.



EV charging at Burlington Co-housing East Village Community



For when you aren't close to home: Vermont Public Charging

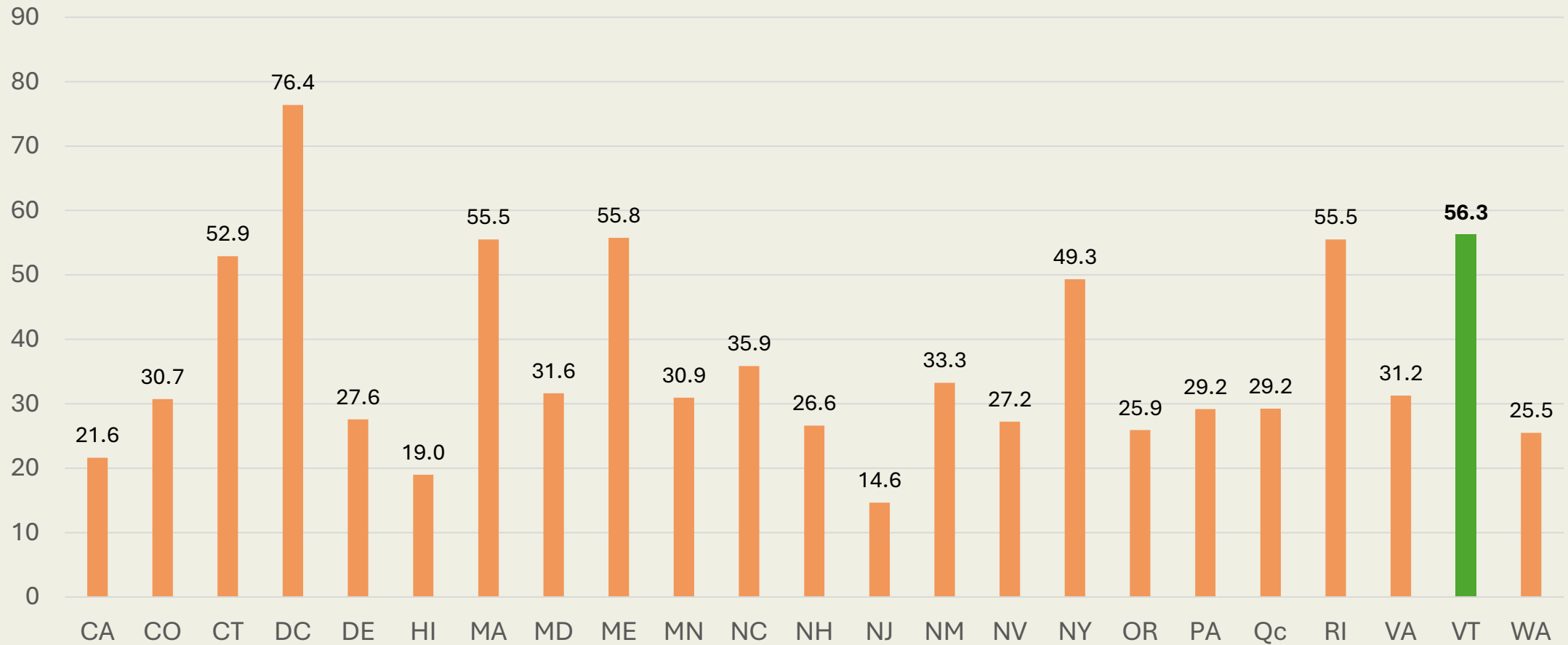
There are more than 400 public charging stations in Vermont alone – the highest number per capita in the U.S.!

Map Source: US DOE, Alternative Fuels Data Center

National Electric Vehicle Infrastructure (NEVI) Program - deploy a fast charging network across the country along interstate and state highway corridors – every 50 miles



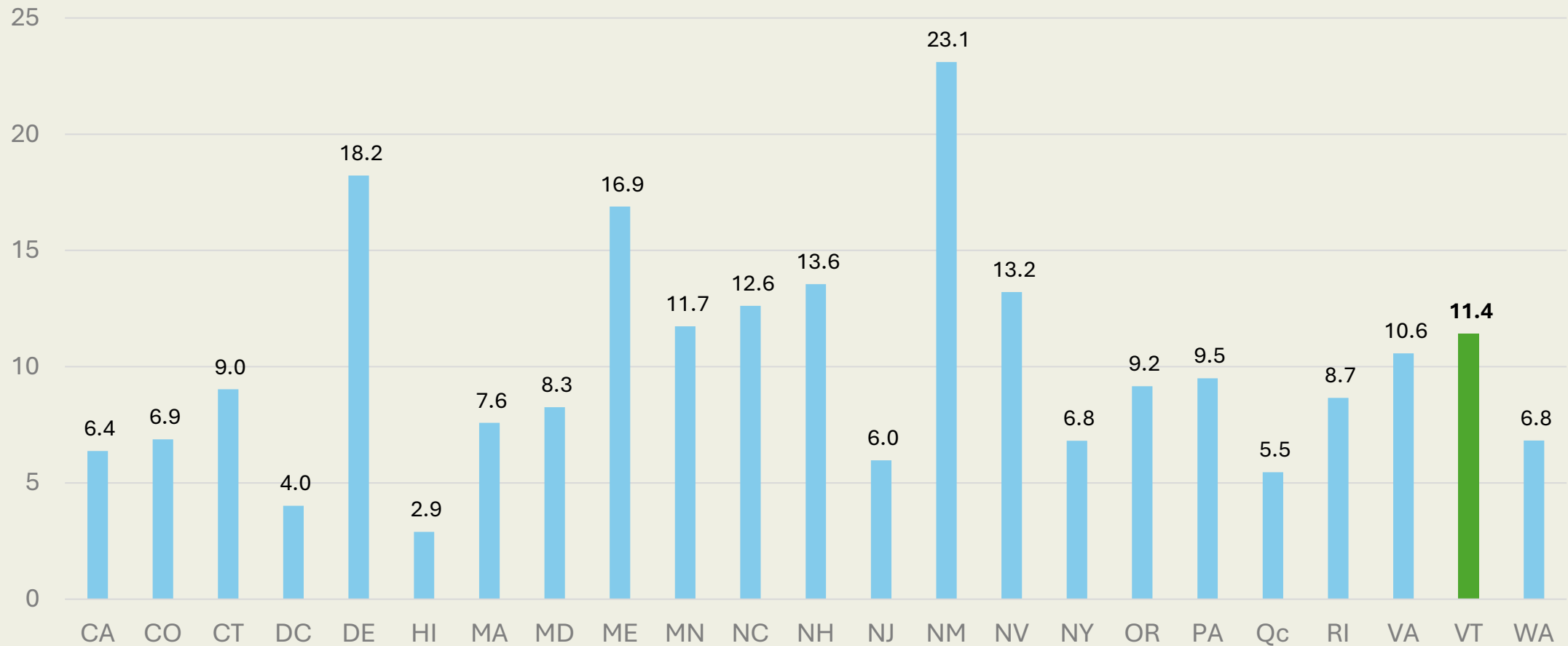
Level 2 Charging Plugs per 1,000 EVs



The National Renewable Energy Laboratory (NREL) recommends a ratio of 40 Level 2 plugs per 1,000 EVs



DC Fast Charging Plug per 1,000 EVs



The National Renewable Energy Laboratory (NREL) recommends a ratio of 3.4 DCFC plugs per 1,000 EVs



Support for businesses

- ✓ Support for workforce transitions
- ✓ [Electrify Your Fleet](#)
- ✓ [Fleet Electrification Assessment](#) – Drive Electric Vermont
- ✓ EV Dealer Program



Efficiency Vermont EV Dealer Program

Current Program Period: March 2024 – December 2026

Program Benefits

- **Efficiency Excellence Network (EEN) Membership**
 - Listing on "Find a Pro or Retailer" webpage at Efficiency VT
 - Use of the EEN and Efficiency Vermont logo/brand
- **EV Sales Incentive**
 - \$400 per EV sale/lease for dealer/salesperson, up to 50 sales per year*
- **EV Readiness Incentive**
 - 50-90% of EV infrastructure cost per project up to \$25,000 per program period*
- **Training & Education**
 - EV Sales Trainings
 - Program Overview Info Sessions

*See [Program Overview](#) for full details



Contacts

Questions and comments about the
LEV/ZEV rules can be sent to:

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Supplemental Slides

Advanced Clean Trucks (ACT): Medium- and Heavy-duty Trucks

Class 2b-3

- 55% of new vehicle sales by 2035
- Larger pick-ups, vans, and delivery vehicles



Class 4-8

- 75% of new vehicle sales by 2035
- Box trucks, bucket trucks, buses, dump trucks



Class 7-8

- 40% of new vehicle sales by 2035
- Truck tractors



Allows for continued sale of fossil fuel trucks beyond 2035

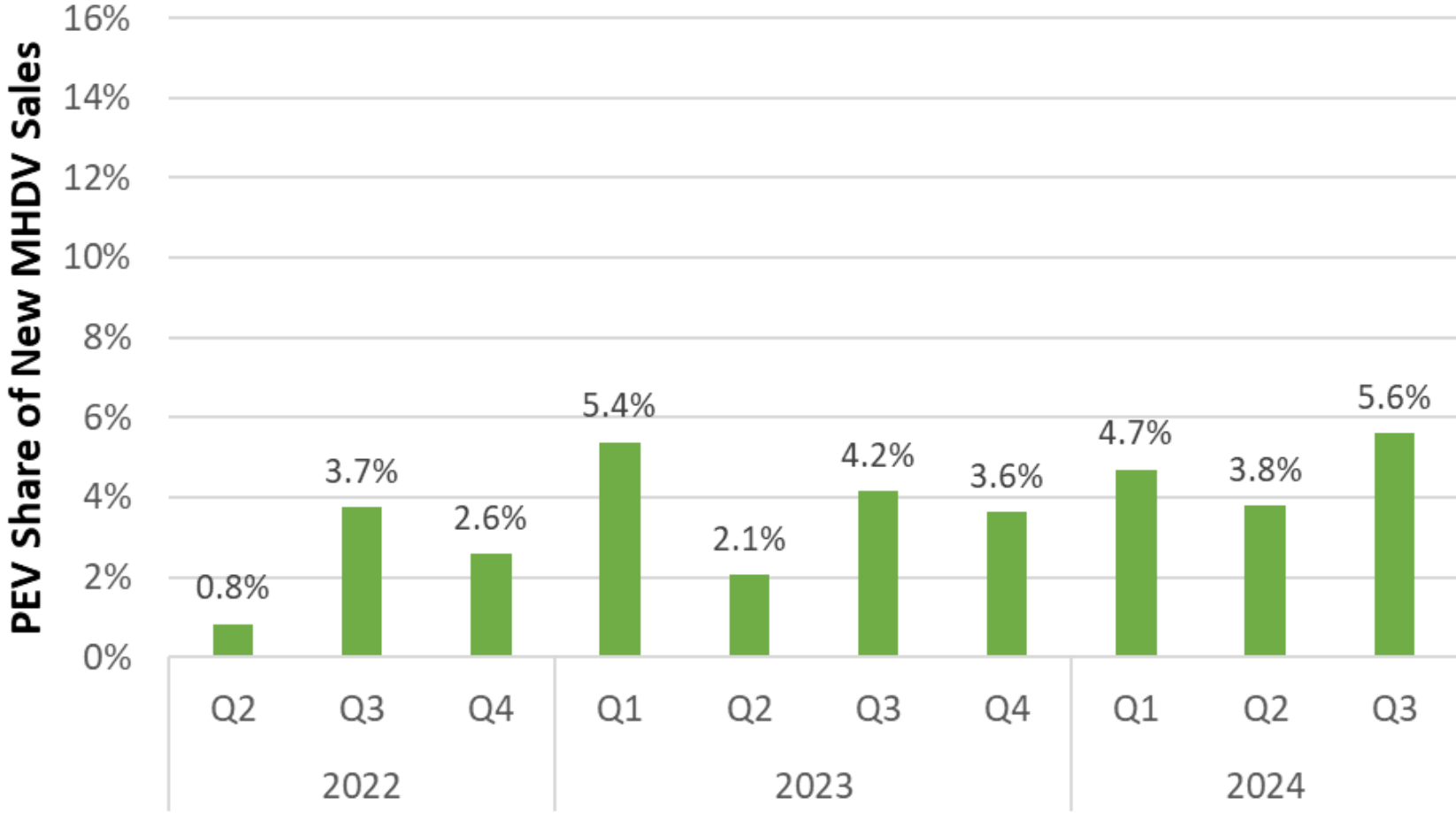
ACT Compliance Flexibility

- Compliance determined with a credit/deficit system, which includes flexibilities that can be used by manufacturers.
 - selling diesel trucks earns deficits
 - selling ZEVs or NZEVs* earns credits.
- Includes flexibility for manufacturers to produce and sell new ZEVs into the market segments they deem to be most suitable for the products they manufacture.

*NZEV (near zero emission vehicles, such as plug-in hybrids)



Medium- and Heavy-Duty PEV Share in Vermont 2022 Q2 - 2024 Q3

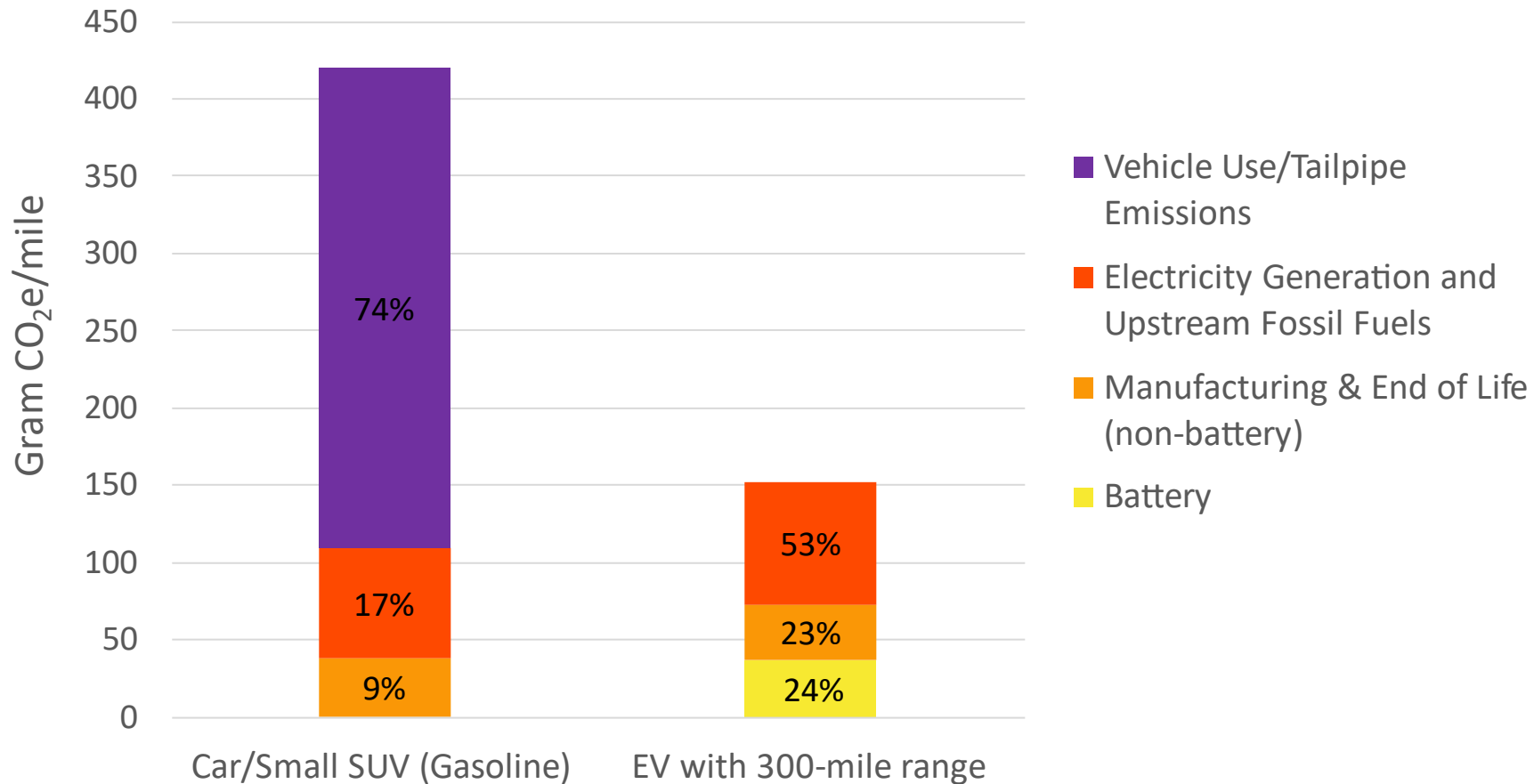


MHDV sales = Class 2b-8 vehicles; PEV = battery-electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs). Source: Experian via Atlas Public Policy's EV Market Dashboard, <https://www.atlasevhub.com/market-data/ev-market-dashboard/>.



“Lifecycle” EV emissions are lower

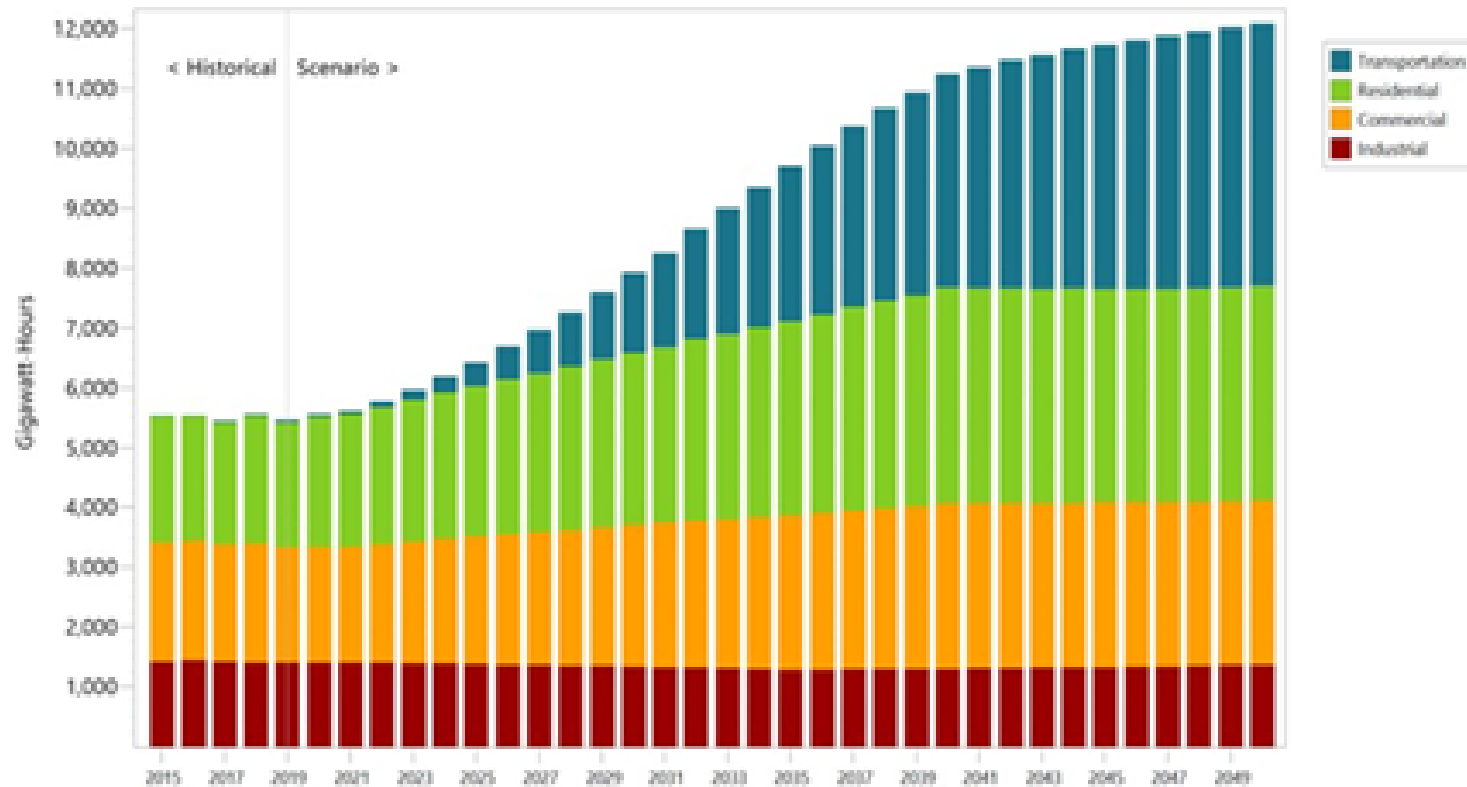
Lifecycle Greenhouse Gas Emissions Comparing an EV to a Gasoline Vehicle



EV has lower “lifecycle” emissions than a gasoline car

We can handle the increased electricity demand

Modeled Electricity Demand in Vermont, thru 2050



- ✓ Analyses show that demand for electricity will increase
- ✓ Integrated resource planning from utilities and grid resiliency efforts show that the demand can be met