

Comprehensive Energy Plan / Climate Council Cross-Sector Mitigation Subcommittee Transportation Sector Technical Workshop

August 26, 2021, 9:30 a.m. – 3:30 p.m.

Link to join: <https://us02web.zoom.us/j/6050832511>

To join by phone: **(929) 205-6099**. Webinar ID: 605 083 2511#

Welcome! The meeting will get started shortly.

In Zoom, please ensure your first and last name are displayed.

Introductions

Hosts

Ed McNamara and Philip Picotte, Department of Public Service

Johanna Miller and Gina Campoli, Vermont Climate Council Cross-Sector Mitigation Subcommittee

Facilitator

Cindy Cook, Adamant Accord

Guests

Please introduce yourself (name, organization) using the chat function

Workshop Objectives

Gather input on transportation sector policies, programs, and strategies currently in place or that should be in place with an eye toward:

How should the state consider and balance tradeoffs among criteria when assessing policy options?

- What decision-making criteria should be used to make such trade-offs?
- How should these criteria be employed in the context of making choices regarding the State's energy future?

What state strategies, policies, and programs are needed to achieve Comprehensive Energy Plan (CEP) and Global Warming Solutions Act (GWSA) Climate Action Plan (CAP) goals in the transportation sector?

- Recommendations regarding alternatives to consider (ex. Climate Council policy drafts)
- How to address equity in the sector/what is currently being done and/or planned to address
- Strategies and options for regions and municipalities to employ



Secretary Joe Flynn

Vermont Agency of Transportation



Rutland Creek Path

Agenda

- 9:30 Introductions and Objectives
- 9:35 Welcome Message, *Secretary Joe Flynn, Vermont Agency of Transportation*
- 9:45 Review Agenda, Forum Etiquette Guidelines and Zoom Logistics, *Facilitator*
- 9:50 Transportation Equity in Vermont, *Sue Minter, Just Transitions Subcommittee*
- 10:00 CEP & CAP Development Process, *Ed McNamara, PSD, and Jane Lazorchak, ANR*
- 10:20 Vermont's Transportation Energy and Climate Picture, *Jared Duval, Energy Action Network*
- 10:35 Supporting the CAP, *Johanna Miller & Gina Campoli, Cross-Sector Mitigation Subcommittee*

- 10:45 Morning Breakout Session Intro, 10 Min. Break, Breakout, and Report-out
- 12:45 Lunch Break
- 1:30 Afternoon Breakout Session Intro, Breakout, and Report-out
- 3:25 Next Steps and Future Opportunities for Input, *Facilitator*
- 3:30 Adjourn

Workshop Etiquette and Zoom Logistics

- CEP public meeting etiquette guidelines available here: <https://publicservice.vermont.gov/content/2022-plan>
- Please remain muted with video off during presentations. We welcome participants to turn their video on while speaking during discussion sessions.
- As a reminder, this workshop is being recorded and will be posted on the CEP website after the event.
- During the workshop, participants will have multiple opportunities to ask questions or provide comments:
 - To make a comment directly, please use the “raise your hand” function during discussion sections. Alternatively, remote participants can provide comments via the chat function. Callers will be invited to press*6 to unmute during Q&A to ask their question during the Q&A.
 - So that everyone has an opportunity to speak, we kindly ask that you keep your remarks to 2-3 minutes at a time. At the end of the workshop, we will discuss opportunities for future input as well.



Transportation Equity in Vermont

Sue Minter

Executive Director, Capstone Community Action

Co-Chair, Just Transitions Subcommittee, Vermont Climate Council



Just Transitions Subcommittee of the Vermont Climate Council



Part of the Global Warming Solutions Act

Ensuring strategies to reduce greenhouse gas emissions and to build resilience to the effects of climate change benefit and support all residents of the State of Vermont fairly and equitably.



What is Equity?



Distributive

Recognize existing disparities.
Fairly share benefits & burdens.
Target resources to communities with greatest inequities, disproportionate impacts, greatest unmet needs.



Procedural

Communities have a meaningful way to participate in planning and implementation of policies that affect them.
Processes are open, transparent, inclusive.



Contextual

Take into account the communities most impacted by climate change.
Address underlying structural and institutional systems that are the root causes of inequities.



Corrective

Clear processes for accountability



Guiding Principles for a Just Transition



INCLUSIVE, TRANSPARENT &
INNOVATIVE ENGAGEMENT



ACCOUNTABLE & RESTORATIVE



MOVING AT THE SPEED OF TRUST



SOLIDARITY



THE MOST IMPACTED FIRST



SUPPORTS WORKERS, FAMILIES &
COMMUNITIES



Self-Assessment Questions



IMPACTED & FRONTLINE COMMUNITIES?



ANALYZING BURDENS AND BENEFITS?



ENSURING EQUITABLE & JUST ENGAGEMENT?



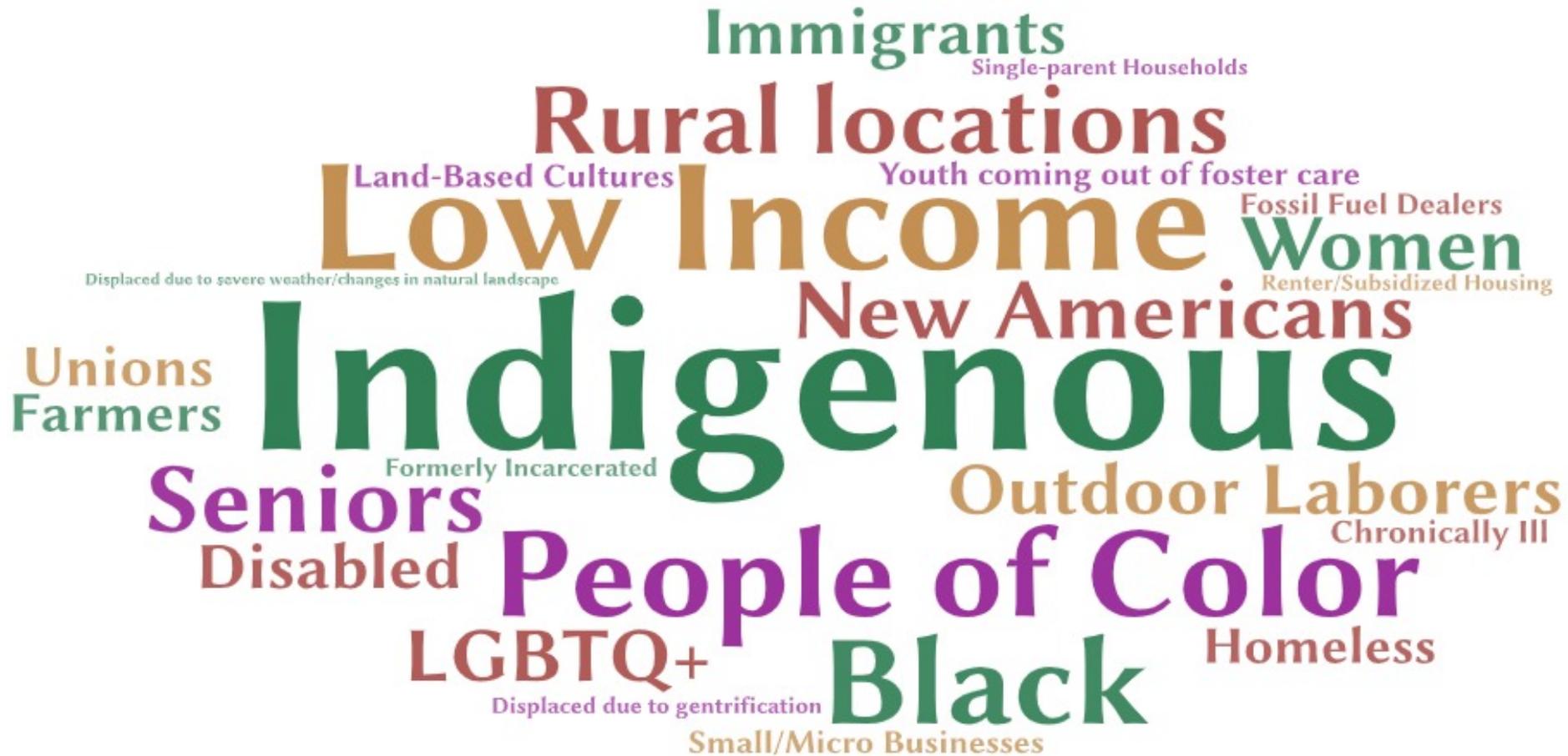
FUNDING & DATA?



IMPLEMENTATION & OUTCOMES?



Vermont's Impacted & Frontline Communities



Transportation Fuel Burden for Vermonters

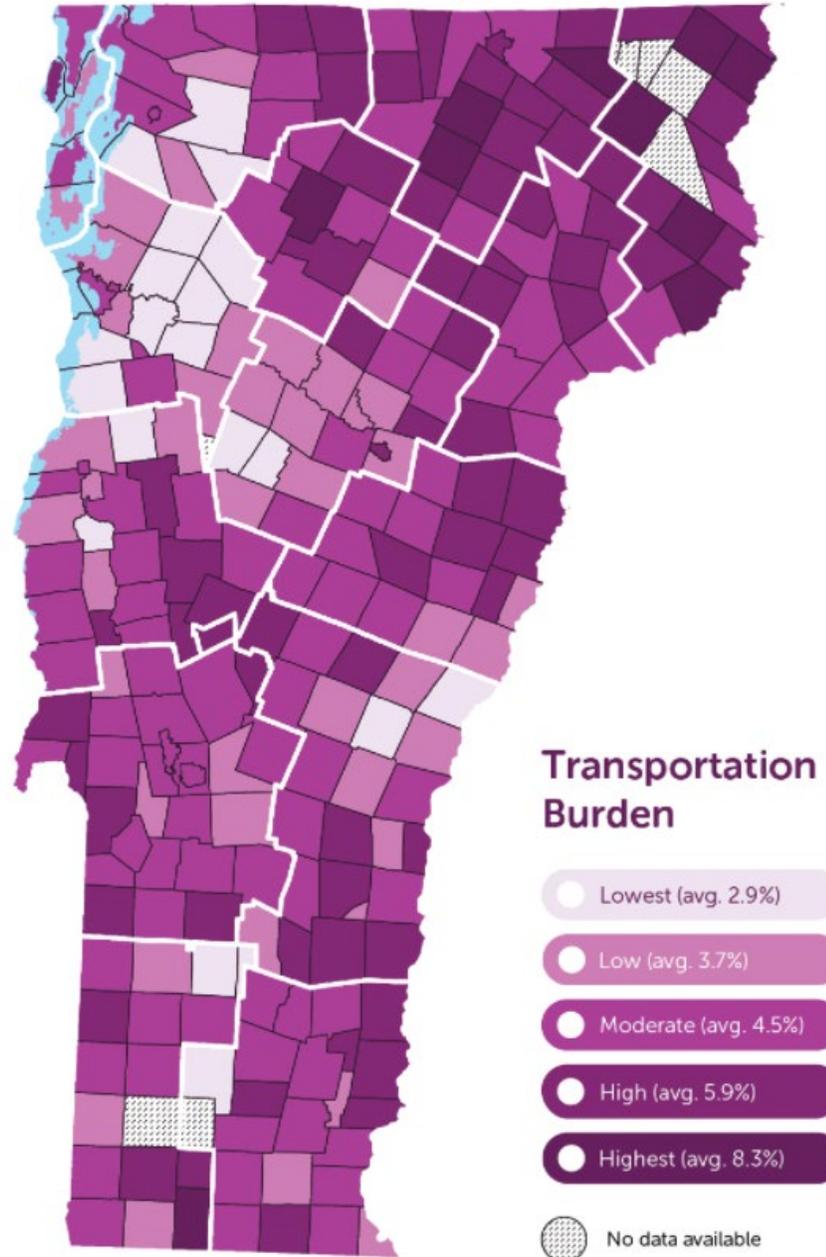
2017 annual vehicle fuel burden by income and location-type, northeast U.S.



2019 Energy Burden Report



Efficiency
Vermont



- Image shows % of income spent on transportation related costs
- The further from cities and town centers, the more costs spent on transportation

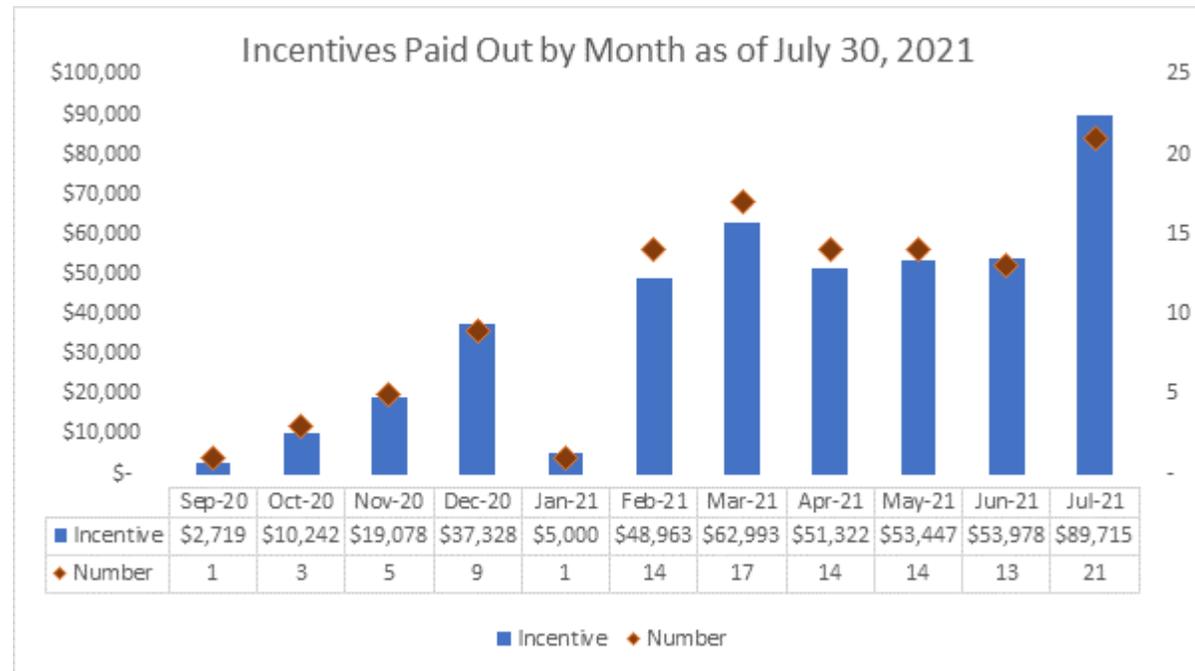
Source: 2019 Efficiency VT Energy Burden Report



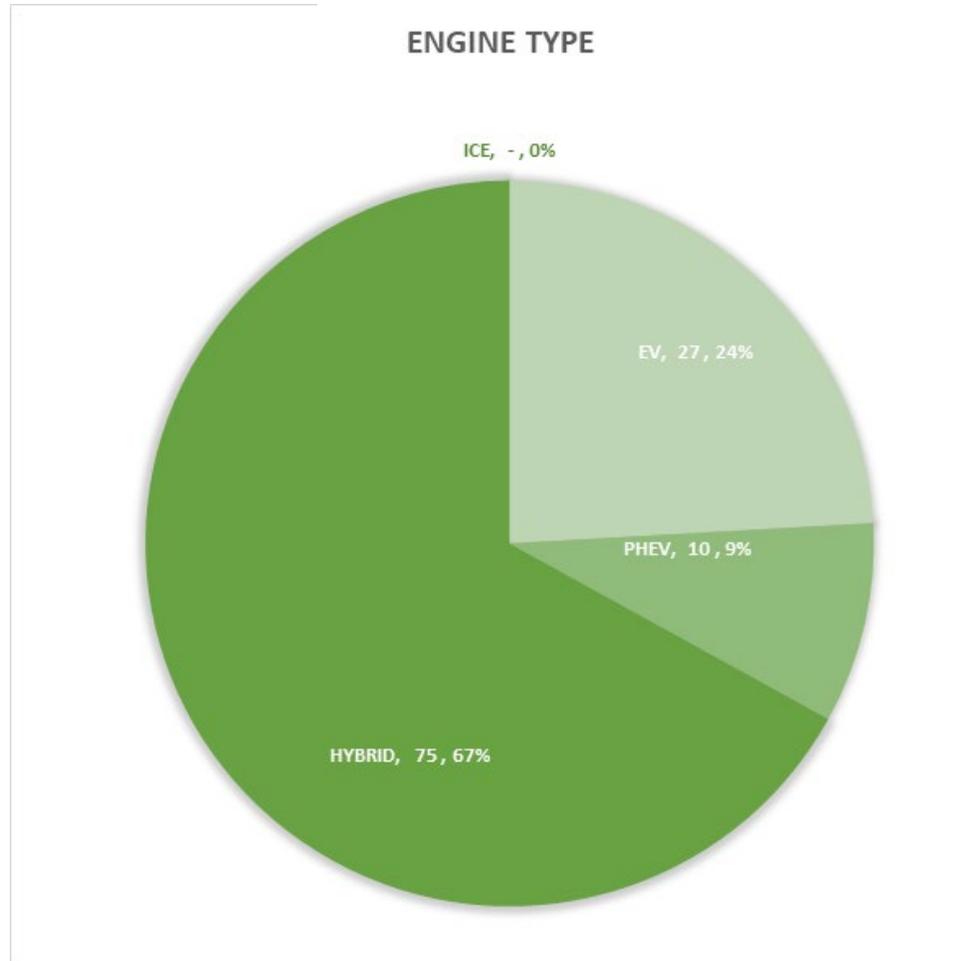
mileage smart

Incentive up to \$5K towards a used hybrid, plug-in hybrid, or all-electric vehicle for VT residents with income level at, or below 80% median AGI

126 vehicle purchases to-date
- \$497,906 incentives delivered



mileage smart



- Chart outlining engine types and corresponding number of vehicles sold in each category



Programs In Development at Community Action Agencies



EV Mobility & Equity

Flexing microtransit/ride-hail, workforce rides and carsharing through a shared electric fleet

Financial & Energy Coaching

Opportunity to align missions of financial literacy with savings opportunities from State energy saving initiatives



Hopping into your vehicle, turning it on, and going where you want, when you want, is a privilege.

Creating equitable, flexible solutions that cater to all Vermonters is necessary for a just transition to a low carbon future.



Photo: Gordan Wiltsie



2022 Comprehensive Energy Plan

**Ed McNamara, Director of Planning
Department of Public Service**

GWSA Climate Action Plan

**Jane Lazorchak, Director of GWSA
Agency of Natural Resources**

Vermont Energy Policy

Title 30, Section 202a:

- To ensure, to the greatest extent practicable, that Vermont can meet its energy service needs:
 - In a manner that is **adequate, reliable, secure, and sustainable**
 - Ensuring **affordability** and encouraging the state's **economic vitality**
 - Using energy resources **efficiently** and managing demands **cost effectively**
 - In a manner that will **achieve greenhouse gas reductions requirements**

Comprehensive Energy Plan - Two Plans

Comprehensive Energy Plan (30 V.S.A. § 202b)

- Comprehensive 20-year analysis and projections of the use, supply, cost, environmental effects all energy sources used in VT

Electric Plan (30 V.S.A. § 202)

- 20-yr assessment of *electric* demand, supply, strategies

- CEP Required Every 6 years – next due **January 2022**

Comprehensive Energy Plan - *Requirements*



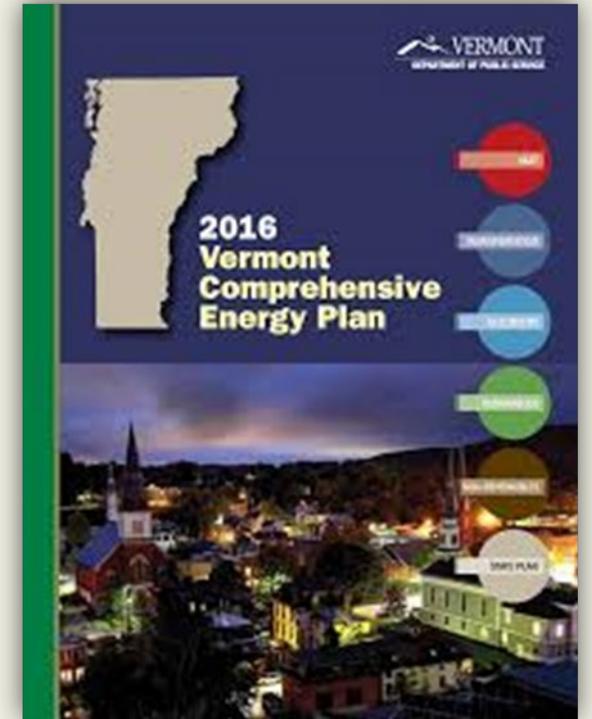
Must include standards and recommendations for Act 174 enhanced energy planning



Must be consistent with GHG reduction requirements, GWSA Climate Action Plan, relevant goals of Title 24, Section 4302

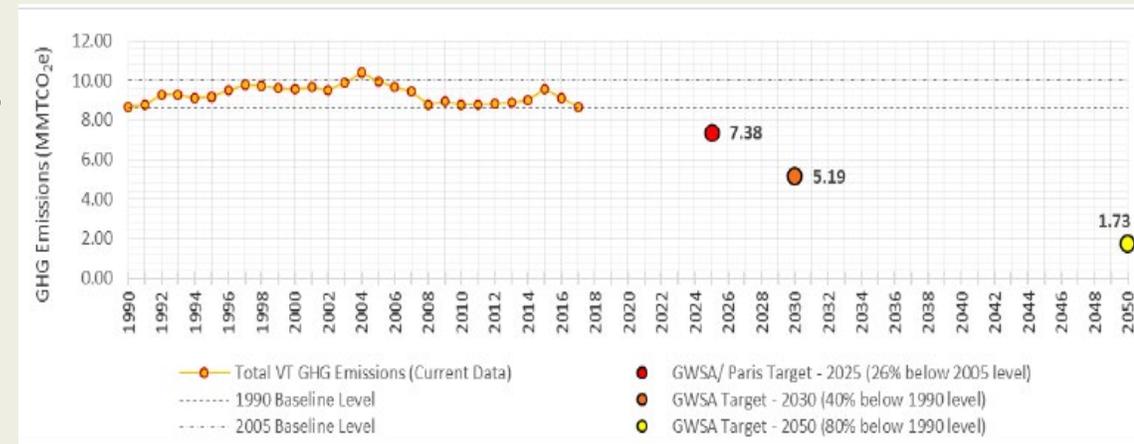
2016 Comprehensive Energy Plan

- Last CEP published in January 2016
- 90% renewable (all sectors) by 2050
- Over 300 recommendations



2022 CEP Starting Points

- 90% renewable by 2050 *as a starting point*
- 10 V.S.A. 578 Requirements – GHG Emissions reductions equal to:
 - Not less than 26% relative to 2005 emissions by 2025 (Paris Accord)
 - Not less than 40% from 1990 emissions by 2030 (2016 CEP)
 - Not less than 80% from 1990 emissions by 2050 (2016 CEP)



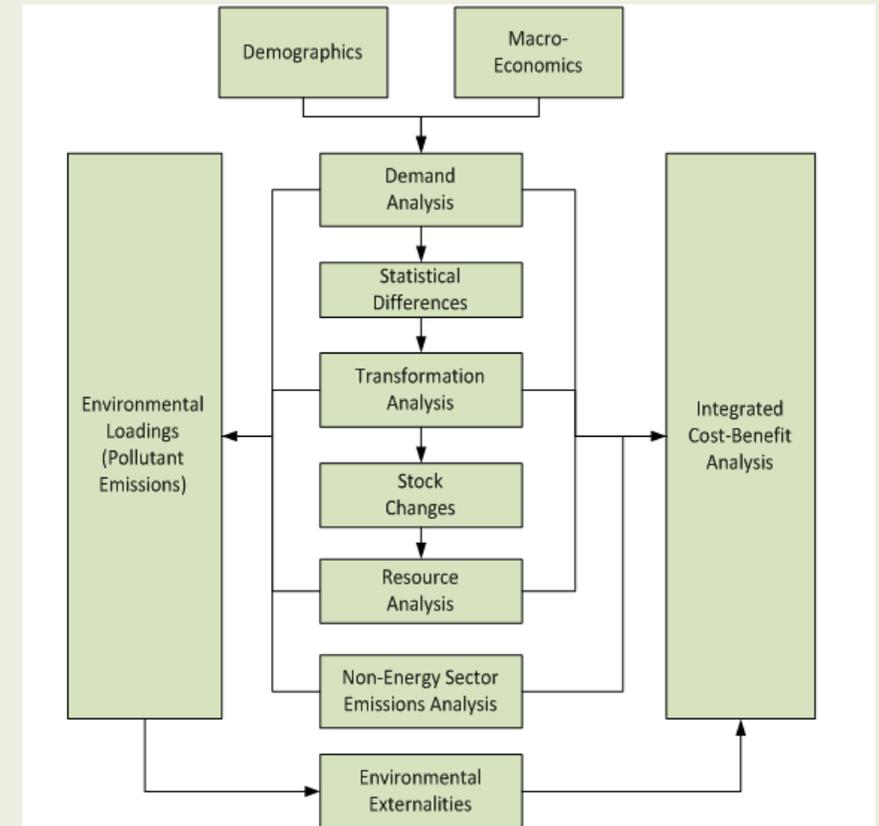
VT GHG Inventory. VT DEC AQCD May 2021

2022 CEP Vision

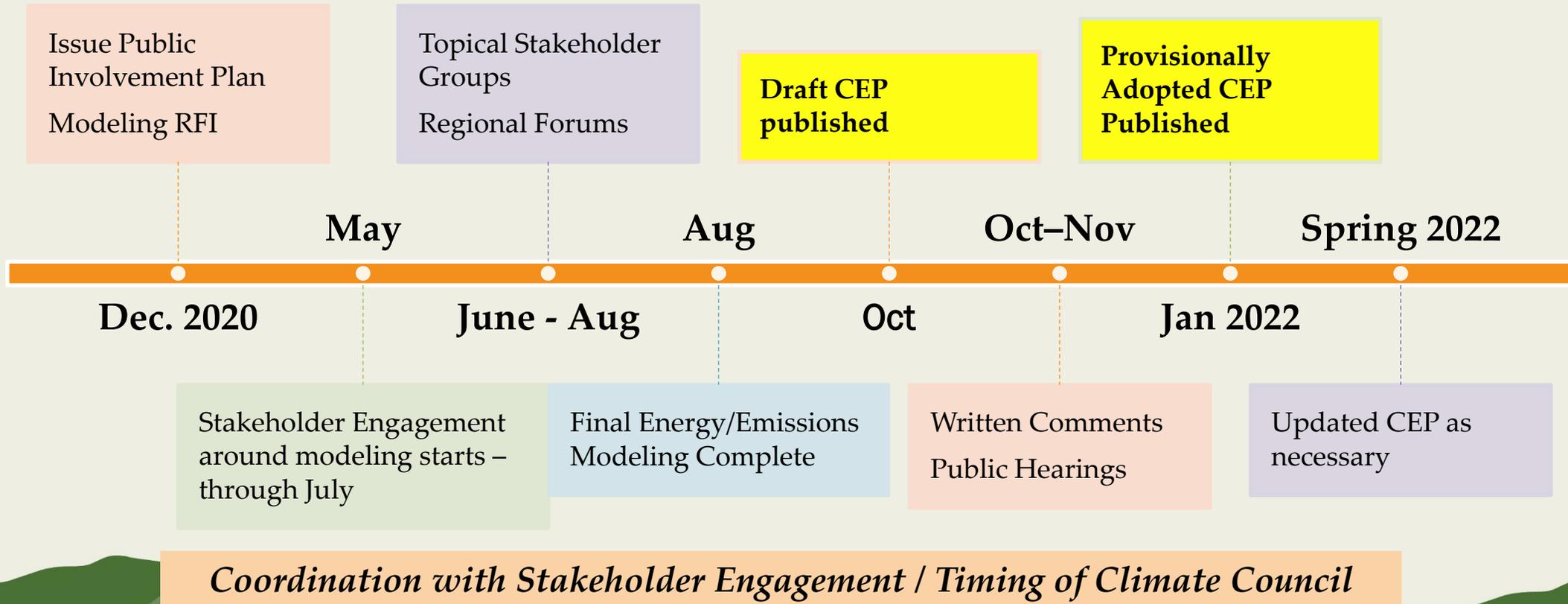
- Focus on a strategic plan that identifies
 - Tradeoffs among policies
 - Milestones for identifying success and need for modification in policies
 - Uncertainties that could affect policy success
- Includes
 - Act 174 standards & recommendations
 - Climate and Renewable Energy Pathways
 - Electric Plan
 - State Agency Energy Plan

2022 CEP Modeling

- Scenario analysis
 - Working with ANR, NESCAUM, Stockholm Environment Institute using Low Emissions Analysis Platform (LEAP)
 - Reference, “Business as Usual” case plus policy and technology scenarios
- Energy modeling, non-energy sector modeling
 - LEAP is scenario-based modeling tool that can track consumption, production, and resources in all sectors
 - Plan to regionalize results after initial modeling effort is complete
 - Local and regional air pollutants in addition to GHG



2022 CEP Tentative Timeline (as of 8.10.21)



Global Warming Solutions Act – Key Dates

- General Assembly (GA) had 60 days from enactment (**Sept 23, 2020**) to make appointments
- Administration had 30 days from receiving final appointment (**Oct 23, 2020**) to convene first meeting of the Council
 - First meeting was held **November 20, 2020**
- Subcommittees Began Meeting – **February 2021**
- Council adopts Initial Climate Action Plan – **Dec 1, 2021**

Global Warmings Solutions Act

Clear Sequence of Work

1. Five Subcommittees Defined in Statute to Develop the Work
 - Rural Resilience and Adaptation, Agriculture and Ecosystems, Cross Sector Mitigation, Just Transitions and Science and Data
2. Each Subcommittee following Clear Sequence of Work
 - Inventory existing programs to meet GWSA requirements
 - Identify, analyze and evaluate new strategies/programs needed to meet GHG requirements
 - Develop financing strategies for actions ready to implement
3. Develop monitoring strategy for assessing
4. Identify rules to be adopted (by ANR) by 2022
5. Adopt the Vermont Climate Action Plan by Dec 1, 2021, and update the Plan every four years thereafter.

Framework for Climate Action Plan

Pathways → Strategies → Actions

Cross-Sector Mitigation, Agriculture and Ecosystems and Rural Resilience and Adaptation

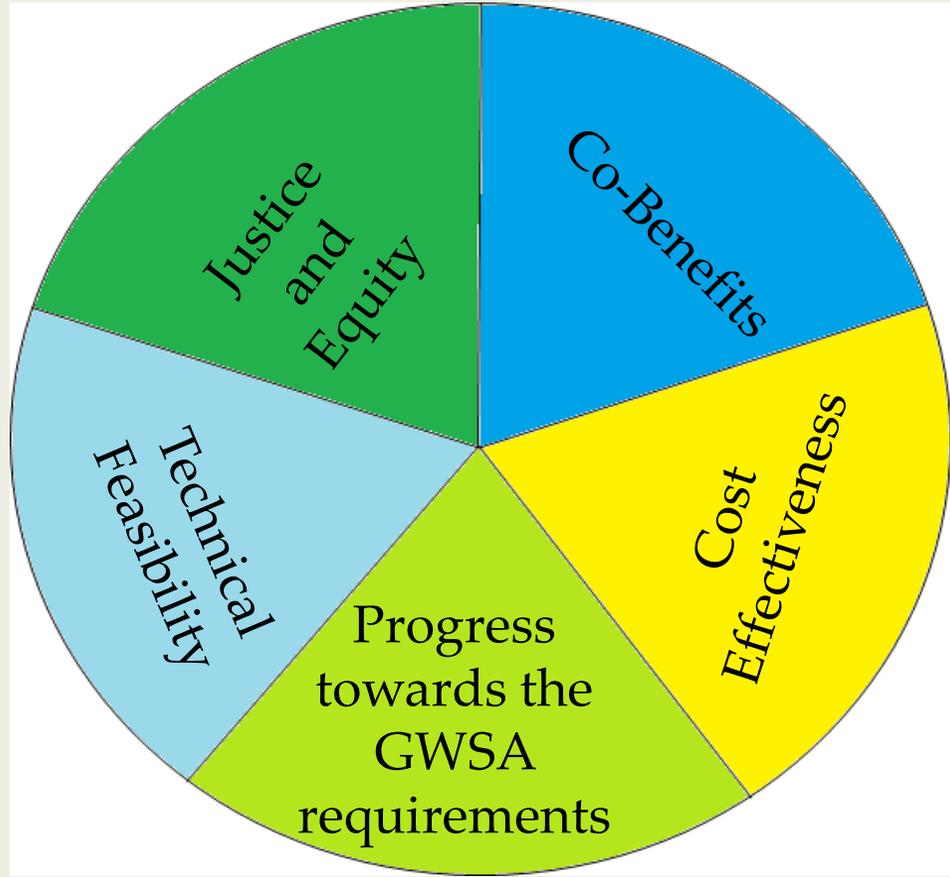
- A **pathway** is a high-level means of achieving GHG emissions reductions or adaptation, resilience, and sequestration goals. While written broadly, pathways should be stated specifically enough so that it is possible to assess whether progress has been made in achieving them.
- A **strategy** is a statement of measurable activity, a benchmark, to be reached in pursuit of the pathway. Strategies should be measurable and are a more specific subset of pathways.
- **Actions** are the “operational” tasks that the state will undertake to meet the pathways and strategies. Actions may be written around existing, or propose new, policies, programs, projects, initiatives, plans, etc.

These will be further developed in the coming months, informed by public engagement and technical analyses.

Leading with Equity as a Core Component

The term “Just Transitions” is a way of framing for government and business action on climate change. Its work encompasses both public policies and business action to deal with the impacts of industry transition away from greenhouse gas emissions for jobs and livelihoods (the transition "out") and aims to generate the low or zero greenhouse gas emission jobs and livelihoods of a sustainable society (the transition "in"). [Guiding Principles for a Just Transition, June 2021](#)

Climate Action Plan



Short term
priorities



Long term
priorities

Mitigation Strategies
(emissions reduction)

Sequestration
Strategies

Resilience and
Adaptation
Strategies

Process to Date

1. Scope of Work Refined for Subcommittees
2. Subcommittee membership developed - technical expertise and diversity considered
3. Initial Ideas Explored by Task Leads
4. Presentation and Discussion
5. Pathways Presented



PUBLIC ENGAGEMENT TIMELINE

2021

2022

AUG

SEPT

OCT

NOV

DEC

JAN

FEB

MAR

Social media, website, outreach materials, survey, stakeholder events

Statewide and regional events, partner supported events

Meet with Council and sub-committees to review findings

Initial plan launch and promotion

Statewide events, partner support

Deliberation platform on elements for further refinement

Meet with Council and sub-committees to review findings

Comprehensive plan promotion

Energy Plan & Climate Plan

Overlap

Climate Action Plan

- Climate Adaptation
- Non-Energy GHG Emissions: Agriculture, Waste, etc.
- Sequestration
- GHG Inventory Review

- Cost-effective GHG Reduction Targets
- Energy Sector Analysis incl. policy & technology scenarios & pathways
- Public Engagement Efforts
- Equity

Comprehensive Energy Plan

- Renewable Energy Development
- Electric Plan including Reliability
- Energy System Planning: Adequacy, security, sustainability, Affordability, Economic vitality
- Standards for Local Planning (Act 174)

Questions?

- Type your questions in the chat, “raise your hand” to be called on and ask your question verbally (or request to do this in the chat if you don’t have that functionality), or press *6 when telephone callers are invited to ask questions.
- You can send comments on the CEP by email (or mail) to: PSD.ComprehensiveEnergyPlan@vermont.gov
- You can send comments on the CAP via the public input portal: <https://anrweb.vt.gov/ANR/ClimateCouncil/PublicInputForm.aspx?PKID=3209>



ENERGY ACTION NETWORK

ANNUAL PROGRESS REPORT

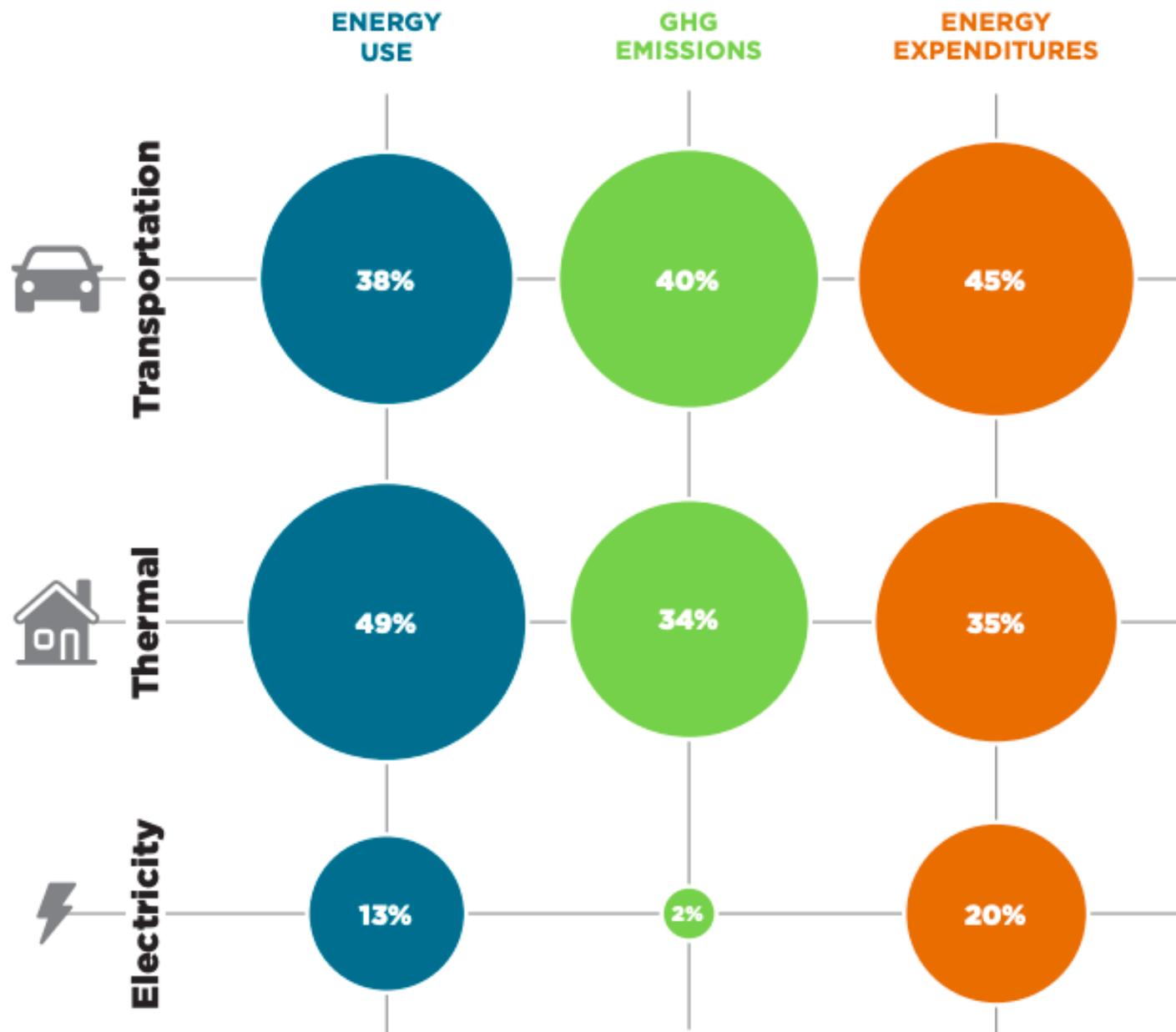
for VERMONT
2020/2021

Emissions

Energy

Equity

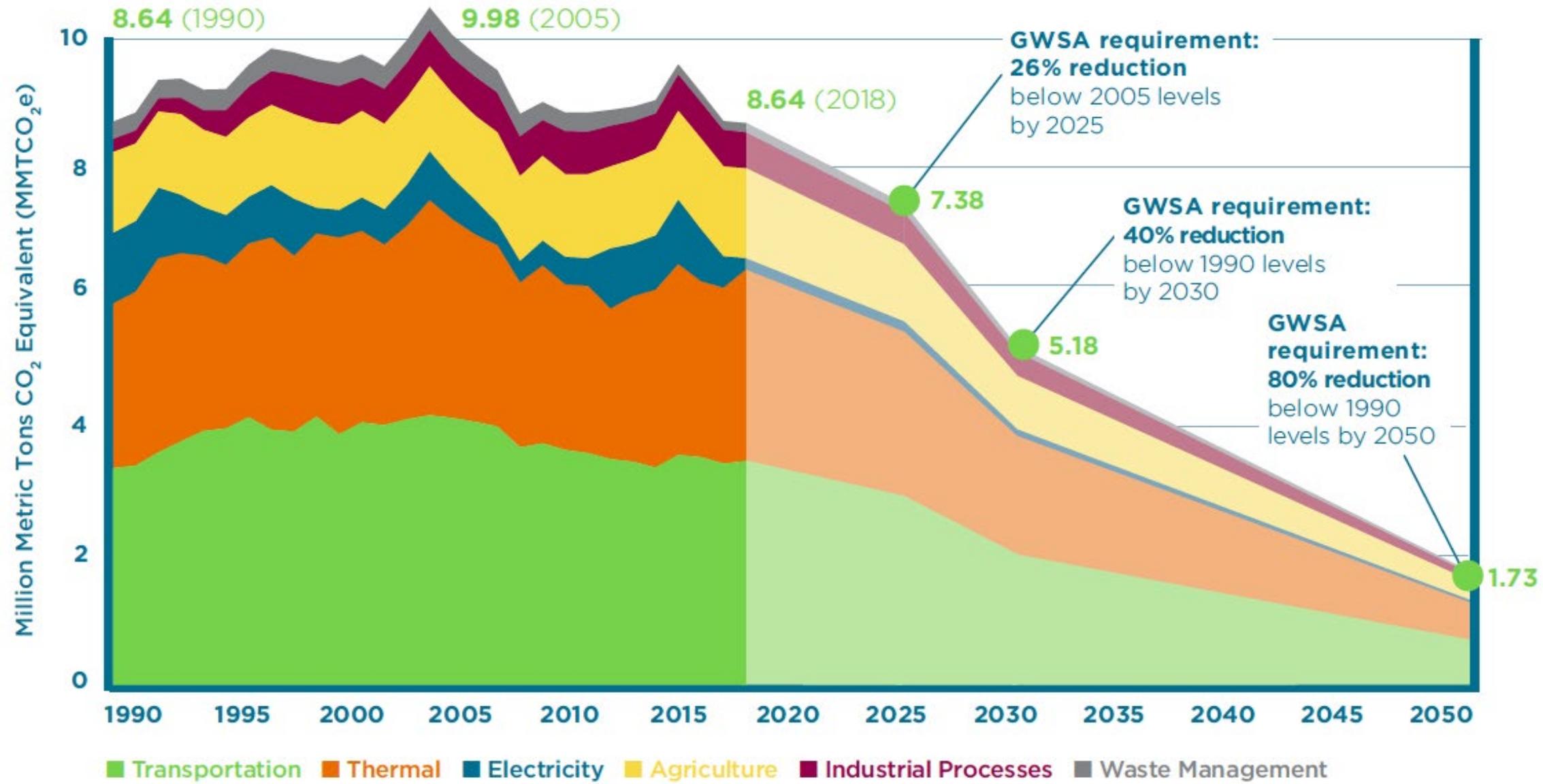
and the Economy



Source for Energy Use: Thermal and transportation based on EIA 2018 site energy; electricity from PSD site energy, after accounting for RECs.
 Source for GHG Emissions: Vermont Agency of Natural Resources, Vermont Greenhouse Gas Emissions Inventory and Forecast (1990-2017), 2021.
 Source for Energy Expenditures: VEIC, Vermont Energy Burden Report, 2019.



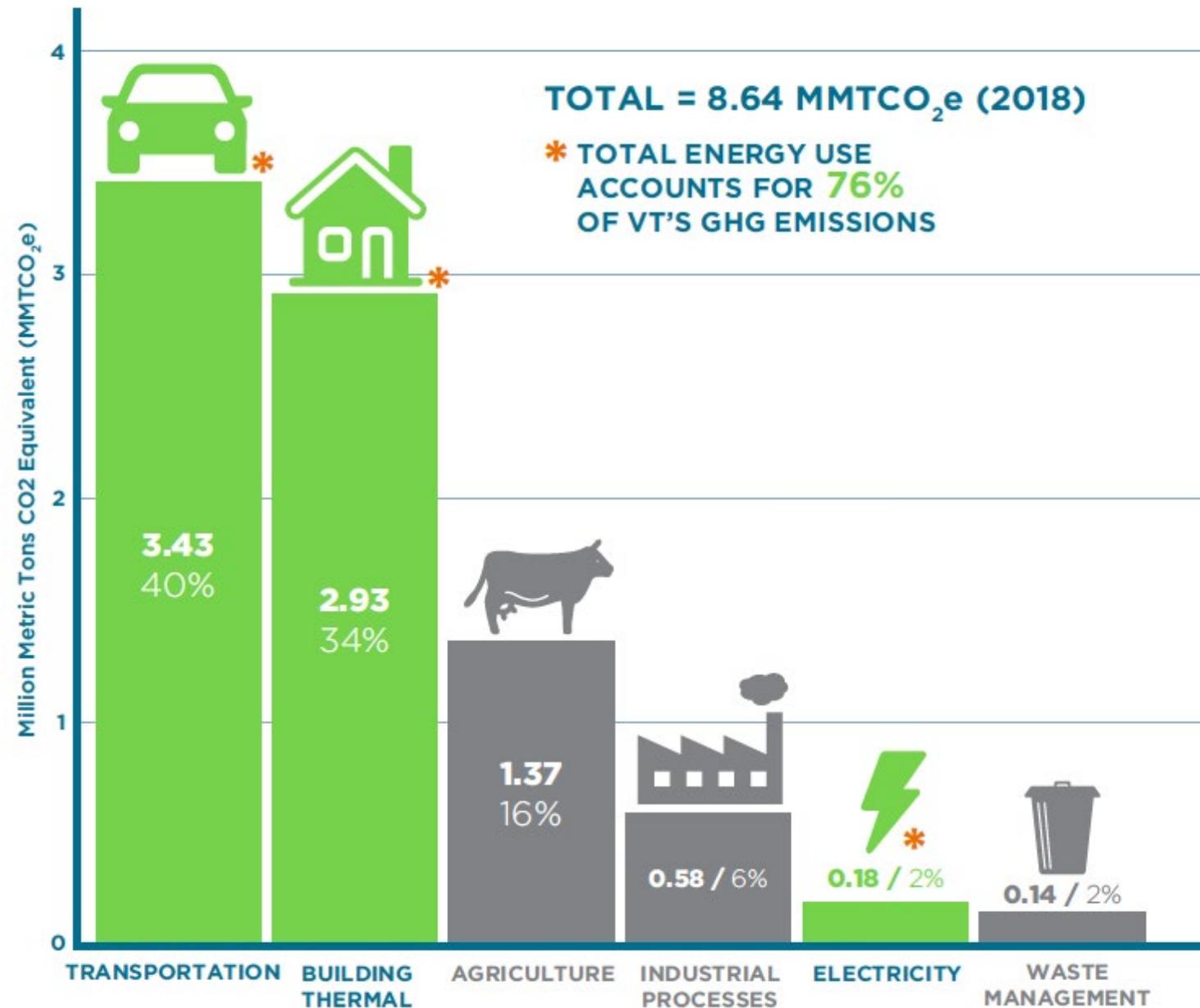
Vermont's historical GHG emissions and future requirements



Source: Vermont Agency of Natural Resources, Vermont GHG Emissions Inventory and Forecast (1990-2017), 2021.

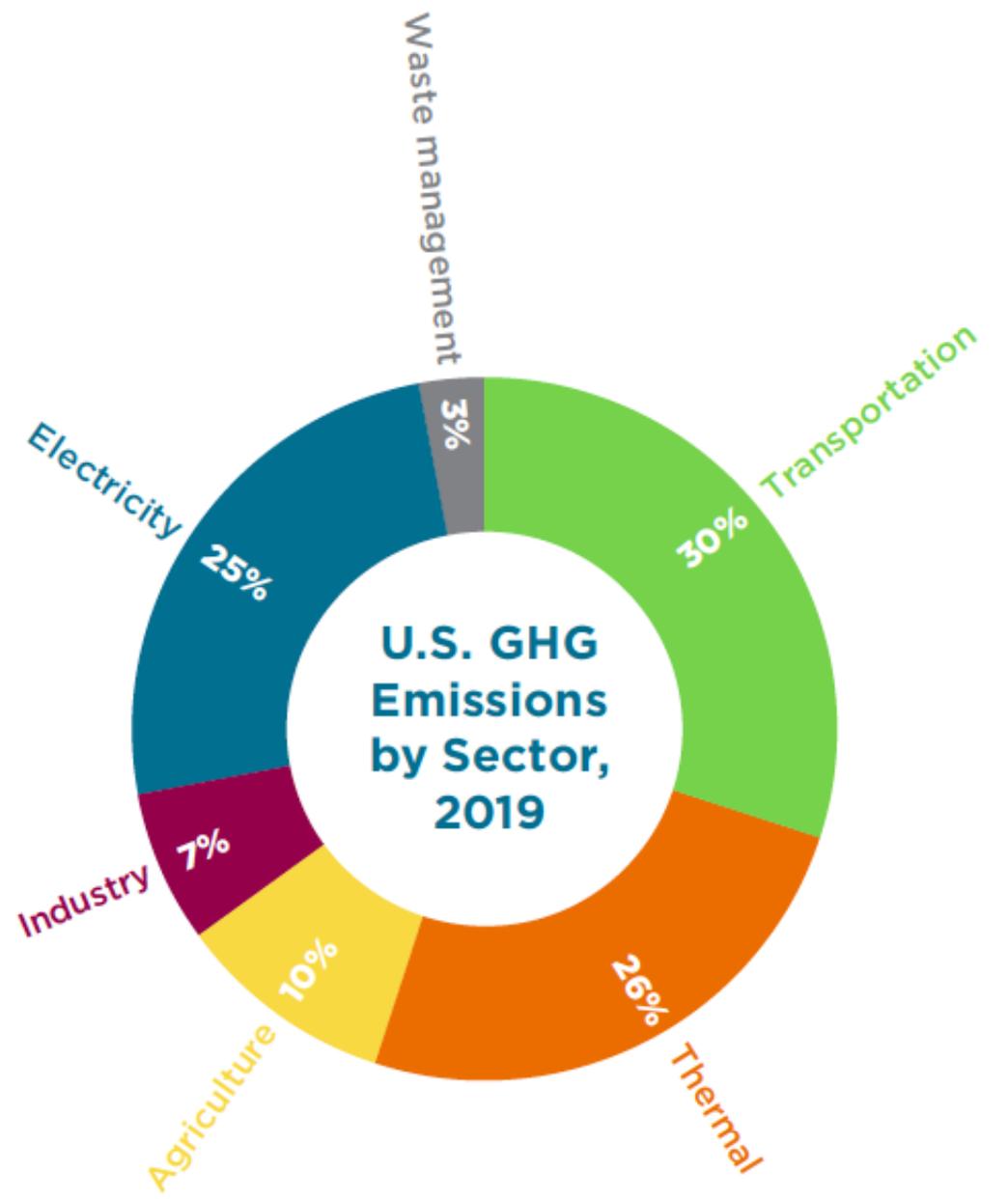
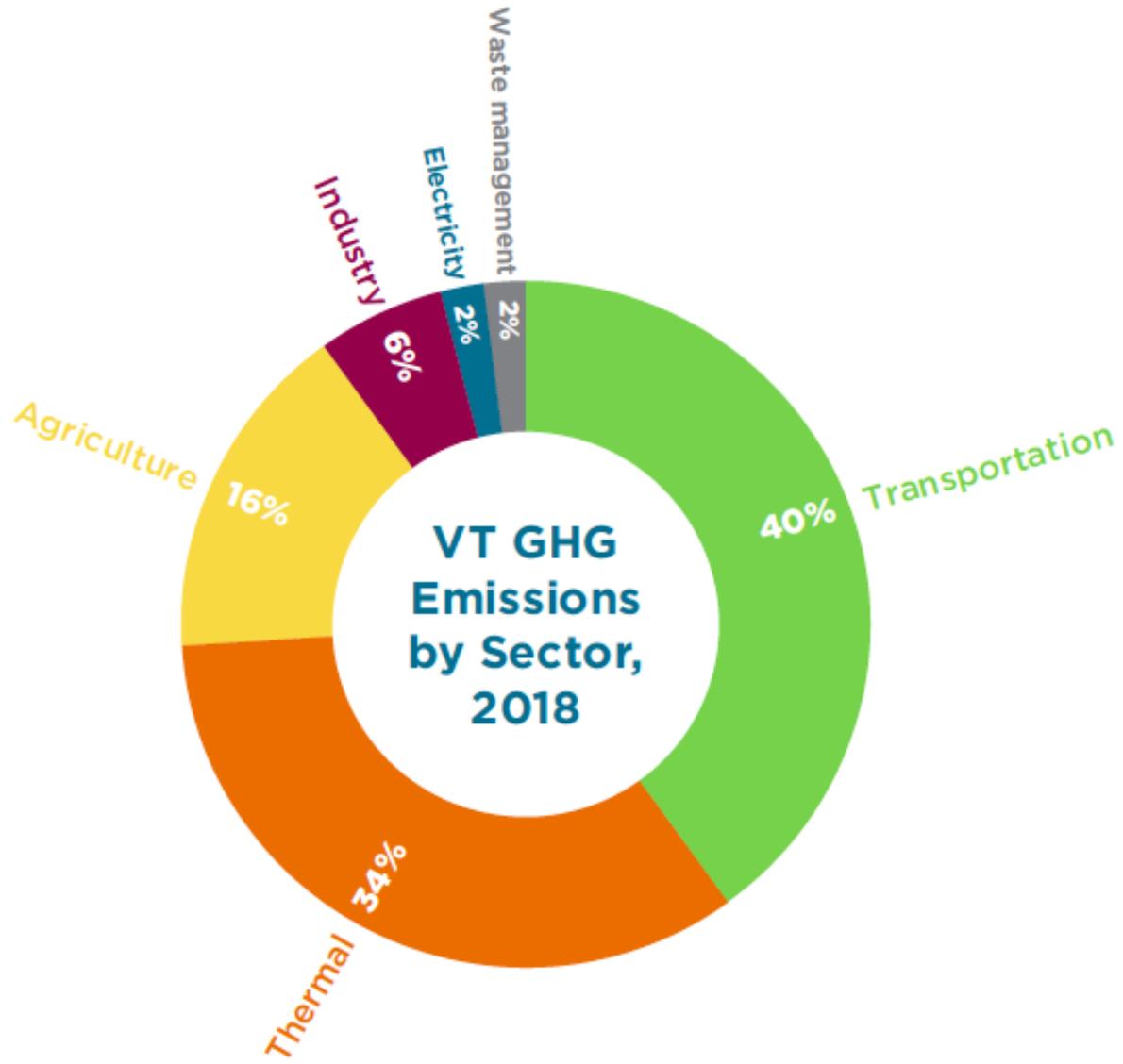


Vermont's GHG emissions by sector, 2018



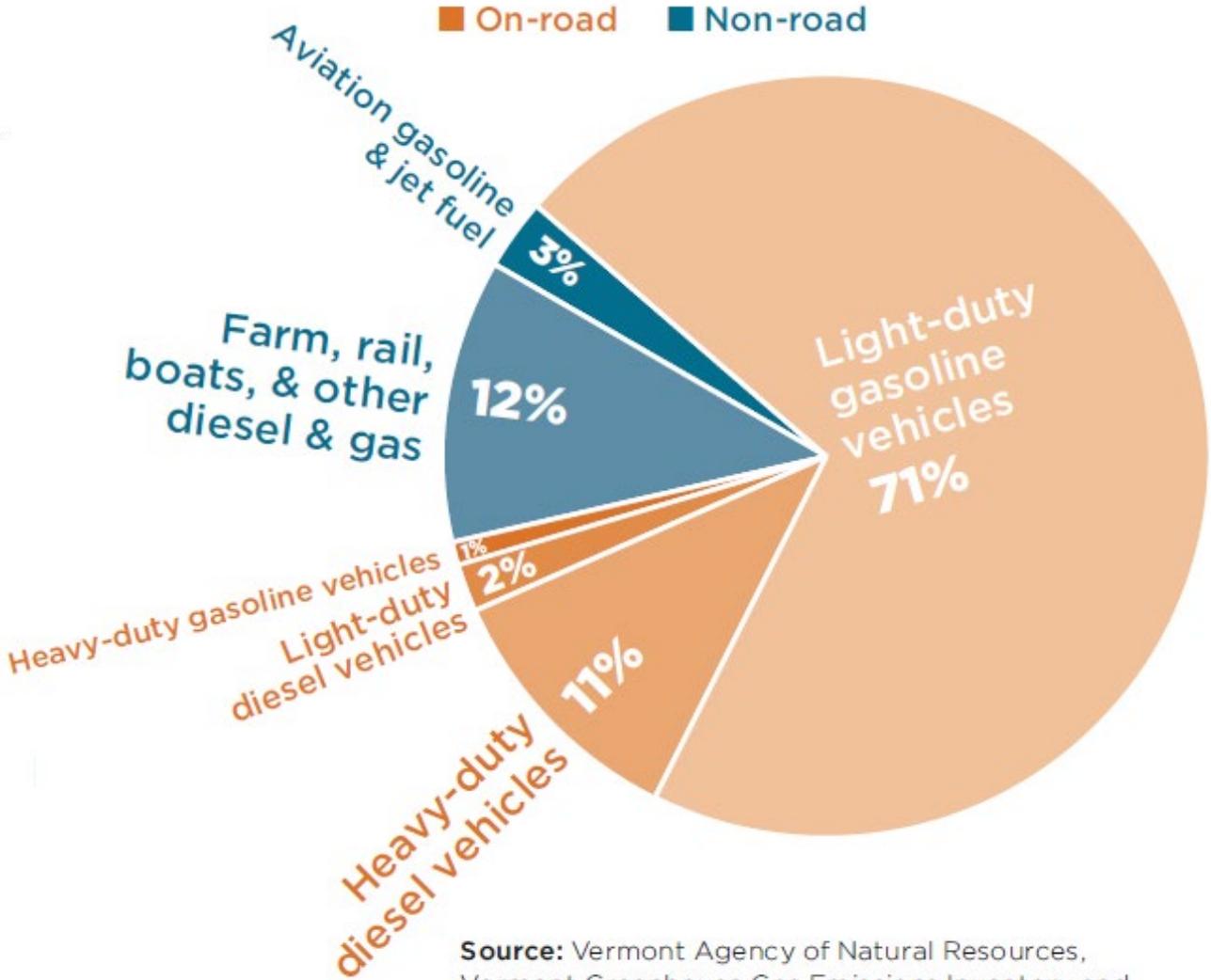
Source: Vermont Agency of Natural Resources, Vermont Greenhouse Gas Emissions Inventory and Forecast (1990-2017), 2021.





Source for U.S.: U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019, 2021.
 Source for VT: Vermont Agency of Natural Resources, Vermont Greenhouse Gas Emissions Inventory Forecast (1990-2017), 2021.

VT GHG emissions from transportation by type and fuel, 2017

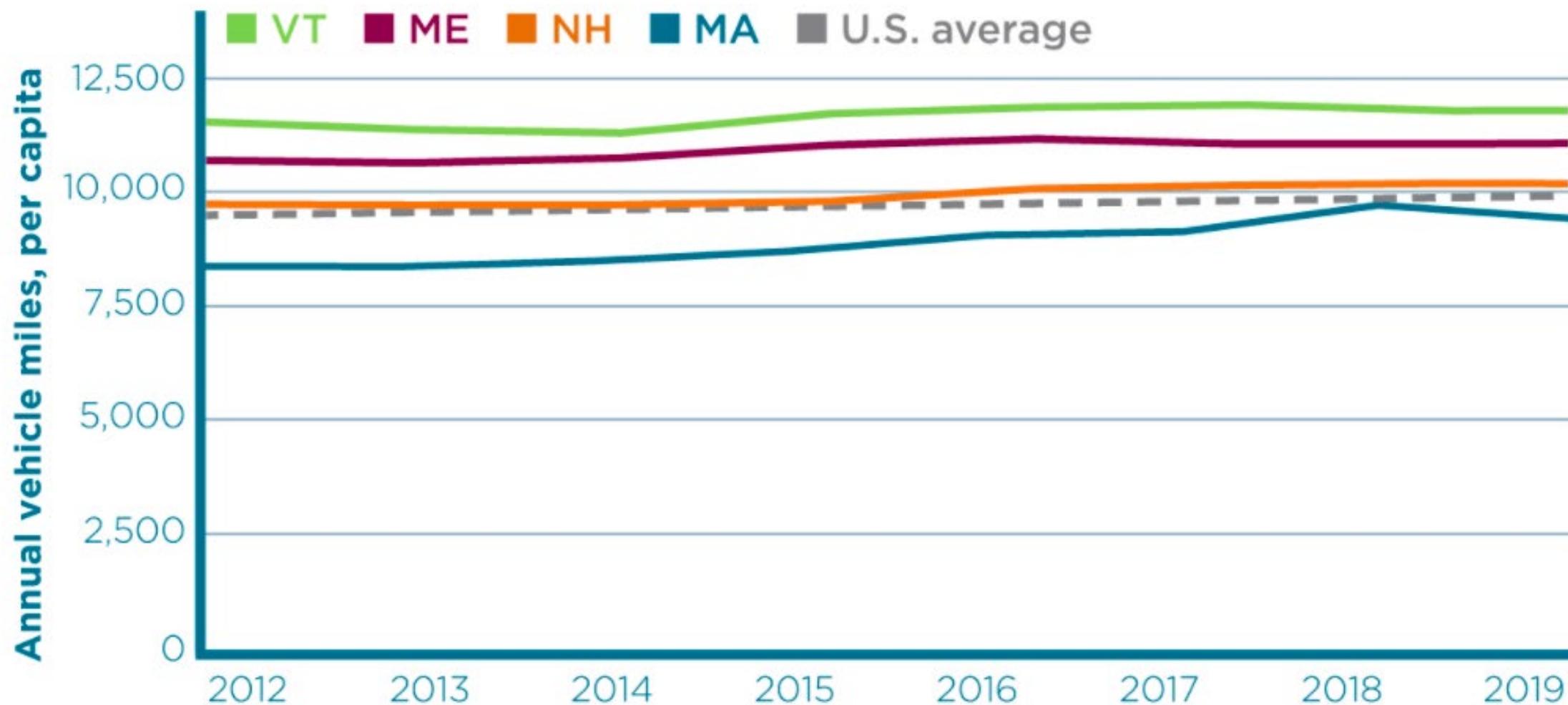


Source: Vermont Agency of Natural Resources, Vermont Greenhouse Gas Emissions Inventory and Forecast (1990-2017). 2021.



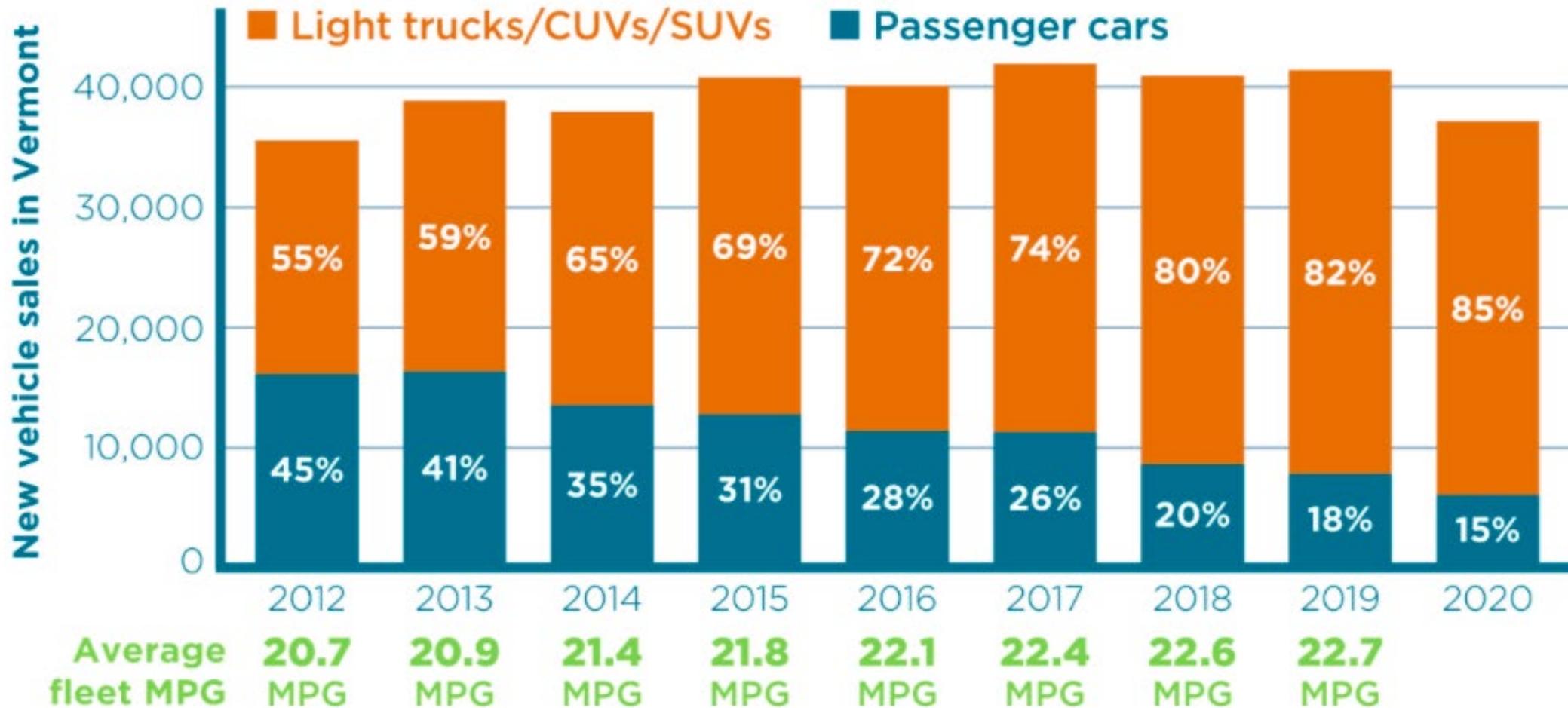
Vehicle miles traveled, per capita

SCC and Cost of Carbon 8-17-21.pdf



Source: Federal Highway Authority: Highway Statistics, 2019; U.S. Census Bureau, 2021.

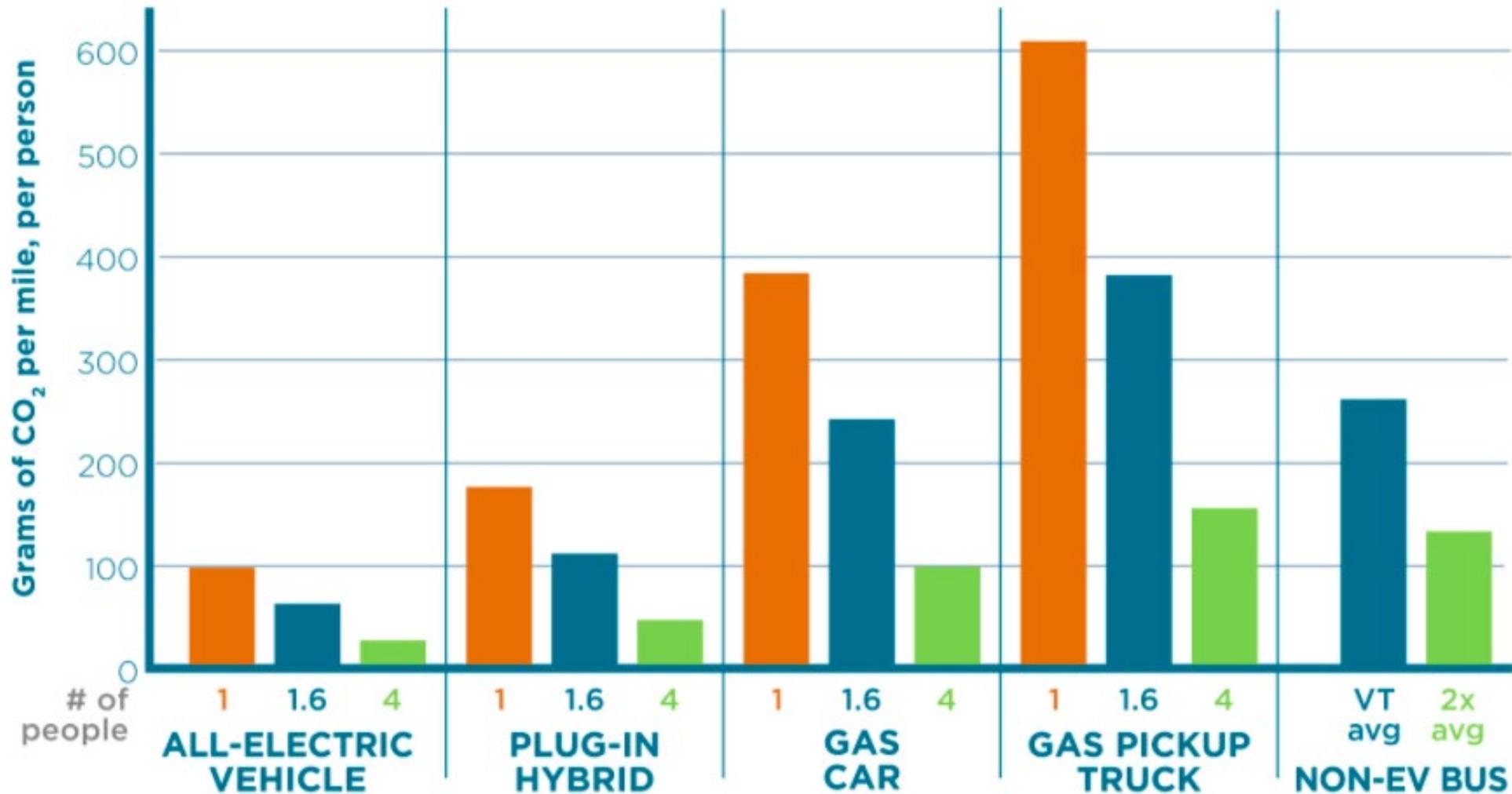
New vehicle sales in Vermont by type



Sources: Sales: VADA, 2021. Fleet MPG: UVM/VTrans, Transportation Energy Profile, 2019. Note: Fleet MPG is average combined MPG (avg city and avg highway).



Emissions per passenger, by vehicle



Source: Union of Concerned Scientists, How Clean is Your Vehicle tool, 2021; Argonne National Laboratory, GREET model, 2021; Vermont Agency of Transportation, FY20 Public Transit Route Performance Report, 2021. Note: 1.6 passengers is the national average in a car trip.

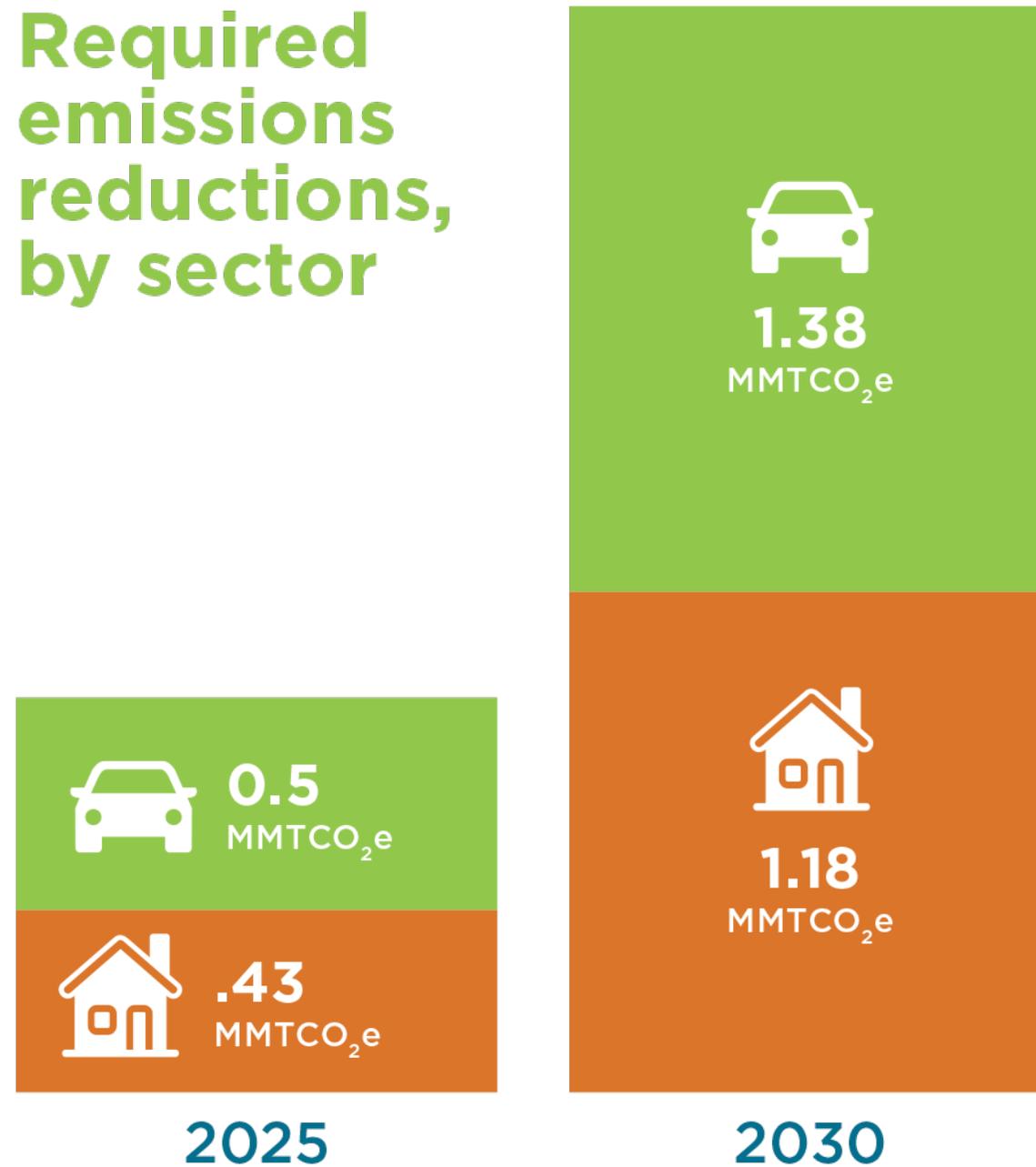




Key Takeaways from EAN Pathways Analysis

- We can meet our emissions reduction requirements with proven and available technologies and best practices.
- To do so, we will need a major focus on moving beyond fossil fueled **transportation and heating**
- Doing so is a major opportunity to **strengthen the Vermont economy, create good-paying jobs, save Vermonters money, and improve equity.**

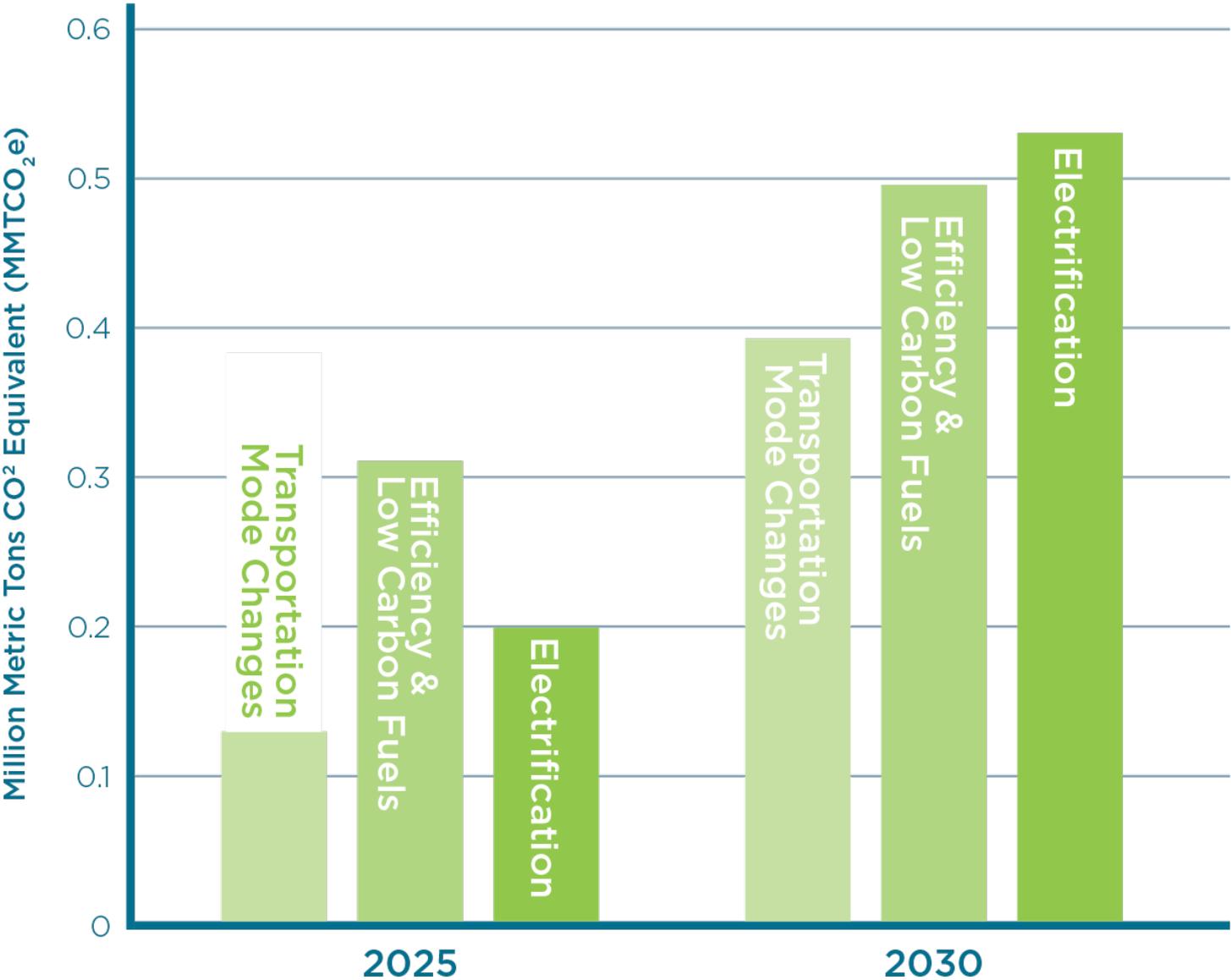
Required emissions reductions, by sector



Source: EAN Emissions Reduction Pathways Model, 2021.



Transportation pathway reductions



Source: EAN Emissions Reduction Pathways Model, 2021.



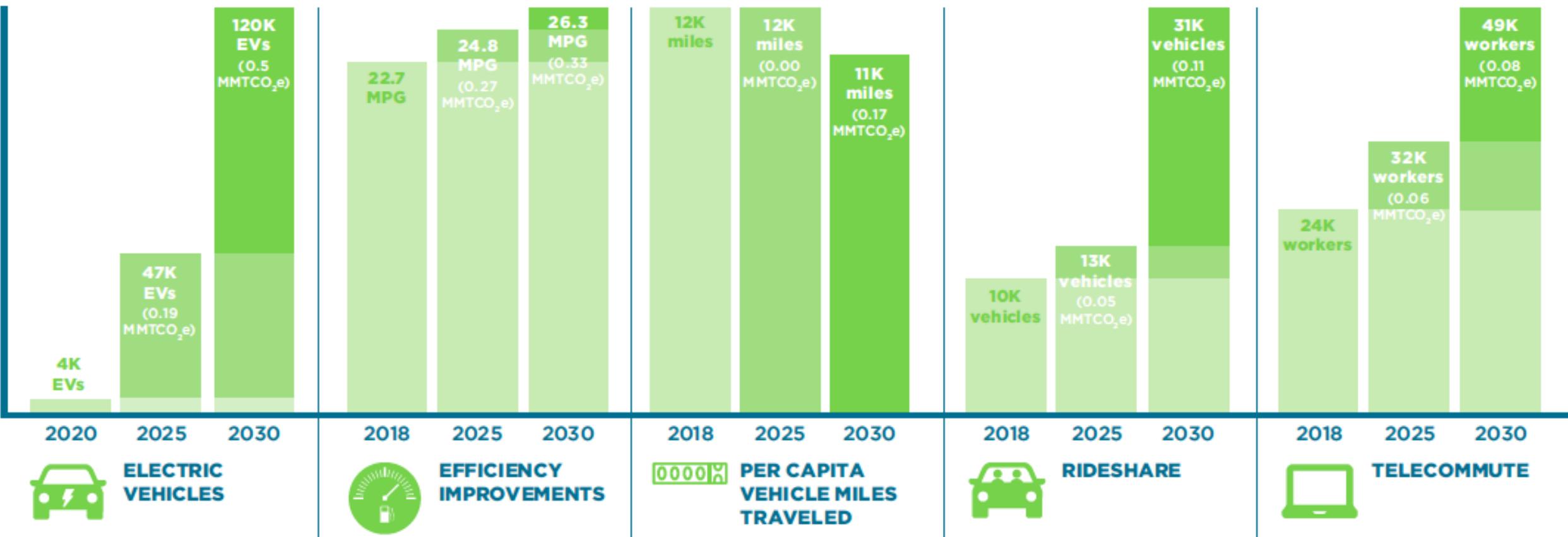
TRANSPORTATION

Transportation Mode Changes	Bike / Walk	22,055	30,305	37%	33,000	50%
Transportation Mode Changes	Carpool	10,052	12,518	25%	30,558	204%
Transportation Mode Changes	Public Transportation	2,800	4,516	61%	6,353	127%
Transportation Mode Changes	Rail Transit	94,249	115,914	23%	134,377	43%
Transportation Mode Changes	Telecommute	24,206	32,434	34%	48,651	101%
Efficiency and Low Carbon Fuels	HDF Biofuel	6,970,965	9,529,154	37%	12,574,529	112%
Efficiency and Low Carbon Fuels	LVF Biofuel	21,970,533	18,369,819	-16%	13,892,470	-25%
Efficiency and Low Carbon Fuels	Hybrids	12,027	24,000	100%	42,536	254%
Electrification	Electric Bus	-	48	4676%	213	21219%
Electrification	Electric HDF	1	86	8465%	1,095	109402%
Transportation Mode Changes	VMT Reductions	12,497	12,497		11,000	
Efficiency and Low Carbon Fuels	HDF Efficiency	7	7		8	
Efficiency and Low Carbon Fuels	ICE Efficiency	23	25		26	
Electrification	EVs	2,985	46,000	1441%	120,000	3920%

Source: EAN Emissions Reduction Pathways Model, 2021.

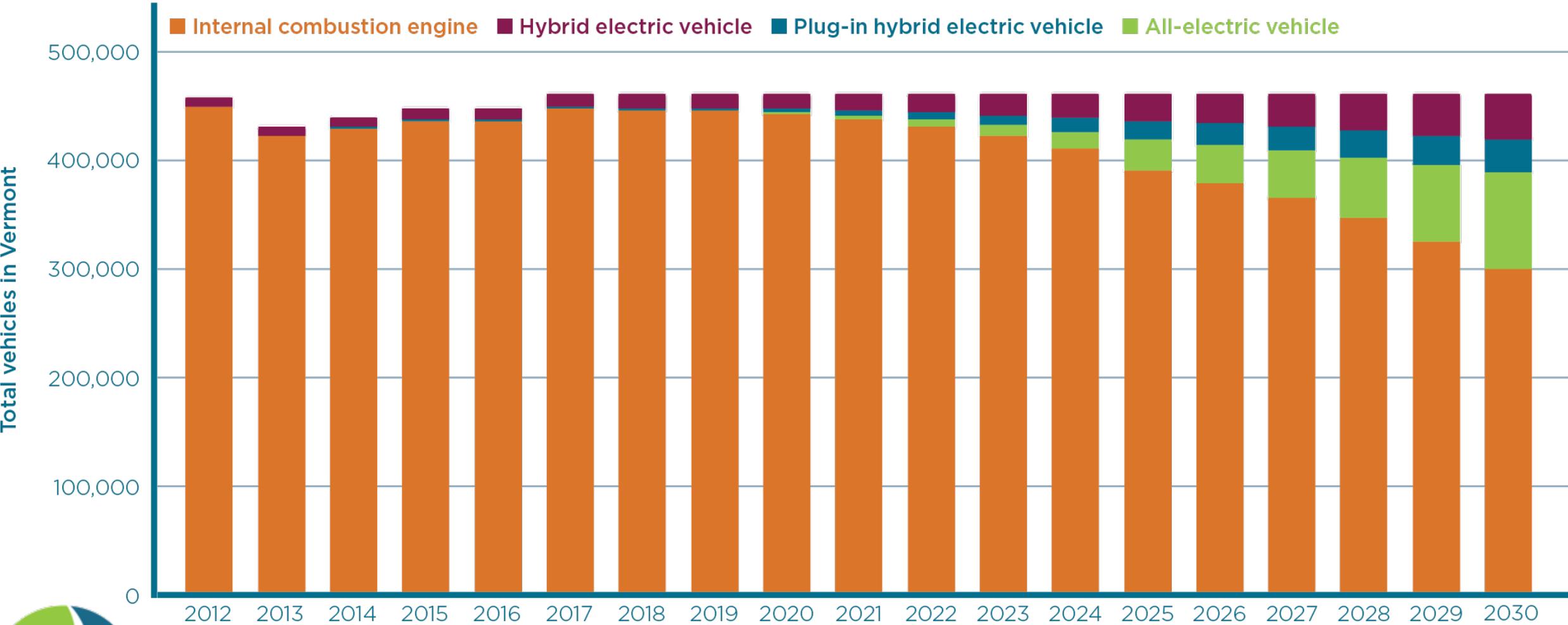


Highest impact transportation measures in EAN Pathways Model



Source: EAN Emissions Reduction Pathways Model, 2021. Note: graph shows cumulative unit counts and is scaled based on unit count growth, not GHG reduction. For comparison of relative emissions reduction impact, see chart on previous page.

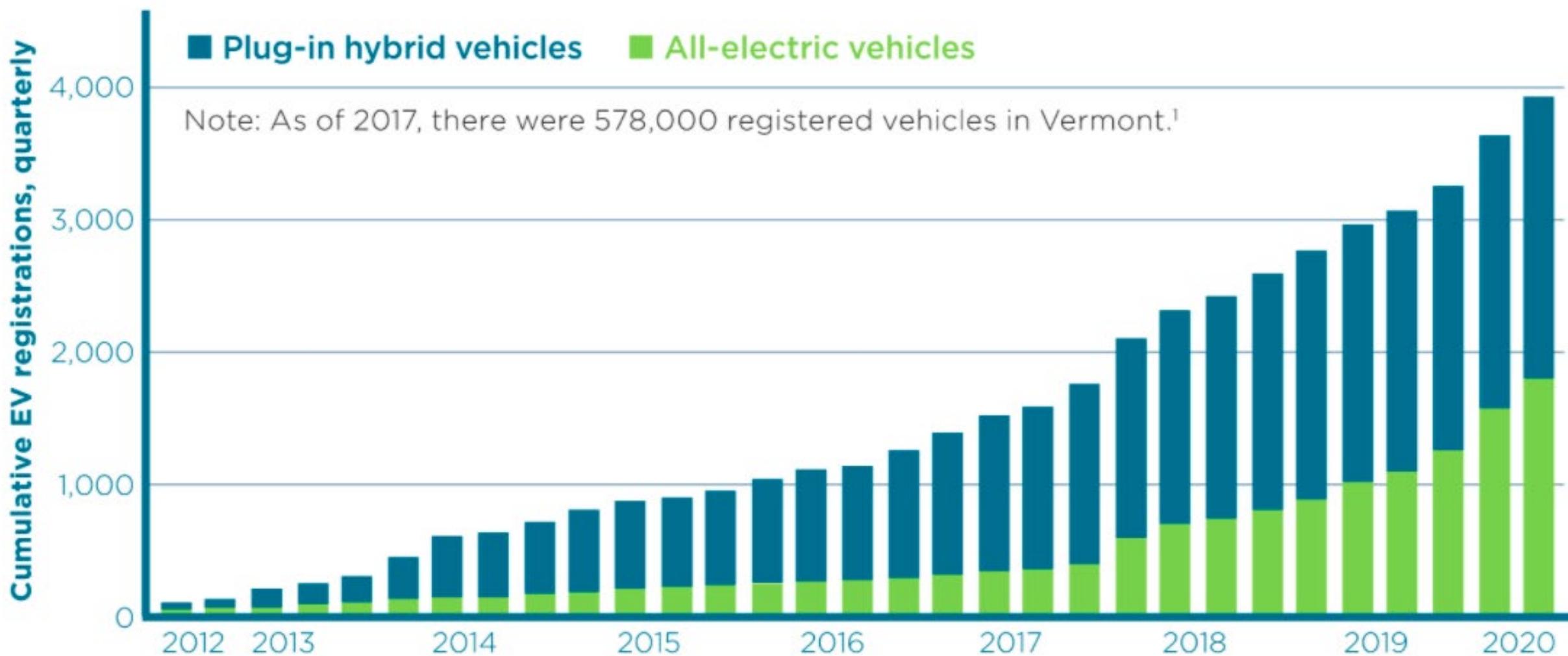
Light vehicle fleet composition



Source: EAN Emissions Reductions Pathways Model, 2021; Vtrans, Transportation Energy Profile, 2019.



Vermont electric vehicle registrations



Source: Registration values based on Vermont Department of Motor Vehicles registration data; processed by VEIC 2012-2013; processed by Vermont Agency of Natural Resources 2014-present; July 2020 from Drive Electric VT.

1. Vermont Agency of Transportation, The Vermont Transportation Energy Profile, 2019.



ENERGY ACTION NETWORK



ANNUAL PROGRESS REPORT

for VERMONT
2020/2021

Emissions

Energy

Equity

and the Economy

Download a copy: eanvt.org

Request printed copies:
crobechek@eanvt.org

How much money stays vs. leaves the state for different transportation fuel options?

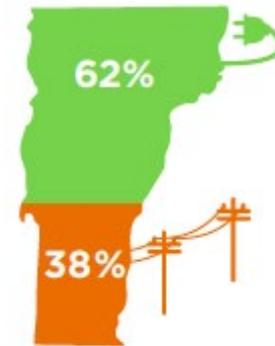
GASOLINE



DIESEL



ELECTRICITY



- recirculates in the VT economy
- leaves the VT economy

Source: Vermont Agency of Commerce and Community Development, 2021. Note: All data from 2019.



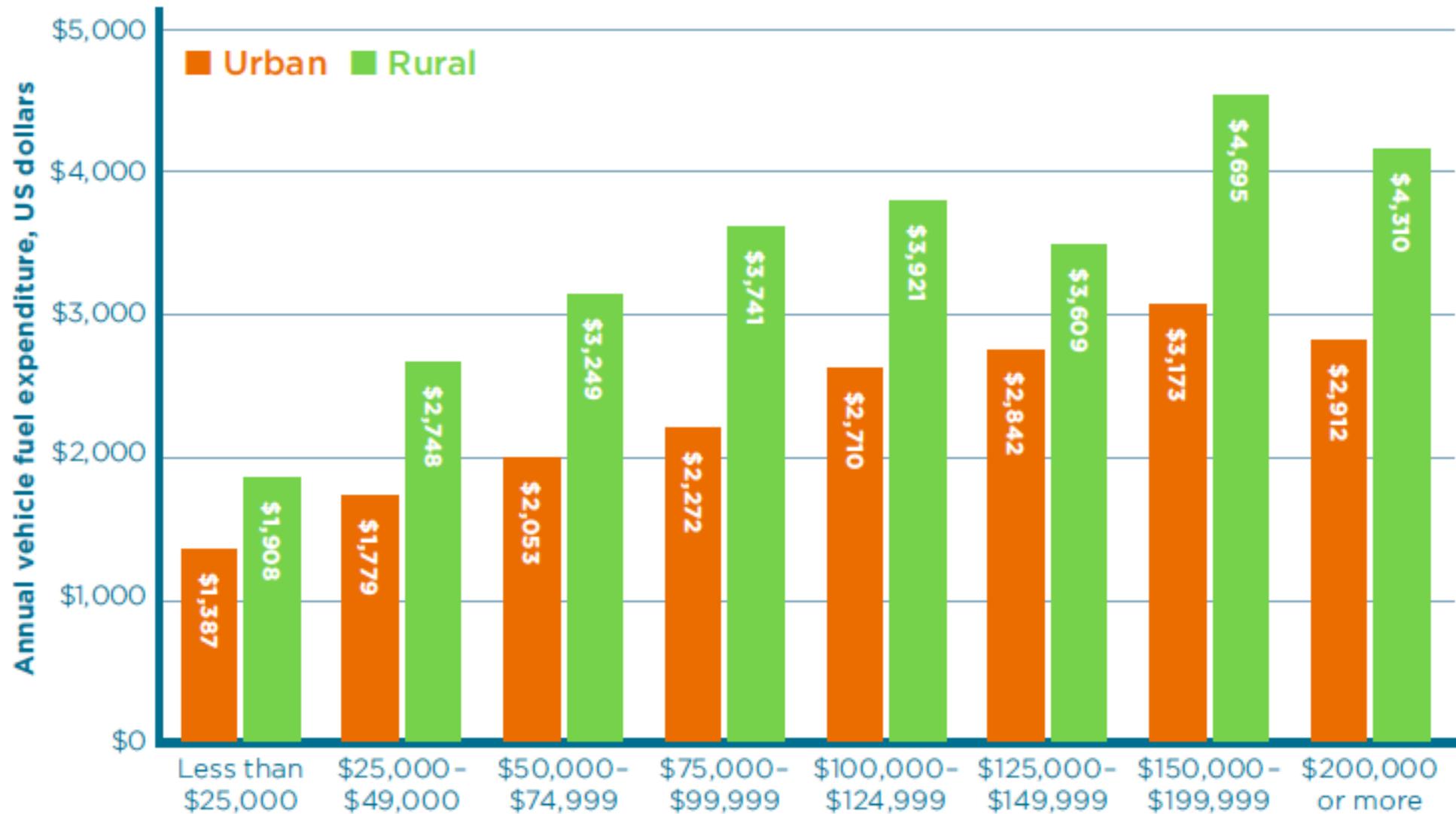
Average annual fossil fuel spending in VT, 2009–2018



Source: Vermont Agency of Commerce and Community Development. 2021.



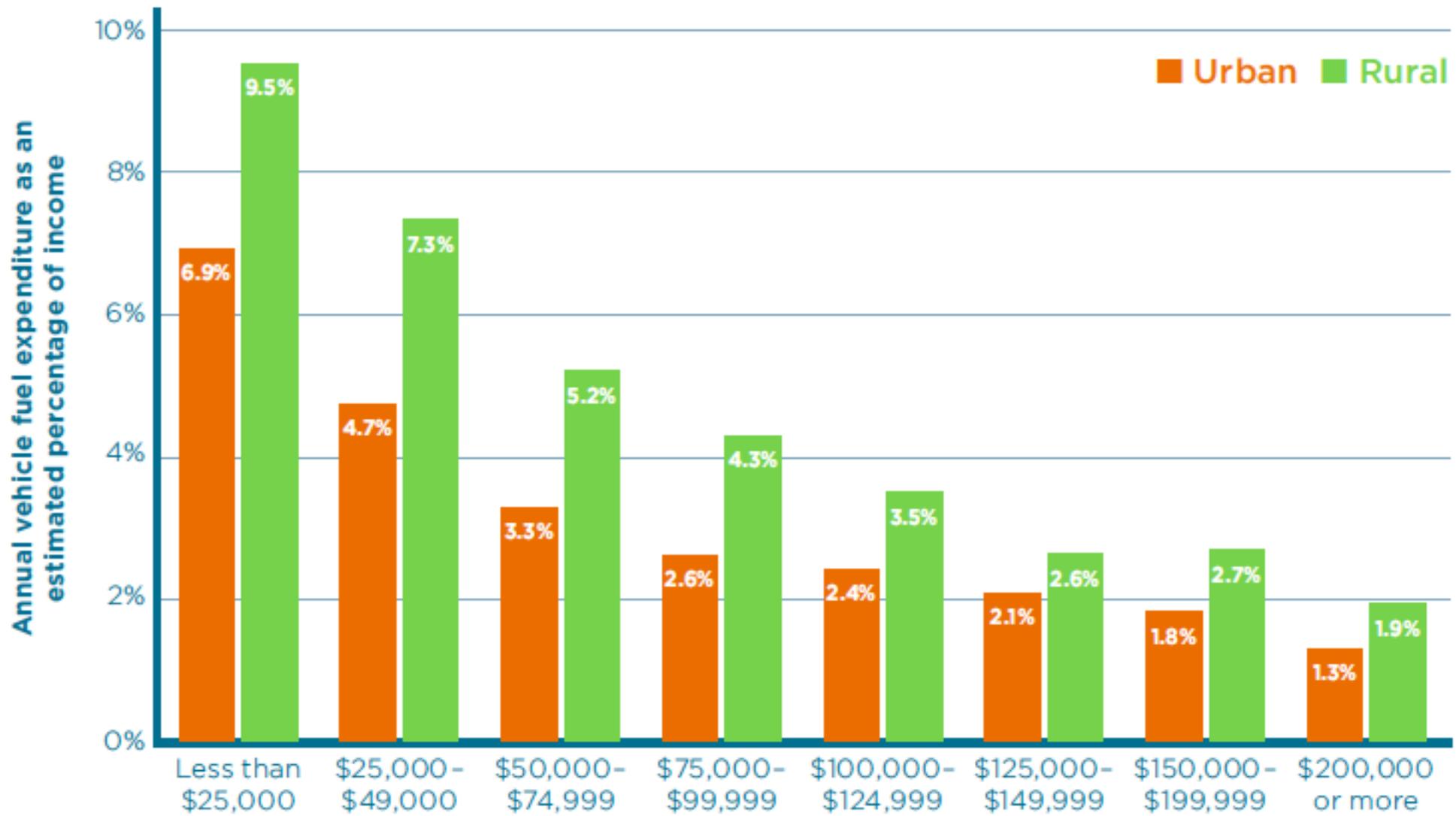
2017 annual vehicle fuel expenditure by income and location-type, northeast U.S.



Source: U.S. Department of Transportation, National Household Travel Survey, 2017.



2017 annual vehicle fuel burden by income and location-type, northeast U.S.



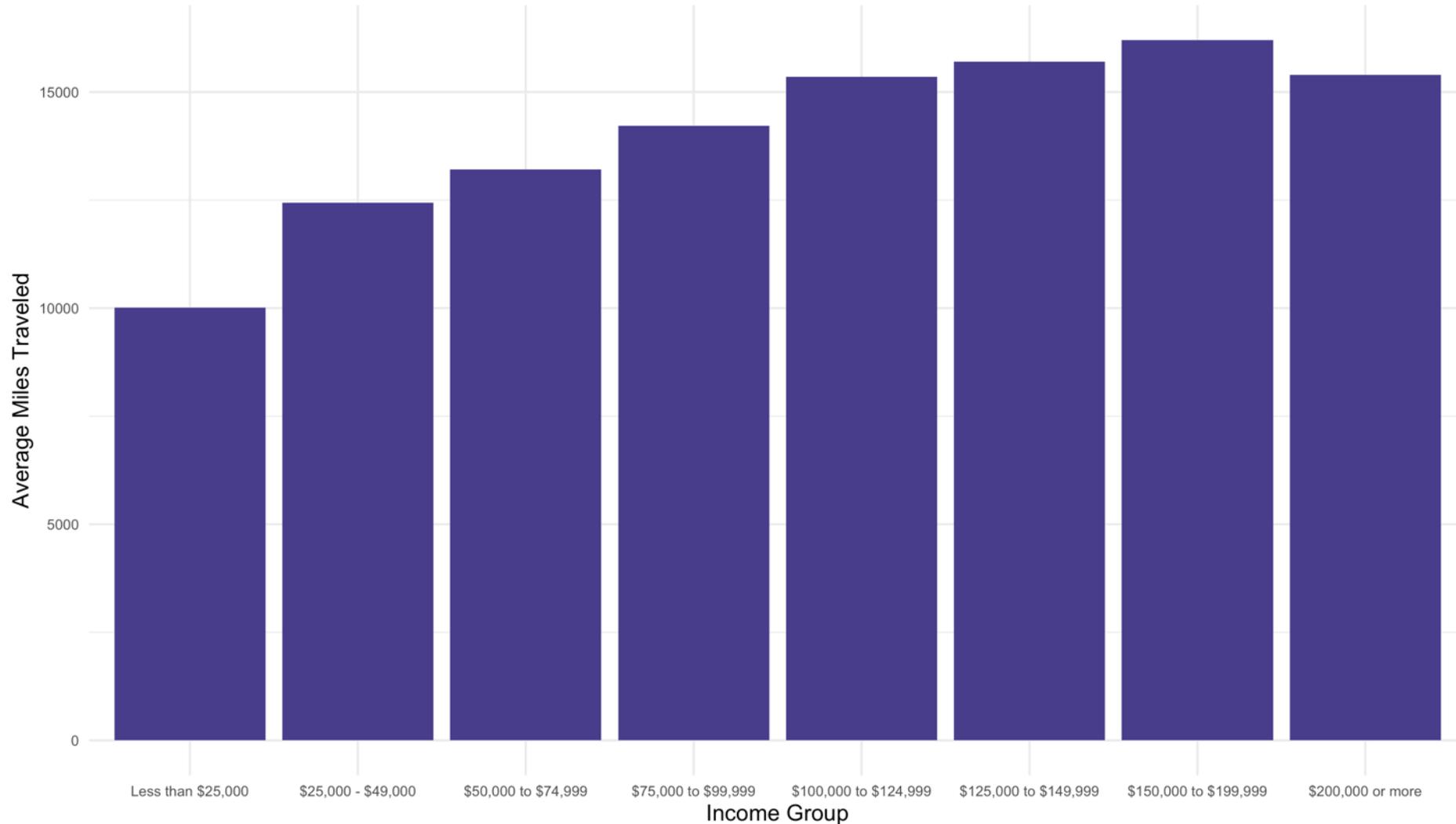
Source: U.S. Department of Transportation, National Household Travel Survey, 2017.





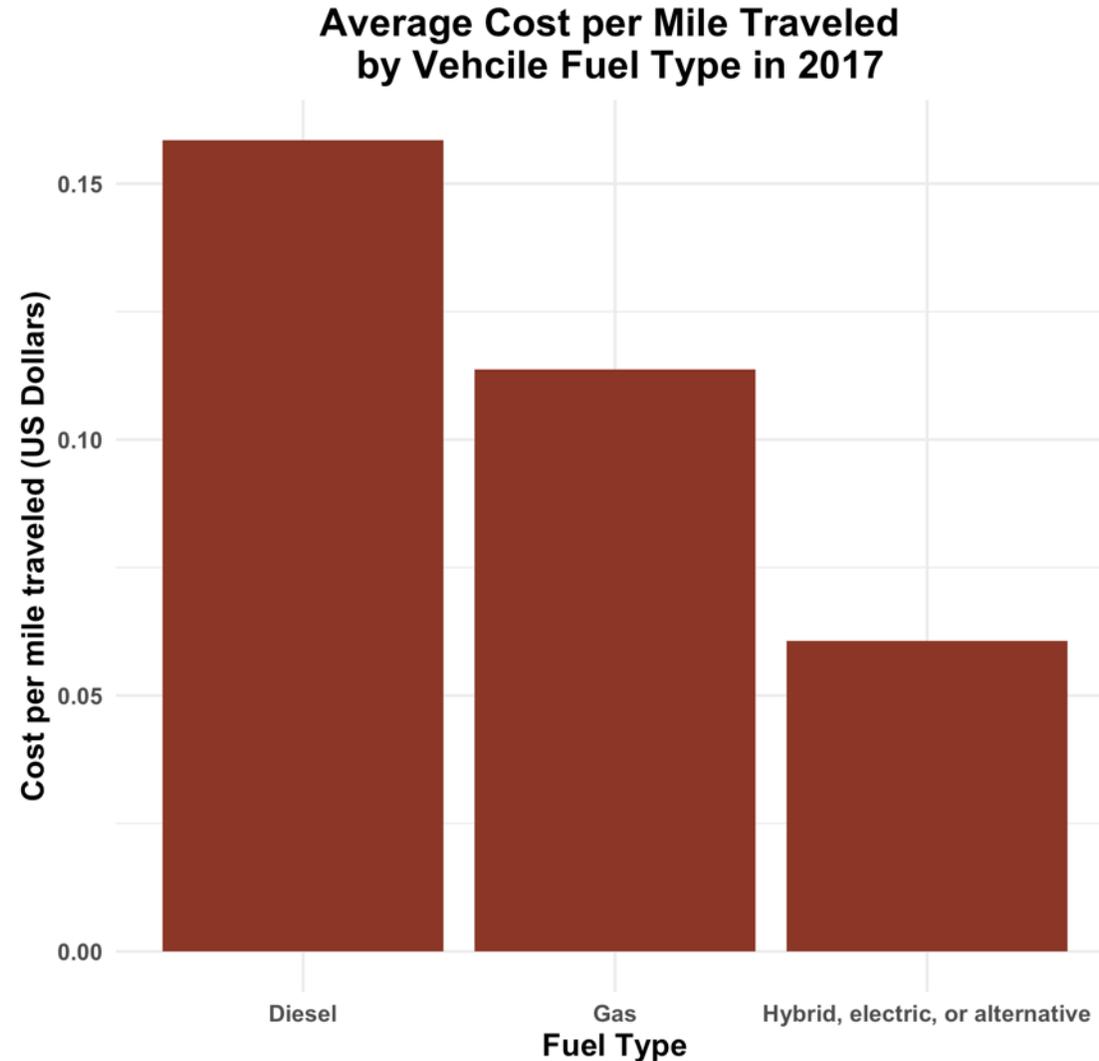
Upper-income Rural NE Drivers Drive More Miles On Avg. than Lower-income Rural NE Drivers

Average Annual Miles Driven per Rural NE Household Driver by Income



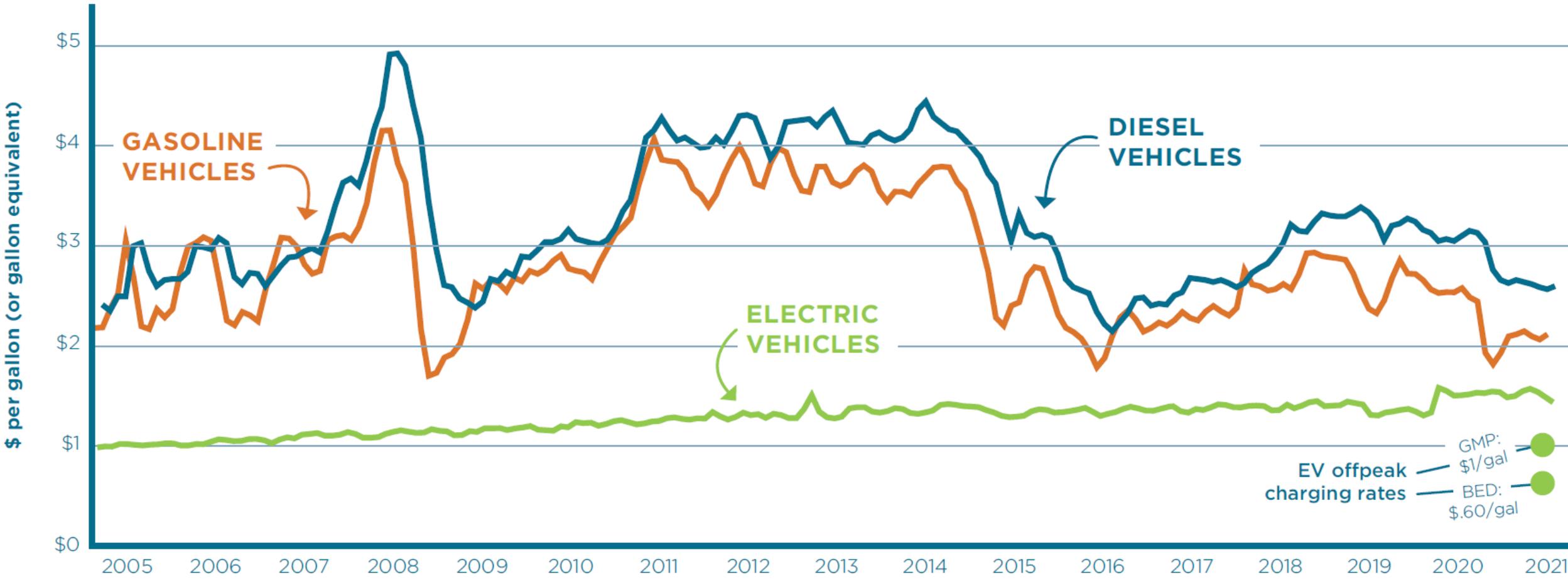


Electric and Hybrid Vehicles are Much Less Expensive to Drive, per Mile Traveled



Source: US Department of Transportation, 2017 National Household Travel Survey

Gasoline and diesel vehicles are more expensive to drive than EVs



Sources: Gas and Electric — Drive Electric VT (via EIA); Diesel — Vermont Agency of Transportation (VTrans).



Electric vehicle incentives



	NISSAN LEAF (ALL-ELECTRIC)		NISSAN SENTRA (GAS)
	Standard incentive	<\$50,000 AGI*	
Starting Price	\$31,600	\$31,600	\$19,310
Manufacturer's Incentive	-\$6,000	-\$6,000	-\$0
State Incentive	-\$2,500	-\$4,000	-\$0
Utility Incentive (varies)	-\$1,500	-\$2,500	-\$0
Current price after incentives	\$21,600	\$19,100	\$19,310
Replace Your Ride*	-\$0	-\$3,000	-\$0
Price After RYR	\$21,600	\$16,100	\$19,310
Federal Tax Incentives**	up to -\$7,500	up to -\$7,500	
Total Price	\$14,100	\$8,600	\$19,310

Source: Drive Electric Vermont, 2021.

*Replace Your Ride Incentives are anticipated for implementation in 2022, for individuals with an adjusted gross income (AGI) of \$50,000 and married-filing-jointly with an AGI of \$75,000.

**Federal Incentives are currently tax-based, and do not carry over into more than one tax year. The incentive can be passed through into lease agreements, allowing purchasers without the taxable income to benefit from the lower lease price.



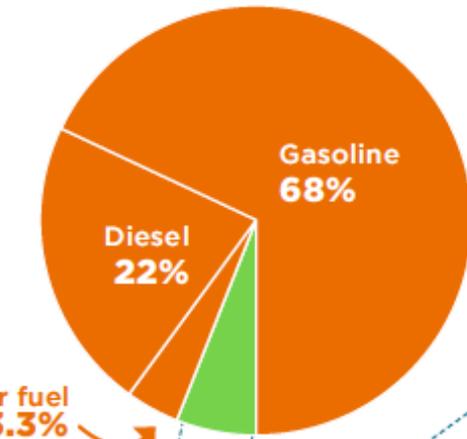


Six Initial Takeaways re: Transportation Equity

- 1. Upper-income Vermonters consume more transportation fuel than lower-income Vermonters
- 2. However, lower-income Vermonters spend a far higher share of their income on transportation fuels
- 3. The lowest-income rural NE drivers drive vehicles about 12 years old (vs. upper-income, at approx. 8 years old)
- 4. Upper-income rural NE drivers (>\$100k household income) drive many more miles than the lowest-income NE drivers (<\$25k hh income) -- 15k miles/yr. vs. 10k miles/yr.
- 5. Electric and hybrid vehicles are much less expensive to drive per mile (fuel and maintenance savings).
- 6. After incentives, many EVs are already less expensive up-front than comparable gas models

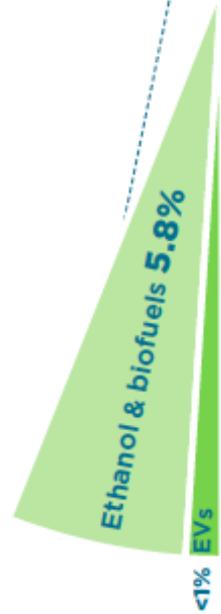
TOTAL SITE ENERGY
120 TRILLION BTU

45.4 TRILLION BTU



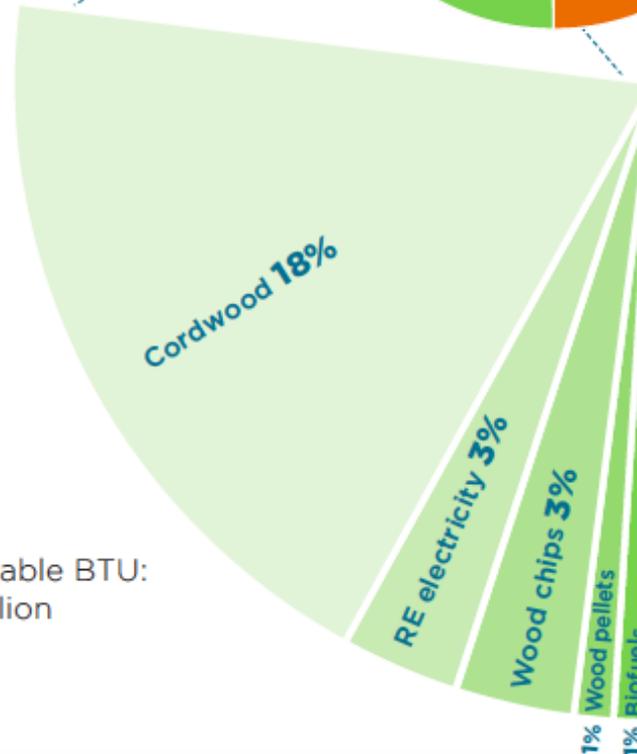
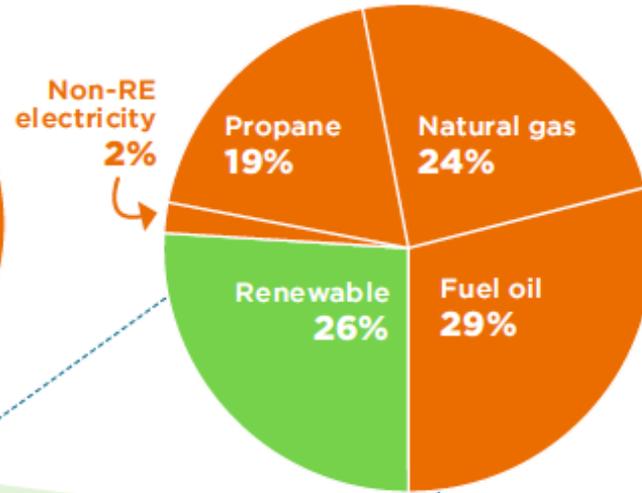
Other fuel (nonrenewable) 3.3%
Renewable 6%

SITE ENERGY Renewable sources



Total renewable BTU: 2.7 trillion

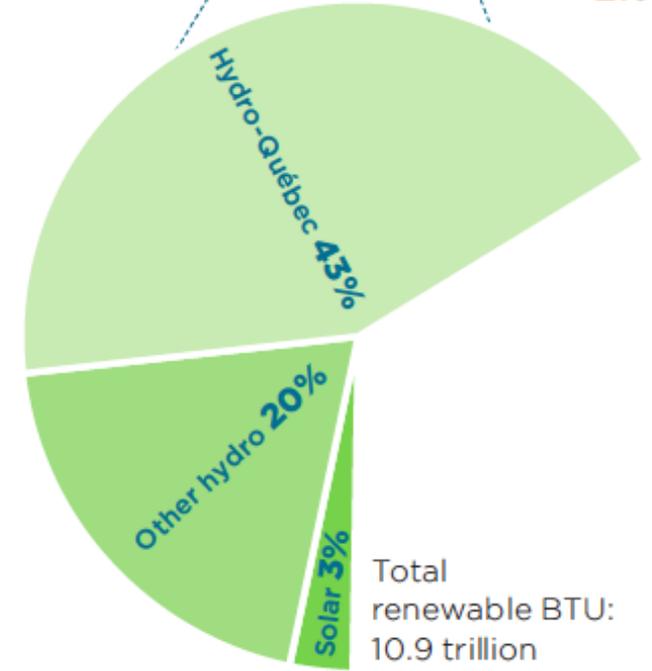
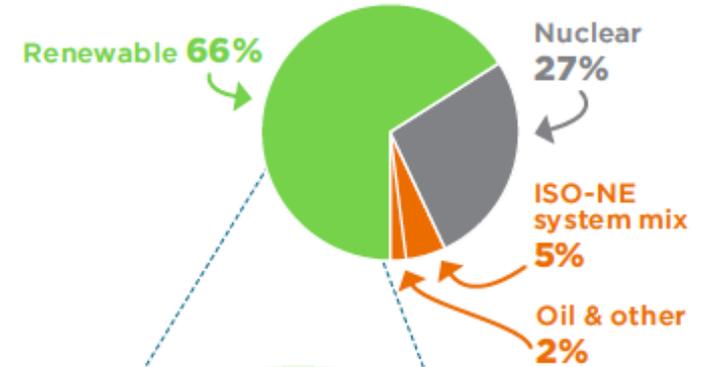
58.4 TRILLION BTU



Total renewable BTU: 15.0 trillion

16.2 TRILLION BTU

(after accounting for RECs)



Total renewable BTU: 10.9 trillion



Questions?

- Type your questions in the chat, “raise your hand” to be called on and ask your question verbally (or request to do this in the chat if you don’t have that functionality), or press *6 when telephone callers are invited to ask questions.

VT Comprehensive Energy Plan/Climate Action Plan

August 26, 2021 Transportation Workshop

Johanna Miller and Gina Campoli, VT Climate Council, Cross Sector Mitigation Team Transportation Leads

VT Climate Council

Work thus far on transportation

- “Pathways” identified
- Draft “Strategies” list prepared
- Development of “Actions” (policy and program recommendations) is why we are here today and our focus for the next 6-8 weeks
- A huge **Thank You** to those who have already assisted our efforts!

VT Climate Council

Next Steps

- We will hear from you today and follow-up in the weeks ahead. It's an iterative process.
- Climate Council public workshops will occur next month. Visit here for more info: <https://aoa.vermont.gov/content/full-council-vermont-climate-council> as it becomes available. **Please help us get the word out.**
- Technical and economic analyses, once completed, will inform the recommendations and the Council's deliberations

VT Climate Council

Today's Assignment - Learn From You

- What strategies are missing from our list?
- Are we headed in the right direction? We need your ideas/concerns/opinions re. **the recommended actions** or anything else.
- This includes assessing existing or proposed state policies/programs, recommending modifications, scaling up or creating new and looking at everything through an equity lens.
- The Council will also wrestle with short term priorities vs. long term strategies.

VT Climate Council

Transportation Pathways

Pathways provide direction and are ideally measurable. The pathways include:

- **Vehicle electrification** - both light and heavy duty
- **Increased overall efficiency** of the vehicles Vermonters drive
- **Reduction of single occupancy vehicle (SOV) trips** by growing transportation choices - transit, biking and walking, carpooling and other strategies
- **Smart growth** - Reduction of SOV will only occur if today's urban, town and village centers are strengthened and future growth is not car dependent.

VT Climate Council

DRAFT Transportation Strategies

1. Light Duty Electrification:

- EV purchase Incentives for low and moderate income car purchasers
- Deployment of public charging
- Address EVSE for renters and others who don't have garages
- Create owner "navigator service".
- Work collaboratively with car dealers and others re. EV supply chain challenges, workforce development/technician job training and market development strategies
- Expand state, municipal and private fleet lead by example programs.

2. Electrification of bike, scooter, motor cycles, ATVS, and other modes:

- Time of purchase incentive policy/programs

3. Mid and Heavy Duty Electrification:

- Purchase incentives for state, school, transit, other bus fleets & school bus electrification assistance
- R&D Programs and outreach and education programs for public and private fleet operators
- Government HD fleet conversion date requirement - all new, public HD trucks and busses sold after 2025 are electric (when cost-effective equivalent technology is available).

VT Climate Council

DRAFT Transportation Strategies

4. **Get higher MPG vehicles in the hands of Vermonters and more efficient use** (Interim step *now* prior to wide spread EV availability and adoption)

- Feebate or other mechanism that incentivizes high efficiency new vehicle purchases and disincentivizes low MPG vehicles per vehicle class
- Programs to provide more efficient vehicles to those in need.
- Reduce Interstate highway truck speeds

5. **Increase the use of lower carbon fuels (especially in the HD sector)**

VT Climate Council

DRAFT Transportation Strategies

6. **Increase transportation choices** (We will not succeed if we replace all vehicles with EVs and continue to grow car dependent communities and lifestyles)

- Expand transit, inter-city bus, commuter rail, rail, ride share programs & more
- Obtain federal & other funding for rail, transit intermodal and other infrastructure
- Improve and increase bike & pedestrian facilities and infrastructure including expanding the Complete Streets program and increasing money and assistance to municipalities.

VT Climate Council

DRAFT Transportation Strategies

Land use and smart growth, required to achieve many long term goals. (Transportation is about getting from point A to point B. You can't do that efficiently if the trips required to get to school, work, shopping etc are long and car dependent. Transit, rail, biking, walking and often public charging are not viable transportation options without a certain land use densities and mix of land uses.)

- Fund critical infrastructure in compact urban/village centers
- Reinvigorate the state's smart growth goals and priorities.
- Increase and improve downtown programs and other ACCD planning and funding opportunities.
- Establish a State Planning Office to support smart growth & climate plan implementation
- Improve integration of state, regional and local land use and sustainable transportation planning.
- Provide guidance to communities regarding policies and regulations that promote SOV use such as parking
- Conserve large forest blocks, farmland, and open spaces outside of downtowns and village areas

VT Climate Council

Transportation Actions - Framing the Issues

Key Considerations:

- 1.Funding:** How much is needed to address near term needs and be sustainable over the long term to achieve the emissions, equity and other goals*?
- 2.Regulatory and other policies:** to grow expand, investigate and/or adopt
- 3.Administrative structure and capacity** necessary to implement with goals of: *leadership* at the executive level; *inter-agency coordination*; *ease of state funding and program implementation* at the regional and local levels, *coordination & partnerships* with other states and *equity*.
- 4.Equity:** evaluate all recommendations/actions using JT principles, rubric and meaningful public involvement.
- 5.Data** collection, modeling and analyses now and in the future. Let us know if you can help.

* Funding needs will become evident as programs are further defined

VT Climate Council

Transportation Workshop Key Questions

Funding: There is and will be an increase in ARPA and other federal dollars in the immediate future for several transportation and land use related programs.

1. What do you think is the best use of these funds - both one time and long term - in order to achieve the necessary transportation emissions reductions?
3. Should we funnel funds to existing state EVSE, smart growth, transit and other programs. What's working and what's not and what program improvements are needed?
5. What do you believe are possible long term funding sources?

VT Climate Council

Transportation Workshop Key Questions

Regulatory and Other Policies: Some are in place, others are being considered and perhaps worthy of investigation. What are your views on this list including info you would like to share, known pros and cons, and research and information gaps?

- CA Emissions and ZEV program
- Regional Cap and Invest (TCI)
- Clean Fuel Standard (state or regional)
- Vehicle Feebate (Purchase and Use tax)
- Alternatives to the gas tax to fund sustainable transportation infrastructure and programs
- What policies are feasible at the local level - Building codes, parking mandates, etc
- Anything missing?

VT Climate Council

Transportation Workshop Key Questions

Administrative Structure and Capacity:

1. Does the structure of state government lend itself to leading and acting on climate change and transportation? What would you do to improve data collection and analyses, program implementation, and communication with the public?
3. What do the regions and municipalities need from the state in order to help plan and build a sustainable and equitable transportation system?

VT Climate Council

Transportation Workshop Key Questions

Equity: Continuous consideration of the Just Transitions principles, as described earlier, is *required* as actions are formulated. How do we best do this?

What transit and other programs needed to address equity in transportation are now in place and how can they be improved?

Johanna Miller: Johanna.Miller@partner.vermont.gov
Gina Campoli: Gina.Campoli@partner.vermont.gov

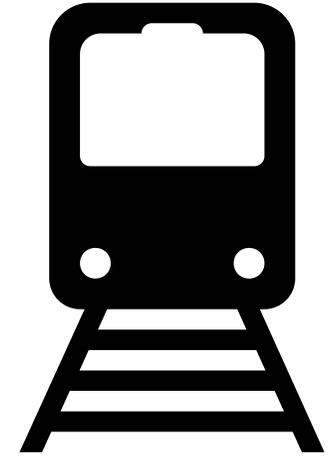
Clarifying questions?

- Type your questions in the chat, “raise your hand” to be called on and ask your question verbally (or request to do this in the chat if you don’t have that functionality), or press *6 when telephone callers are invited to ask questions.

Morning Breakout Group

Two Breakout Groups, Each with the Same Discussion Topics

- 1. Presentations by Dan Dutcher, VTrans, and Deidra Ritzer, DEC**
- 2. Break (10 Minutes)**
- 3. Breakout Discussion**
- 4. Reconvene for Report-outs Before Lunch Break**



Vermont Comprehensive
Energy Plan & Climate Action Plan:
Transportation Technical Workshop
August 26, 2021

Vehicle Electrification and Green Technology

Purpose:



Catalogue the state-agency programs currently underway to reduce GHG emissions from the transportation sector through technology;



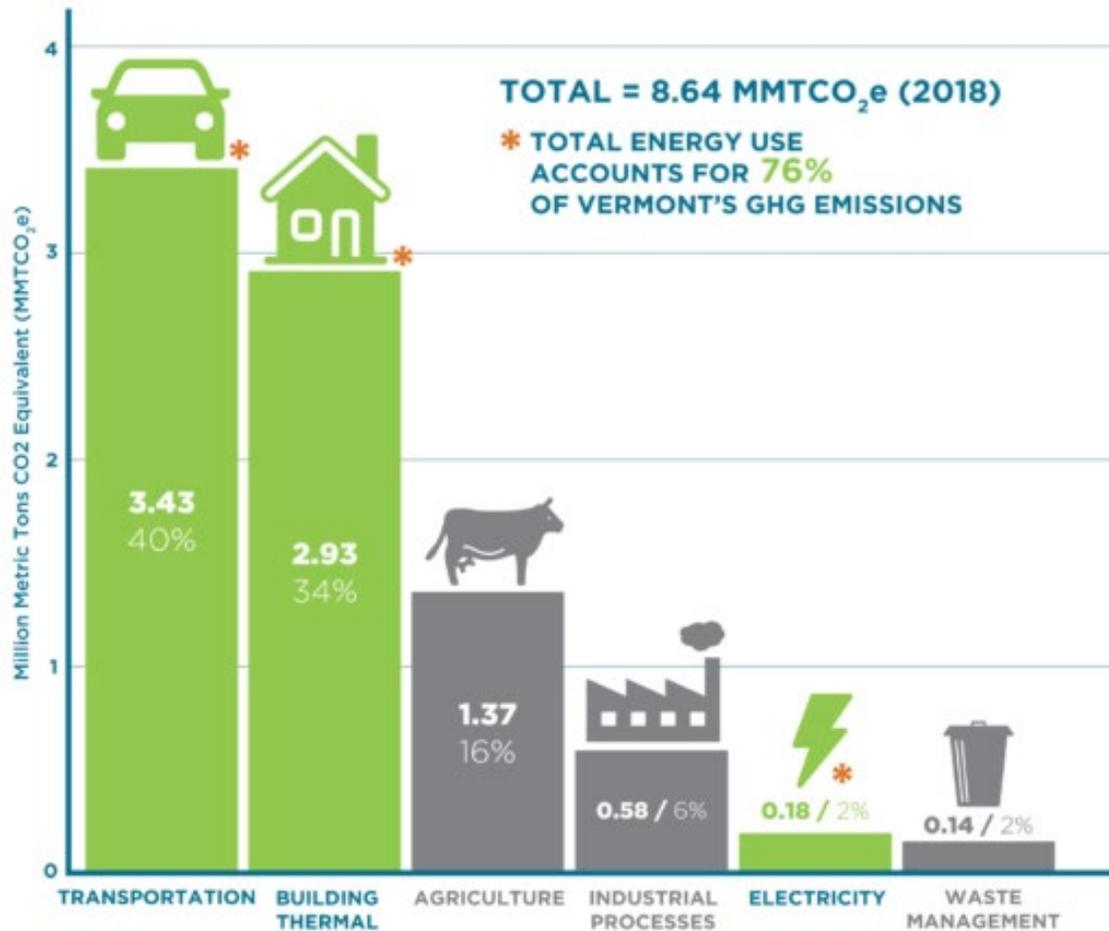
Point to obstacles, opportunities, and policy tradeoffs;



Set the stage for stakeholder feedback on vehicle technology strategies for replacing ICE vehicles with EVs.

Transportation Electrification Scorecard:

Vermont's GHG emissions by sector, 2018



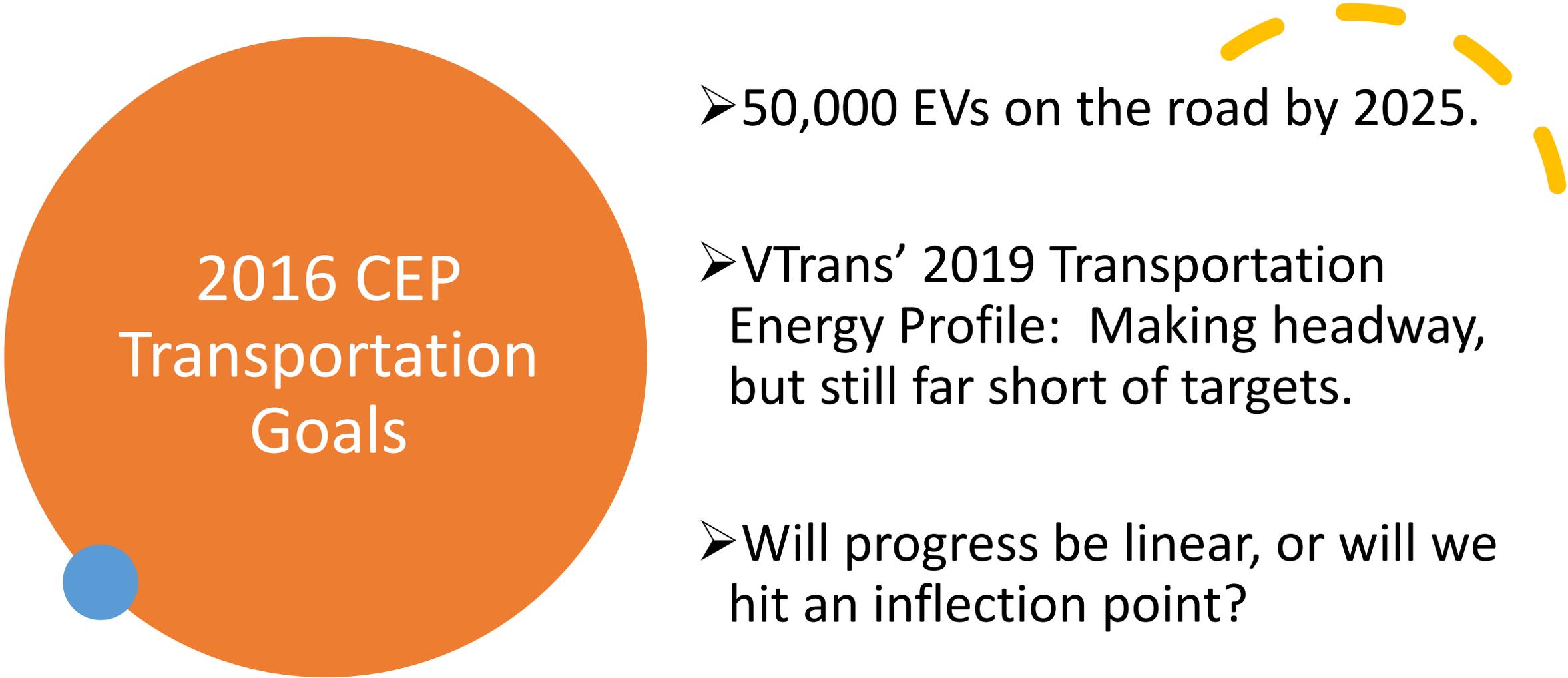
Source: Vermont Agency of Natural Resources, Vermont Greenhouse Gas Emissions Inventory and Forecast (1990-2017), 2021.

Transportation sector responsible for 28% of GHG emissions in the US (much more in Vermont ~40%) .

As of January 2021, about 4,360 PEVs were registered in Vermont.

Currently, EVs only account for 2% of vehicles sold in the US.

Plug-in vehicles comprised 9% of new passenger car registrations in the last quarter of 2021.



2016 CEP Transportation Goals

- 50,000 EVs on the road by 2025.
- VTrans' 2019 Transportation Energy Profile: Making headway, but still far short of targets.
- Will progress be linear, or will we hit an inflection point?

2021 PSD Annual Energy Report Findings:

Most promising paths towards decarbonizing Vermont's transportation sector:

- Transportation Demand Management (TDM).
- Vehicle electrification.

State of the State

Vermont has the fifth highest per capita EV registrations in the United States and more charging ports per capita than any other state.

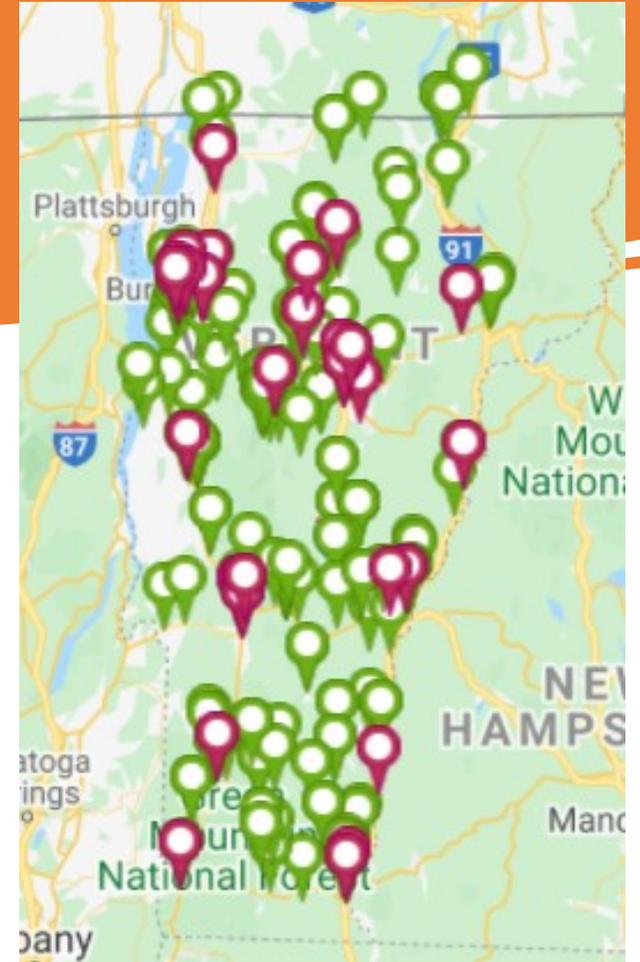
- VT is a member of US Climate Alliance (sets aggressive goals for vehicle electrification)
- VT signed a multi-state ZEV MOU in 2013 to coordinate policies and programs to increase the market share of ZEVs and adopted a multi-state action plan in 2014.
- 2020 VT signed a multi-state MOU committing to the electrification of MHD vehicles and is in the process of developing an updated state-specific ZEV Action Plan to complement the multi-state effort

State of the State (continued):

- Vermont is an active member of the New England Governors and Eastern Canadian Premiers (aims to establish a regional network of EV charging stations).
- Vermont is an active participant in the Transportation and Climate Initiative (TCI) but has not joined the TCI cap and invest program for transportation fuels.

Charging Infrastructure (EVSE)

- VTrans is funding Drive Electric Vermont (through VEIC) to prepare a comprehensive EVSE buildout plan with a ten-year horizon.
- 2021 T-Bill established a goal for fast-charging station within 5 miles of every interstate interchange and no more than 50 miles apart along state highways.
- Vermont has achieved its strategic goal of locating a fast- charging station within about 30 miles of nearly every address in Vermont.
- The interagency EVSE Grant Program uses both VW settlement funds and states funds to support EVSE buildout.

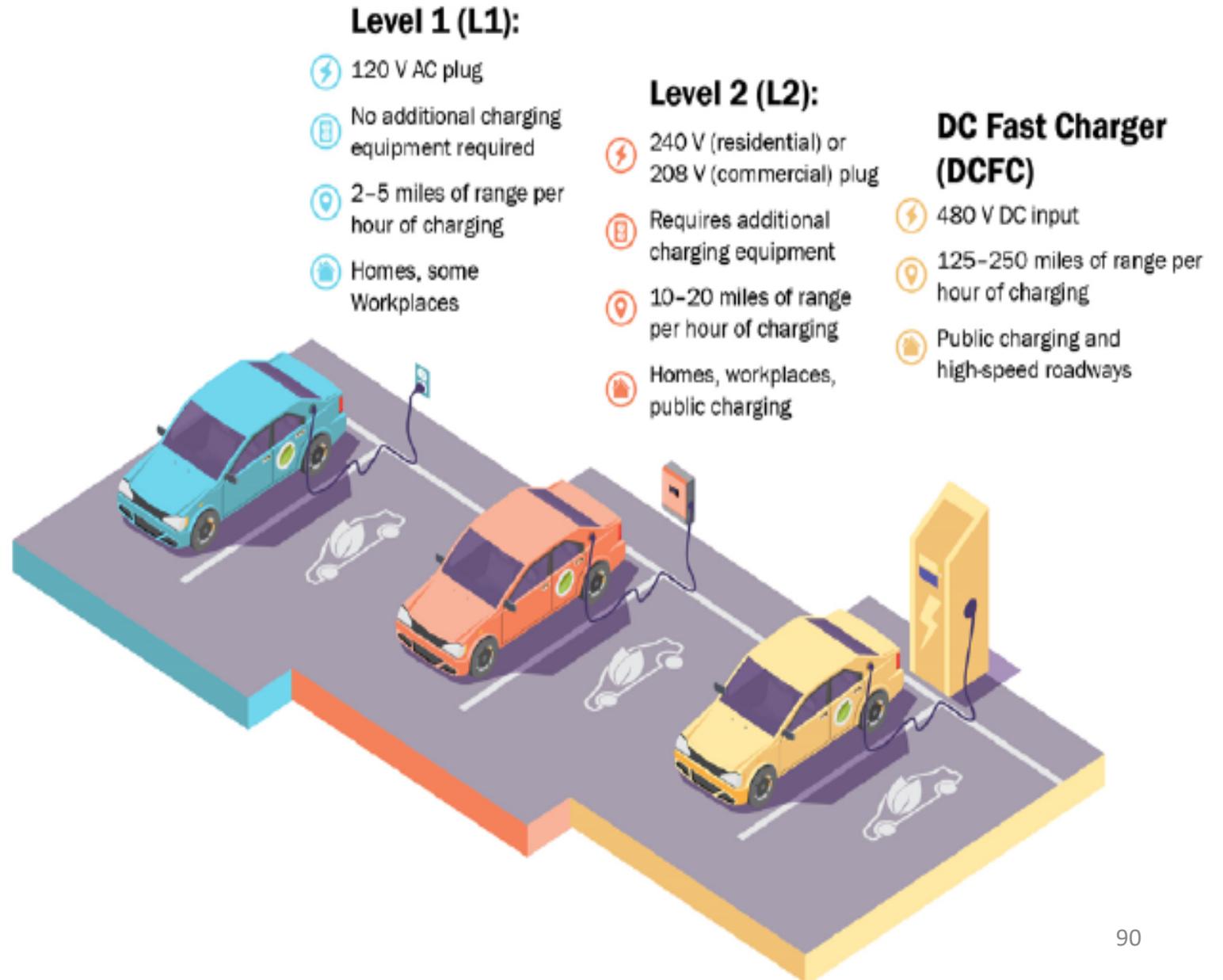


 Fast Chargers

 Level 1/2 Chargers

EVSE (Cont'd)

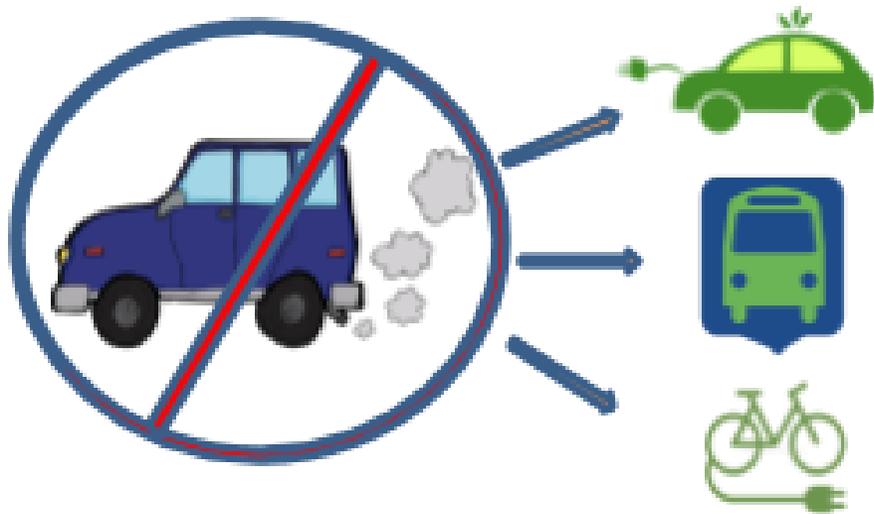
- Currently ~302 public charging stations (including 28 DCFC)
- According to the EVI-Pro Lite projection tool, the VT CEP call for 50,000 EVs on the road by 2025 requires
 - 1432 workplace L2 plugs
 - 1054 public L2 chargers
 - 190 DCFC



Vehicle Incentive Programs

- VT launched an Incentive Program for New PEVs in 2019.
 - Focused on private passenger vehicles.
 - Income based with higher incentives for lower incomes.
 - \$40,000 base MSRP cap.
 - Potential to expand to MHDs.
- Through Capstone Community Action, VT launched the MileageSmart in 2019.
 - Helps move low-income Vermonters into fuel efficient vehicles.
 - Incentivizes AEVs, PHEVs, and conventional hybrid vehicles.
- 2021 T Bill
 - Replace Your Ride cash-for-clunkers incentive program.
 - Electric bicycle incentive program.

Replace Your Ride



Graphic from: <https://www.eanvt.org/events-and-initiatives/replace-your-ride/>

- 2021 T Bill, Section 27: established new EV incentive program “Replace Your Ride”
- Incentives to low-income Vermonters who remove an existing combustion vehicle that is at least 10 years old from operation
- Incentives may be applied to:
 - Purchasing or leasing a new PEV
 - Purchasing a new or used bicycle, electric bicycle, or electric motorcycle
 - Using shared mobility services or vehicles for hire
 - **CAN** be stacked with other incentives

State Fleets, Transit Fleets, E&O

- State agencies are in the process of transitioning their fleets to PEVs, starting with passenger vehicles and planning to move to MHDs as the technology becomes available.
- VTrans is currently preparing a long-range plan for fully electrifying the public transportation fleet (pursuant to section 34 of the 2021 Transportation Bill, Act 55).
- Vermont continues to fund DEV to undertake E&O and other activities to expand the PEV market.

Utility Coordination

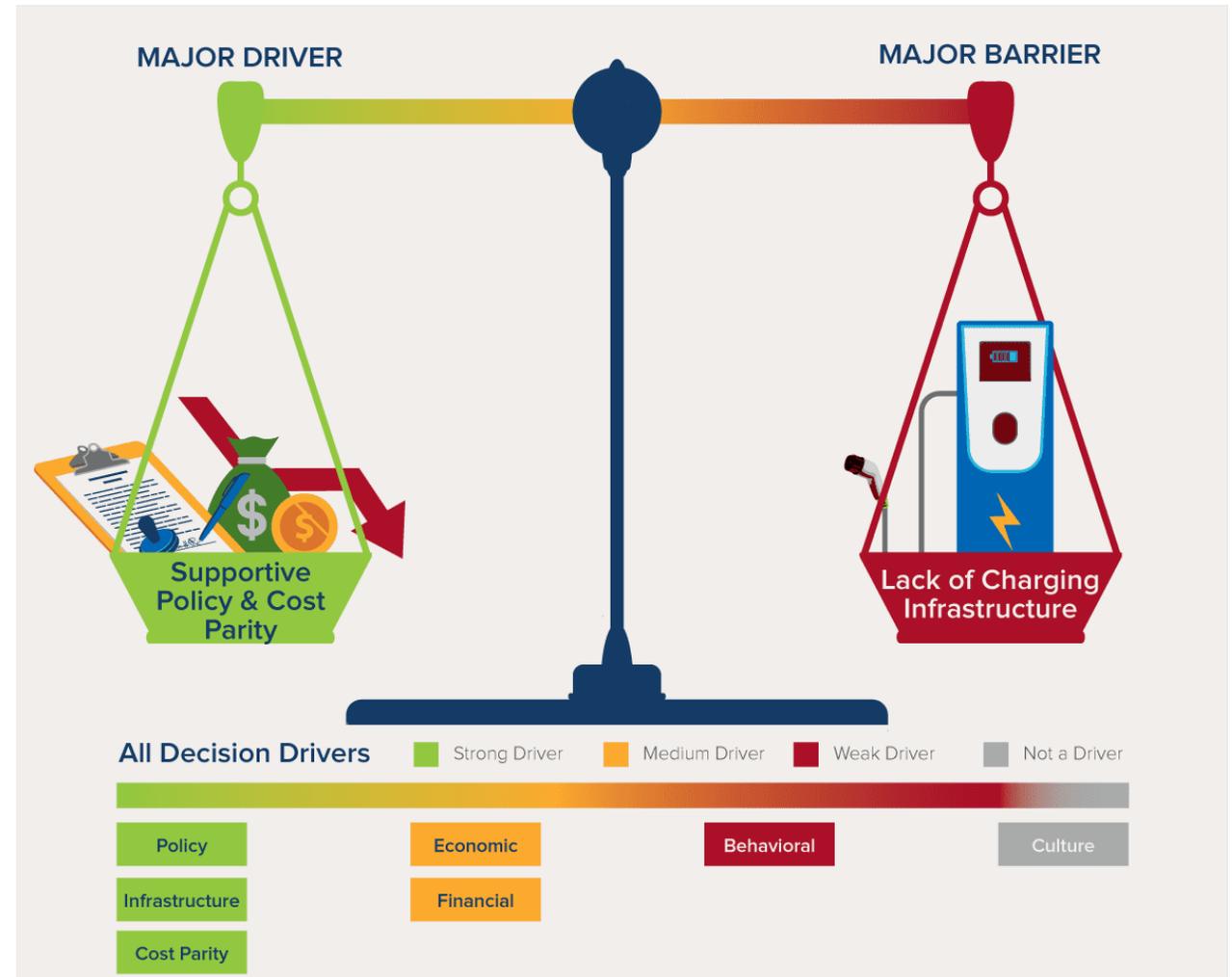
- The 2021 T Bill requires utilities to have PEV rates in place by 2024.
- With agency support, Vermont law was changed in 2019 to allow EVSE providers to sell electricity by the per kWh without having to be public utilities.
- Public Service Department is working on demand charge relief for DCFC.
- Vermont's electric distribution utilities run their own vehicle incentive programs.
- Vermont's energy efficiency utilities are investing energy efficiency charges in transportation electrification consumer research, consumer education and outreach, and dealer training and incentive programs.

Agency Coordination

- EVSE Grant Program
- DEV (Drive electric Vermont)
- ICEPAC (Interagency Climate and Energy Policy Action Committee)
- Ad hoc interagency meetings

Obstacles:

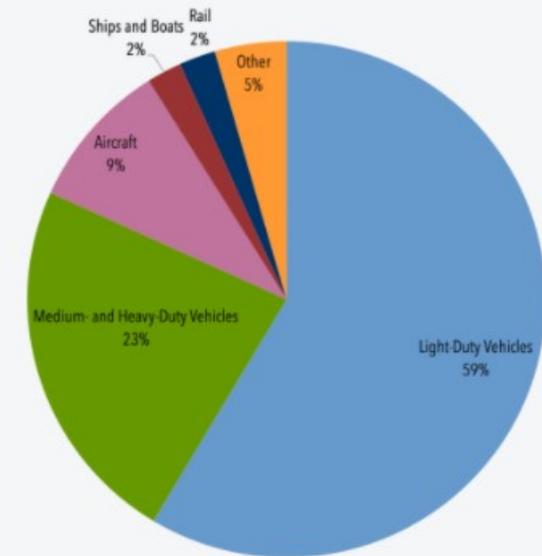
- Major barriers to EV adoption
 - Upfront costs
 - Lack of charging infrastructure
 - Lack of model availability
 - Lack of consumer and dealer awareness
- Other challenges
 - Interagency coordination
 - Weights and measures for EVSE
 - Highway user fees for EVs to replace motor vehicle fuels tax
 - Lack of HD EV technology
 - Agency capacity
 - Process & Structure: Who is in charge?



Heavy Duty EVs

- MHD trucks make up only 5% of vehicles on the road but account for about 24% of U.S. transportation emissions. (i.e. tractor-trailers, large pickups and vans, delivery trucks, buses, and garbage trucks.)
- 2 full-size electric buses are currently operating in Burlington, 14 more have been ordered
- ANR has funded an electric transit and school bus pilot project with VW settlement funds
 - plans to undertake additional projects with remaining VW settlement funds.

U.S. Transportation Sector Emissions, 2018



NOTES

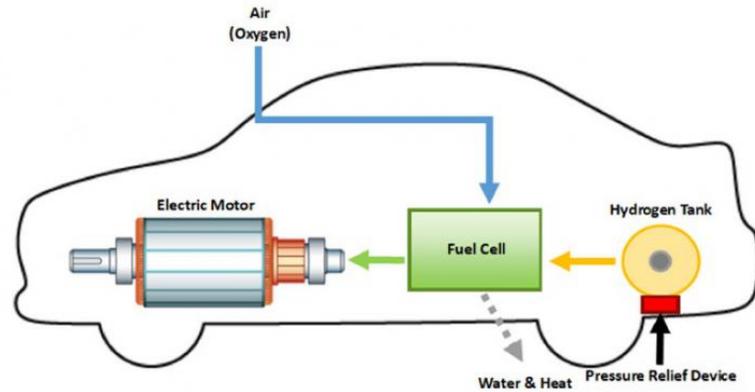
Total U.S. transportation sector emissions in 2018. Emissions from pipelines, lubricants, and non-transportation mobile sources are shown collectively as other.

Medium Heavy-Duty Incentives

- Currently no incentive programs for MHD EVs in VT
- Barriers:
 - Lack of widely available technology for MHD vehicles
 - Affordability
 - Cost parity for EVs expected in 4-5 years, cost parity for MHD expected to take longer
 - Vermont's cold climate and hilly terrain
 - Presently, VTrans has found that electric transit buses are not cost competitive with diesel, even on a life-cycle basis

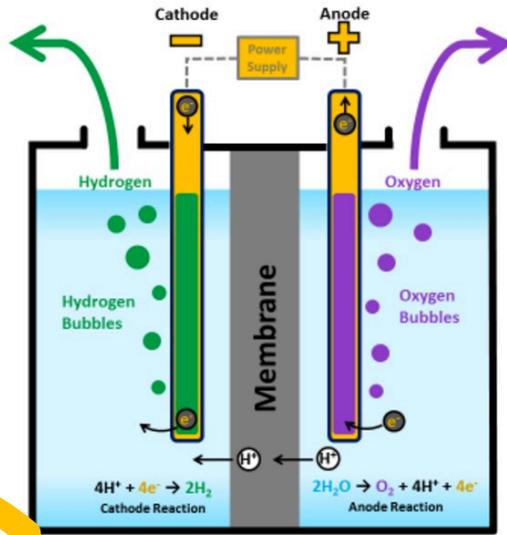


Hydrogen Fuel Cells

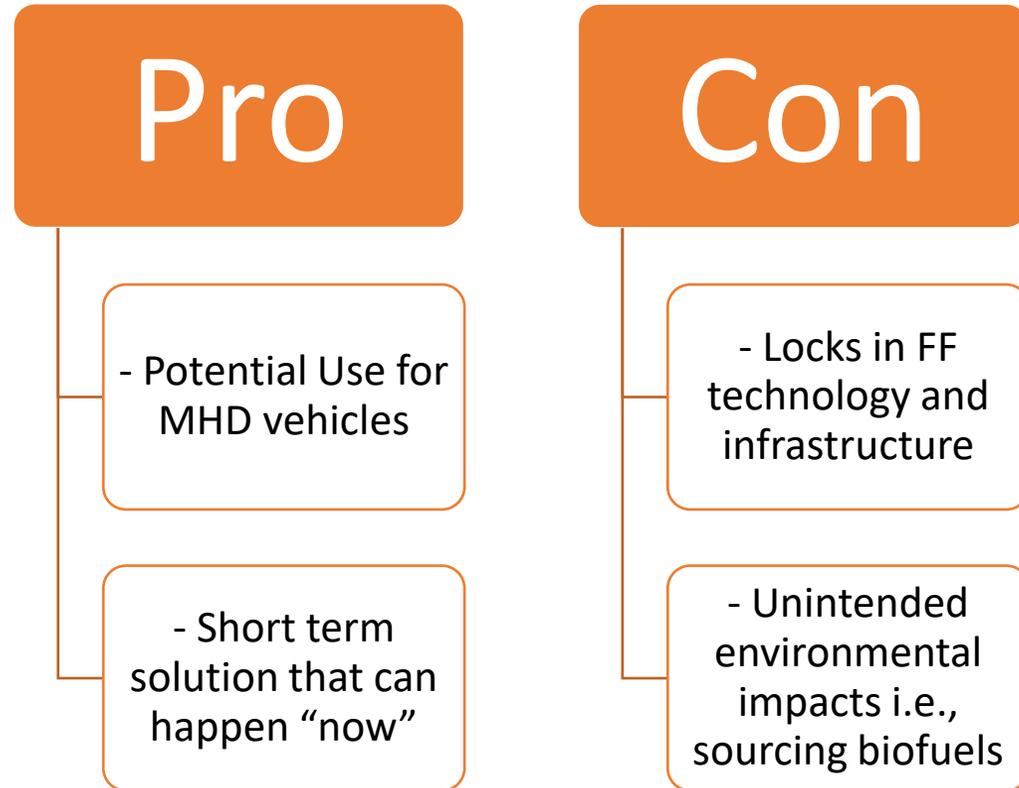


Hydrogen Fuel Cell Technology

- Study conducted by Information Trends found that until the second half of this decade, battery-electric trucks will “remain competitive” over HFC due to the lack of refueling infrastructure.
- Los Angeles is part of a multiyear pilot to assess the operational and technical feasibility of the fuel cell vehicles in a heavy-duty setting, as well as to expand infrastructure to support hydrogen throughout the region.
- HFC technology for MHD transportation has potential, but not yet a reality for Vermont.



Biofuels:



The 2016 CEP carves includes biofuels in a multipronged strategy to reduce GHG emissions from the transportation sector, but Vermont has made little or no progress in this area.



Transportation Specific Equity & E.J. Considerations



- Section 41 of the 2021 Transportation Bill
 - VTrans to work with 11 Regional Planning Commissions on developing a Transportation Equity Framework to advance mobility equity:
 - Increase access to mobility options
 - Reduce air pollution
 - Enhance economic opportunity for Vermonters in transportation-underserved communities.

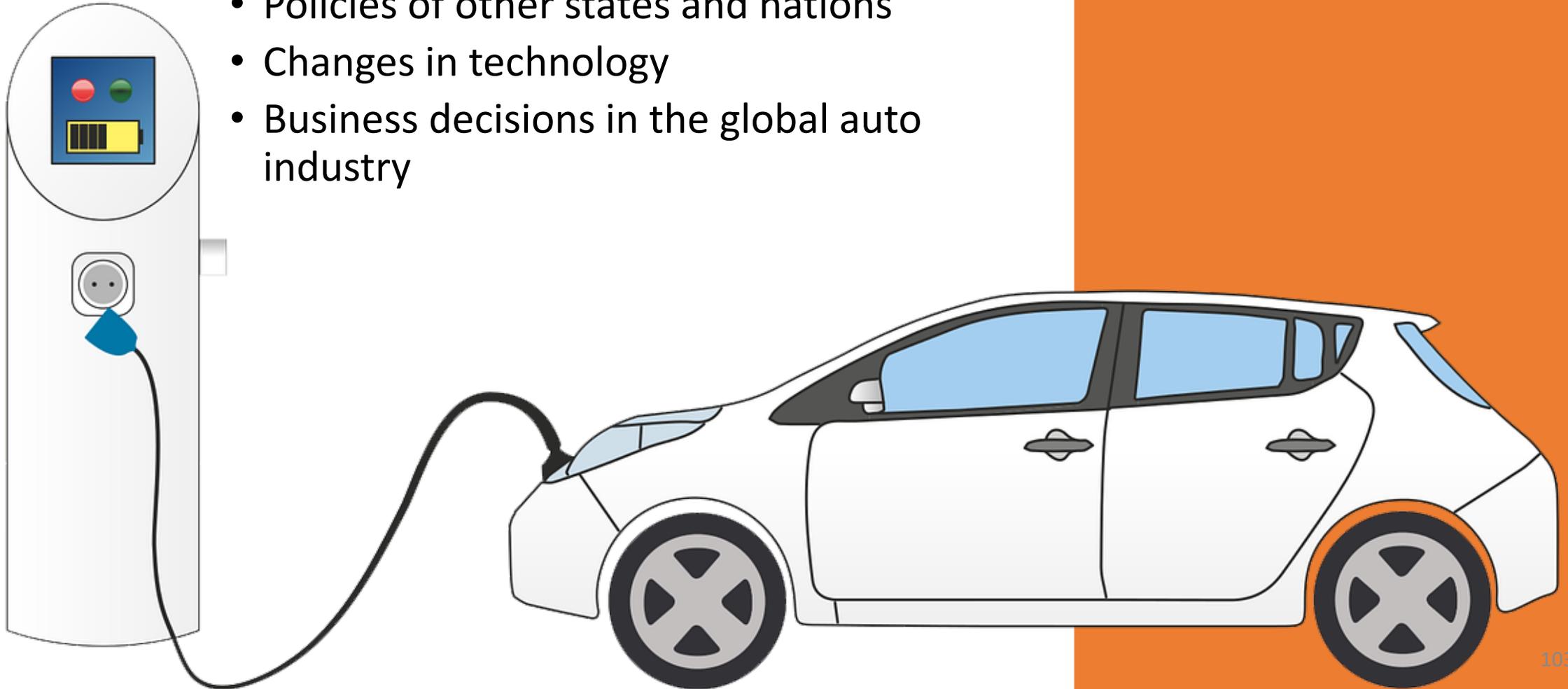
A 25% EV adoption rate could result in \$16.8 billion in annual avoided health impacts nationwide

Transportation Equity & E.J. Considerations (Continued...)

- Who:
 - Communities with high exposure to tailpipe emissions
 - Vermont's low-income, rural communities who experience especially high transportation burdens
- Incentive Program for New PEVs designed to benefit low- and moderate-income Vermonters.
 - Higher incentives to lower-income drivers
- EVSE Grant Program has structured highway corridor DCFC grants to ensure that the entire state has access to fast charging
- MileageSmart
 - Used high-MPG vehicle incentive program for low-income Vermonters
- The newly authorized Replace Your Ride and Electric Bicycle Incentive Programs in the 2021 Transportation Bill (both income-based).

External Factors:

- Federal policies and funding
- Policies of other states and nations
- Changes in technology
- Business decisions in the global auto industry



Open Questions

- Is a transportation carbon price signal needed? If so in what form?
- Should Vermont consider a low-carbon fuel standard?
- How to prioritize underserved communities while making the greatest impact?
- How to ensure geographic equity?
- What is the appropriate cutoff for income eligibility in vehicle incentive programs, vehicle price?
- What is the right mix of DCFC and L2 to be supported by state funding?
- Is a 100% ZEV mandate necessary and feasible, and if so, when?
- When and how to deal with demand charges on EVSE—is battery storage an option?

Zero Emission Vehicles

August 26, 2021

Deirdra Ritzer

Relevant Clean Air Act Provision

CAA §177:

Authorizes certain states to adopt California’s motor vehicle emission standards in lieu of defaulting to EPA’s standards.

Section 177 States:

• CO	MN	OR
• CT	NJ	RI
• MA	NM	VA
• MD	NV	VT
• ME	NY	WA

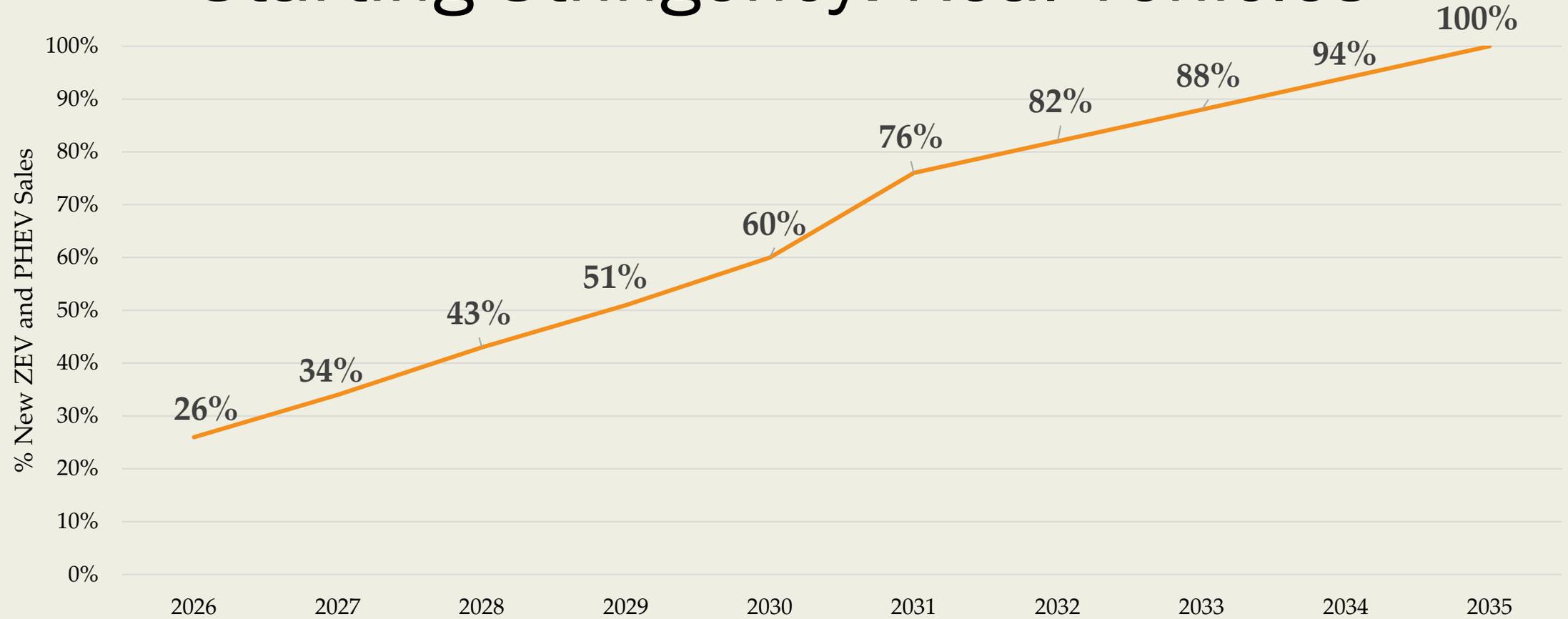
Zero Emission Vehicle (ZEV) Regulation

- California's Advanced Clean Cars Program (through MY2025)
 - Low-Emission Vehicle (LEV) regulation for criteria and GHG emissions
 - Zero Emission Vehicle (ZEV) regulation – technology forcing

ZEV Regulation Update

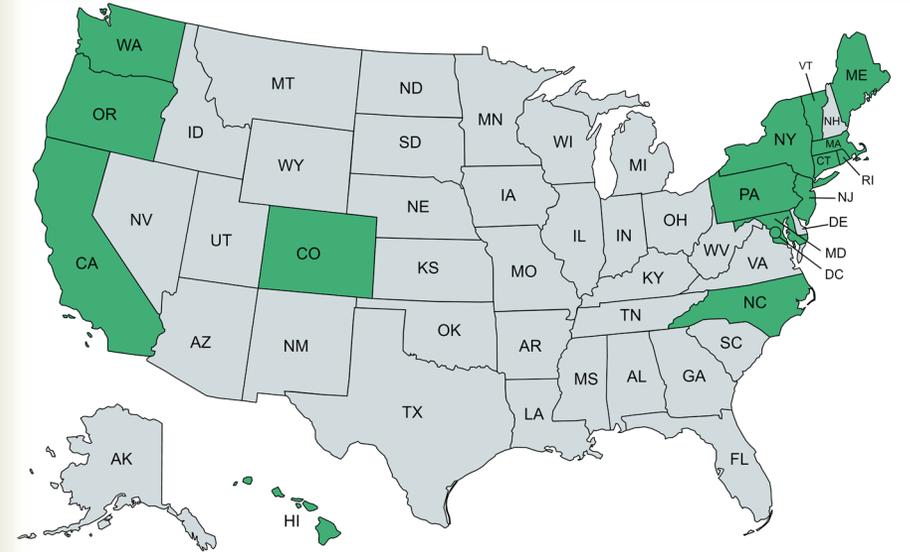
- California's Advanced Clean Cars II (new amendments MY2026+)
 - Currently in process to establish the next set of LEV and ZEV requirements
 - Maximize criteria and GHG emission reductions through increased stringency and real-world reductions
 - Accelerate the transition to ZEVs through both increased stringency of requirements and associated actions to support wide-scale adoption and use

Starting Stringency: Real Vehicles



Multistate MD/HD ZEV MOU

- 15 states, including the District of Columbia signed the MOU to support rapid expansion of MD/HD ZEV market.
- Sets ZEV sales targets
 - 30% sales by 2030
 - 100% sales by 2050
- Develop truck ZEV action plan



Vehicle Groupings Used in ACT

Class 2b-3



Class 4-8



Class 7-8 Tractors



Advanced Clean Trucks

- Percent of manufacturers sales must be ZEV
- Partial credit for plug-in hybrids to 2035

Model Year	Class 2b-3	Class 4-8	Class 7-8 Tractors
2024	5%	9%	5%
2025	7%	11%	7%
2026	10%	13%	10%
2027	15%	20%	15%
2028	20%	30%	20%
2029	25%	40%	25%
2030	30%	50%	30%
2031	35%	55%	35%
2032	40%	60%	40%
2033	45%	65%	40%
2034	50%	70%	40%
2035+	55%	75%	40%

Summary

- California motor vehicle emission standards include vehicle manufacturer ZEV sales requirements.
- Federal EPA motor vehicle emission standards do not.
- Multi-state efforts to develop ZEV action plans.
- <https://www.nescaum.org/documents/medium-and-heavy-duty-zero-emission-vehicles-action-plan-development-process/>

Thank You

Deirdra Ritzer, Environmental Analyst

Vermont Department of Environmental Conservation

802-233-8052 | Deirdra.Ritzer@vermont.gov

Break

- Before stepping away for a few minutes, please join your Zoom breakout room
- Raise your hand or use the chat box for assistance

Breakout Discussions In Progress

- Raise your hand or use the chat box for assistance

Welcome Back!

- Breakout Group Reports
 - Group A
 - Group B
- Questions
- Lunch

Lunch In Progress

Reconvene at 1:30 PM

Afternoon Breakout Group

Two Breakout Groups, Each with the Same Discussion Topics

- 1. Presentations by Dan Dutcher, VTrans,
and Bronwyn Cooke, DHCD**
- 2. Breakout Discussion**
- 3. Reconvene for Report-outs Before Wrap-up**



Transportation Demand Management

CEP-CAP Transportation Workgroup

August 26, 2021

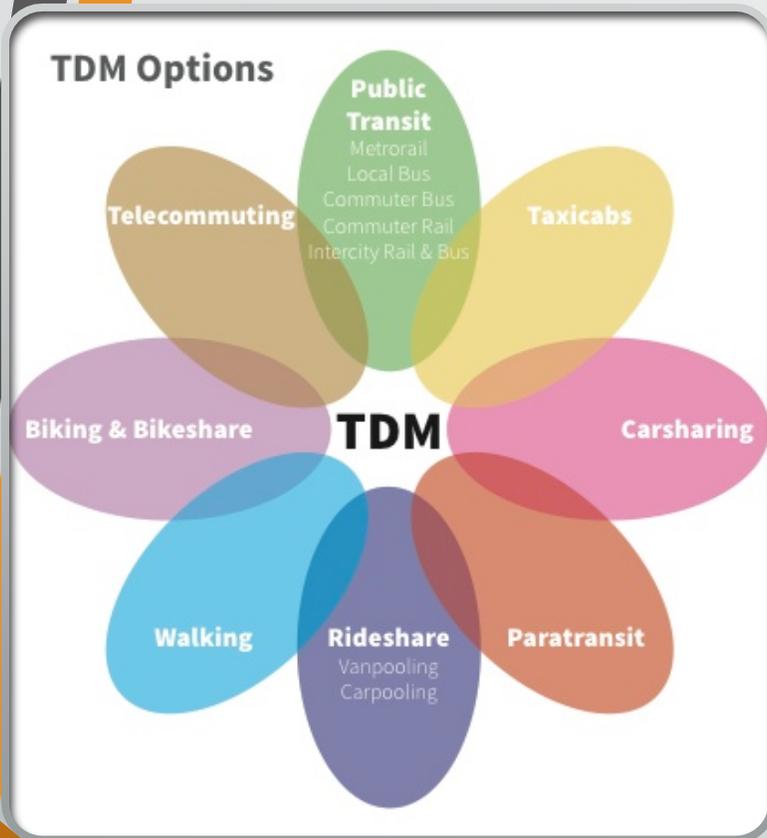
"The problem isn't just gas-fueled cars but car-fueled lives — a view of the world in which huge private automobiles are the default method of getting around."

Vehicle Miles Traveled (VMT)

- Amount of travel for all vehicles in geographic region for a given period.
- The sum of the number of miles traveled by each vehicle.



Transportation Demand Management (TDM)



Intentional efforts to counterbalance the incentives and societal norms that encourage personal vehicle use (e.g., nicely paved roads, convenient and free parking vs. well maintained sidewalks and bike paths).

Public Transit

- Overview: VTrans Public Transit Section provides financial and technical assistance to transit districts, transit authorities, municipal transit systems, and non-profit public transit systems
- \$37 million was dedicated from the Transportation Fund for this purpose in FY2020 (including funding for commuter programs such as Go! Vermont).

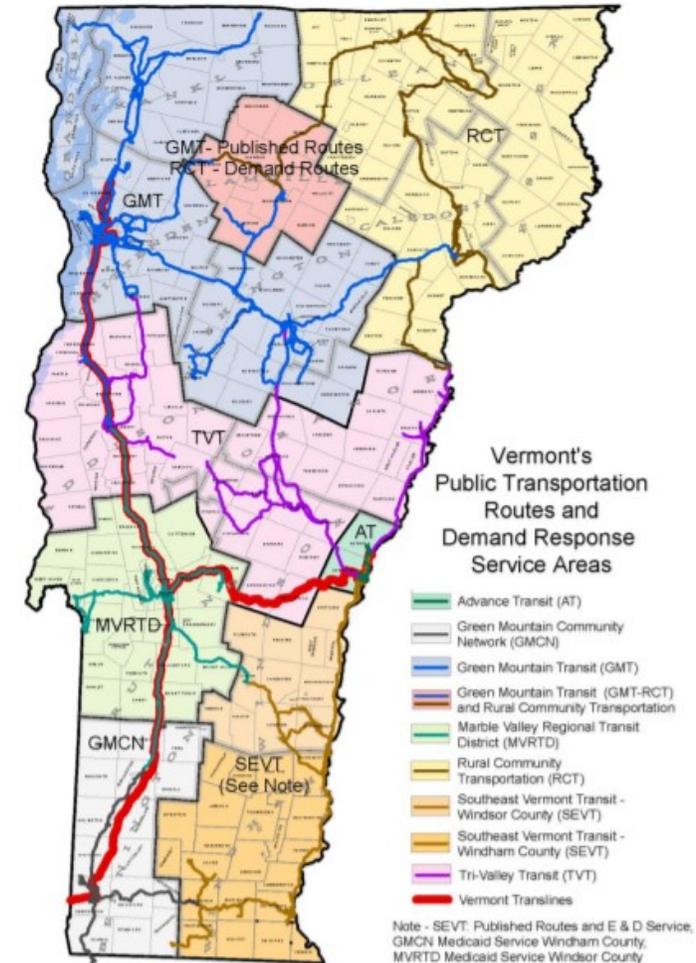
Public Transit Policy Plan (PTPP)

- The 2020 PTPP reviews and updates past policies and goals and develops strategies to meet a wide range of public transit challenges.
- Satisfies requirements of the federally-mandated Human Service Transportation Coordination Plan. (Considers people over the age of 60 & people with disabilities and a list of transportation projects that would address those needs.)
- The PTPP serves as the primary guidance document for the continued growth and development of public transit in Vermont over the next ten years.
- Updates expected after 5 years.

Public Transit Needs Assessment (2020 PTPP)

- Lack of transit access in rural areas.
- Lack of resources to meet the needs of vulnerable populations.
- Lack of transportation for access to jobs.
- In areas that have bus routes, improved service levels and connections are needed.

Figure 1: Vermont's Public Transportation Routes and Demand Response Service Areas



Behavior change
vs.
Systems change

The city
buying a
bus

The city
incentivizing
bus passes

2021 T Bill: Sec. 31. ZERO-FARE PUBLIC TRANSIT IN FISCAL YEAR 2022 –
Legislative intent for transit systems who receive federal funding to remain zero-fare in FY 2022.

- Two full-size electric buses currently operating in Burlington
- VTTrans has ordered 14 electric public transit buses of varying sizes using federal transit funding and “Low and No Emissions” grant.
- VTTrans continues to monitor operational challenges (i.e. cold weather, hills)
- We bought the bus, now how do we get more people to ride the bus?



E ENERGY & ENVIRONMENT

Vermont Agency of Transportation will add electric buses with \$1 million grant

By Sophia McDermott-Hughes

Jun 25 2021



<https://vtdigger.org/2021/06/25/vermont-agency-of-transportation-will-add-electric-buses-with-1-million-grant/>

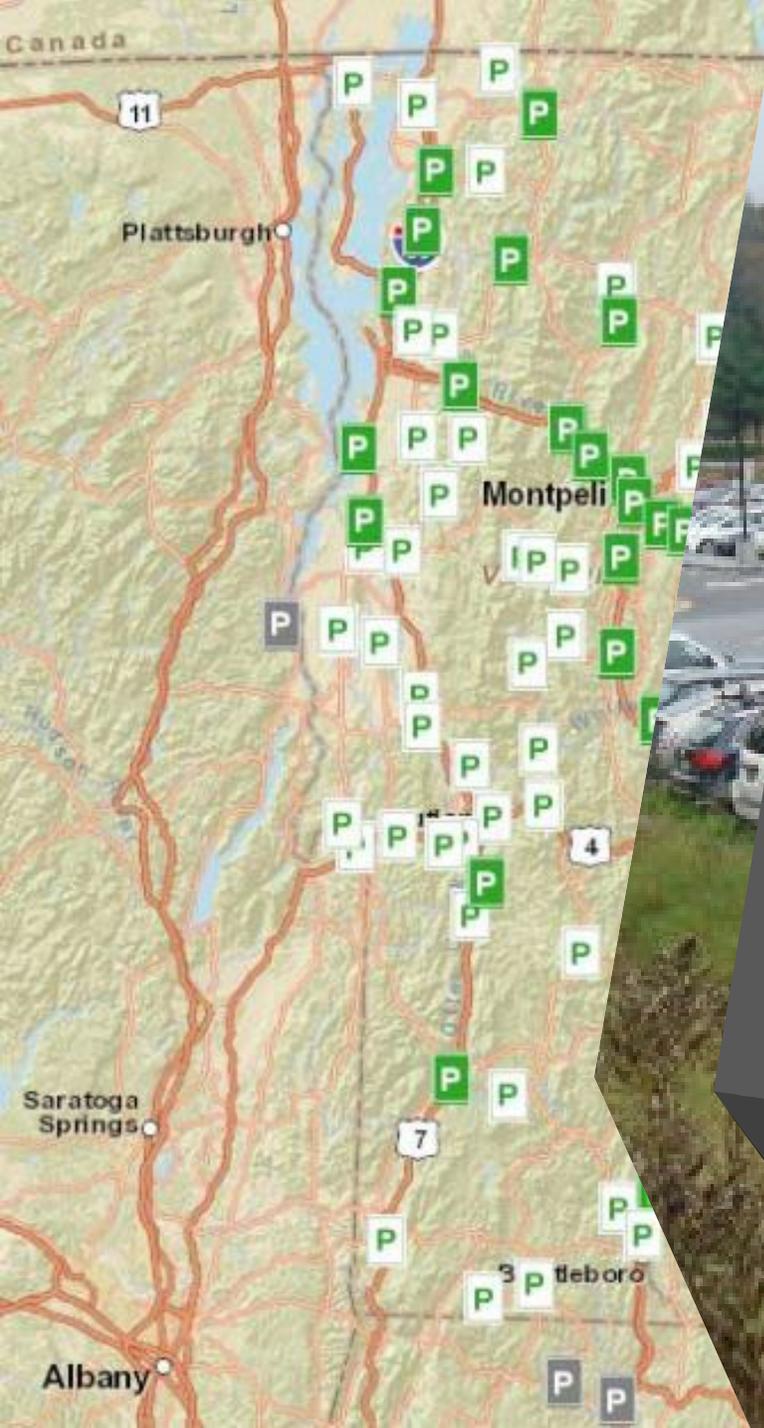
Mobility and Transportation Innovations (MTI) Grant Program

- Enabled by the Legislature in the 2020 Transportation Bill (Act 121).
- Designed to support innovative strategies and projects that:
 - improve both mobility and access to services for transit-dependent Vermonters
 - reduce the use of single occupancy vehicles
 - reduce greenhouse gas emissions.
- Funds Can Be Used For:
 - Match funds from other TDM grant awards
 - TDM program delivery costs.



2021 MTI Grants Awarded

Grantee Name	Project Title	Amount
Capstone	Rural and Equity Transportation Program	\$45,660
Green Mountain CarShare	Greenlining Shared Electric Mobility	\$100,000
CATMA	CATMA Telework Program	\$35,000
Chittenden County RPC	Greenride Bikeshare Ebikes and Expansion	\$50,000
LocalMotion	Providing Bike Parking at High Traffic Destinations to Increase Bicycling Mode Share for Vermonters and Satellite E-Bike Lending Libraries	\$50,000
Ludlow	Microtransit Feasibility Study for the Ludlow/ Okemo Area	\$30,000
Middlebury College	New Technologies for Dial-a-Ride	\$10,000
Old Spokes Home	Engage & Connect Underserved & Diverse Vermonters to existing Transit Options	\$59,031.00
Sustainable Montpelier Coalition	On-Demand Microtransit Rider Engagement and Marketing	\$48,234
VNRC	Reducing SOV Usage and Boosting Alternative at a Large Employer	\$25,025
VEIC	Future of Rural Transit	\$15,549
Vital Communities	Upper Valley E-Bike Subsidy Program	\$31,500



Park and Ride

- From the VTrans website: "Helps to provide safe and convenient parking facilities to encourage the consolidation of travelers and the reduction of single occupancy vehicles on the roads."
- 31 state-owned park and ride lots and over 70 municipal lots.
- The Park and Ride Program includes the development, assessment, and upgrade of park and ride facilities, coordination with transit providers, and other public information services.

Active Transport



- Bike lanes.
- Downtown and urban planning-- reduces the distance between locations and promote alternatives to driving.
- Pedestrian infrastructure such as sidewalks and crosswalks.
- Equity--important in low-income, minority, and elderly populations without cars.

Complete Streets

Vermont's complete policy can be found in 19 V.S.A. section 10b. This policy was originally established by Act 34 of 2011: an act relating to a transportation policy that considers all users.

- (Act 34, Section 1): “ensure that the needs of all users of Vermont’s transportation system—including motorists, bicyclists, public transportation users, and pedestrians of all ages and abilities—are considered in all state and municipally managed transportation projects and project phases....”
- Excludes unpaved highways.
- Exceptions require documentation the complete streets would be contrary to law, disproportionately costly, or beyond the scope of the project by its very nature.



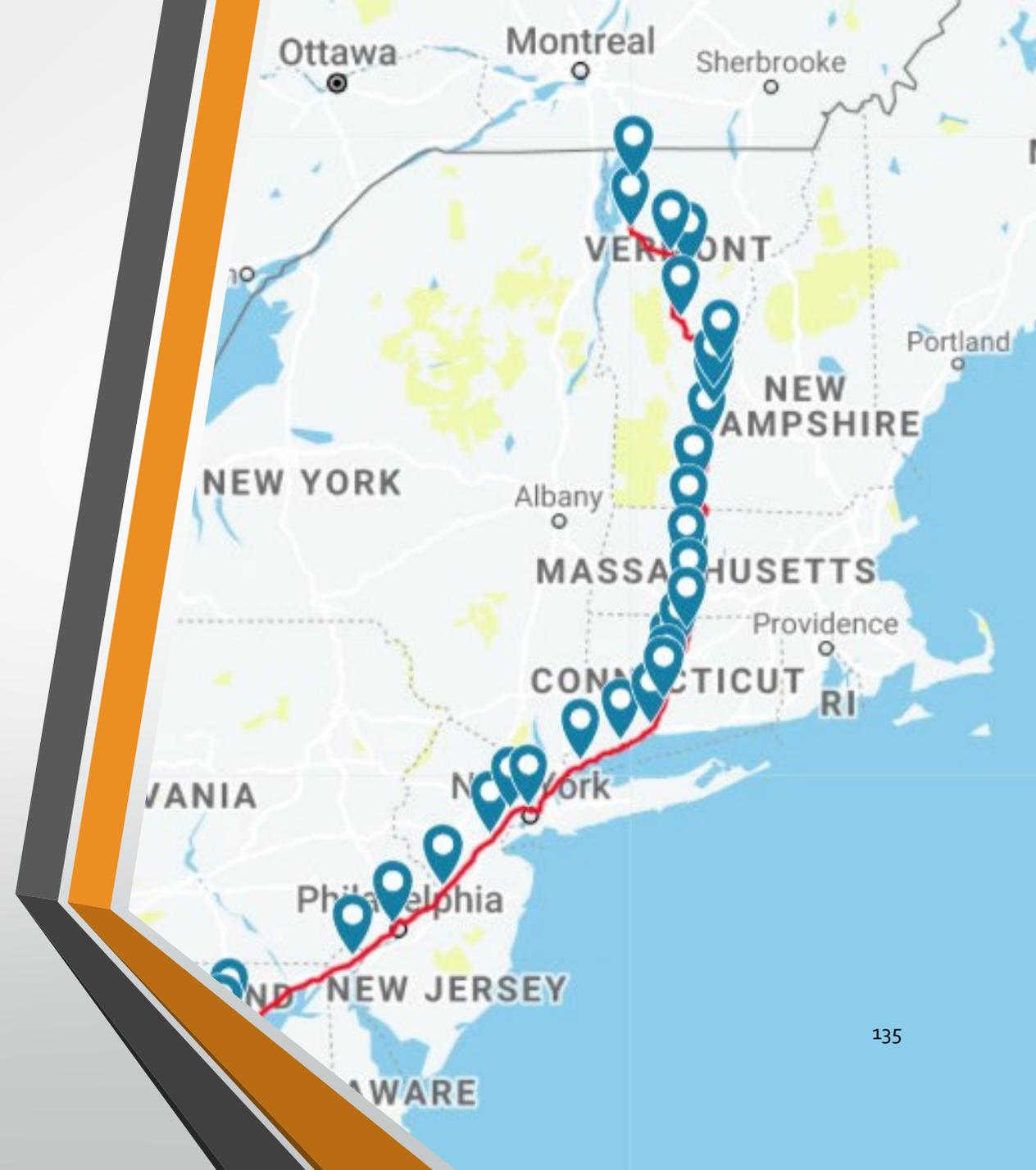
VTrans Bicycle and Pedestrian (BP) Grant Program

- The Goal: “to provide safe and convenient facilities for those Vermonters who desire alternative transportation opportunities.”
- Supports projects that complete critical gaps in local pedestrian or bicycle networks, add municipal sidewalks, and solve a critical safety problems.
- Selects municipally managed bicycle and pedestrian infrastructure projects.



Rail

- VTrans oversees rail program charged with maintenance and upgrades on 305 miles of active state-owned rail lines.
- The state is responsible for 172 rail bridges and over 400 public highway rail crossings
- VT has two Amtrak passenger service routes that it supports financially.



Rail (Cont'd)

- The Vermont Rail Plan provides a framework for maintaining and enhancing the State's freight and intercity passenger rail system.
- Vermont has approximately 580 miles of active freight track, and 6.9 million tons of freight moved on them in 2018.
- From 2011 through 2018, freight rail tonnage associated with Vermont has increased.

Rail used for its most-appropriate purposes, such as long-distance movements, is much more energy-efficient than trucks or cars.

2016 CEP objectives for 2025

Goal	Goal Number	Current Status
Triple the number of state park-and –ride spaces	3,426	1,525
Increase public transit ridership by 110%	8.7 million annual trips	4.71 million annual trips
Quadruple VT based passenger rail trips	400,000 annual trips	149,795 annual trips
Double the rail freight tonnage in VT	13.2 million tons	6.7 million tons
Increase the percentage of EVs	10% of vehicle fleet	.06%
Increase the number of HD and MD vehicles powered by renewable energy	10% of vehicles	4-10 transit and school buses; Biodiesel ~0.02% of total fuel portfolio

Source: 2021 Annual Energy Report

https://publicservice.vermont.gov/sites/dps/files/documents/Pubs_Plans_Reports/Legislative_Reports/2021%20Annual%20Energy%20Report%20Final.pdf

Equity Considerations

- In Vermont, minority citizens are more likely to live in areas with higher air pollution
- Low-income households in rural areas of the state struggle with lack of transportation options



Barriers to reducing SOV use

- Lack of awareness: Burlington area residents much more likely to be aware of and use public transit services than other Vermonters.
- Age discrepancies: People aged 25-64 are less likely to consider public transit options than youth and older adults.
- Low gas prices.
- Low levels of service in rural areas.
- The misperception that transit is only for the poor, disabled, or elderly.
- Resistance to change: E.g., convincing someone to buy an EV is in many ways easier than changing behavior (getting someone to ride the bus).

Continuing Work:

VTrans continues to actively pursue programs and policies that encourage alternatives to driving.

Equity remains a primary consideration when creating programs.

There are significant barriers to overcome surrounding the culture of SOV use.

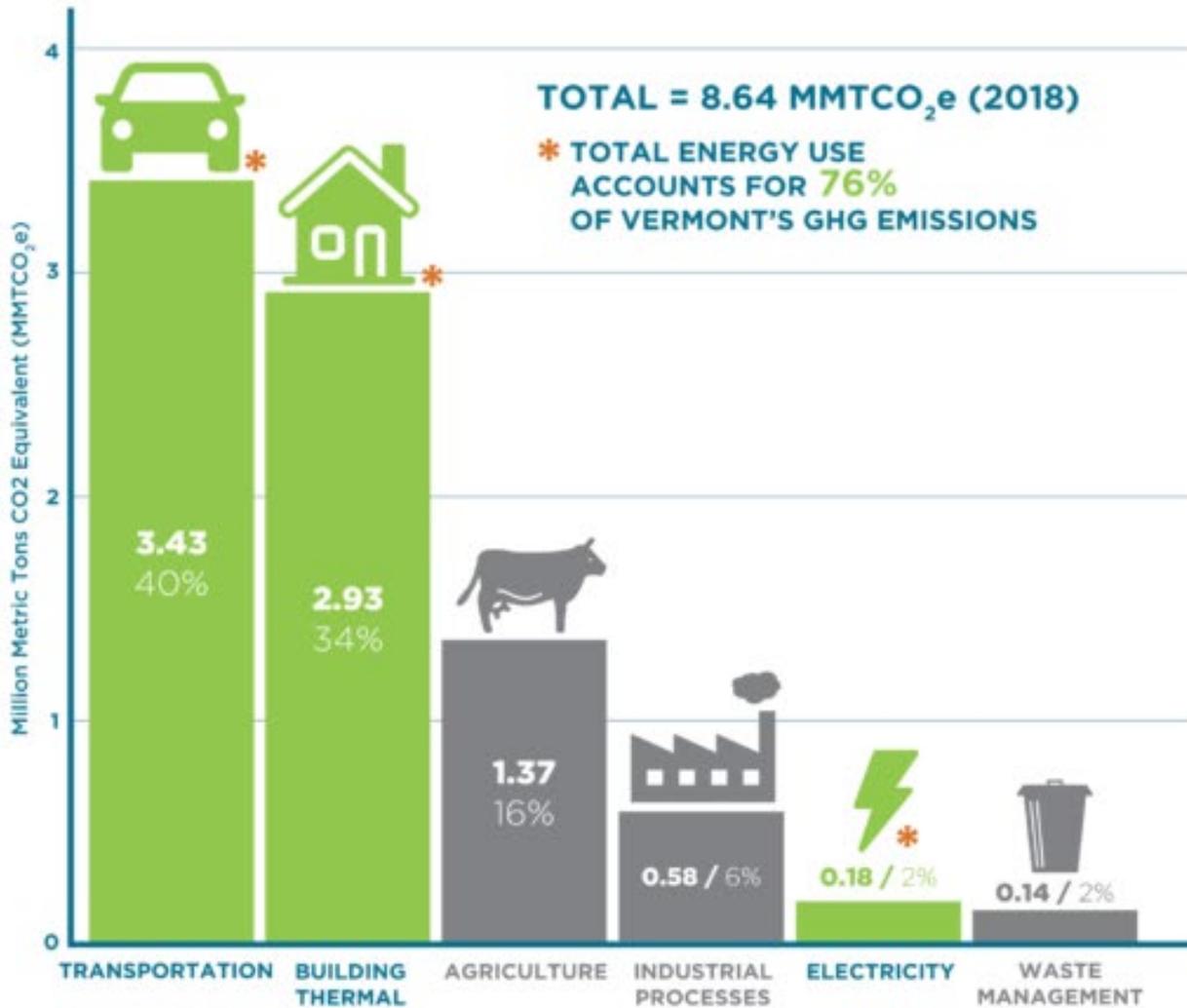
Long term considerations about rural and urban land use planning are essential in order for public transit, bike lanes, and pedestrian infrastructure to work.



Community Planning + Revitalization

Comprehensive Energy Plan + Climate Action Plan
Transportation Technical Workshop

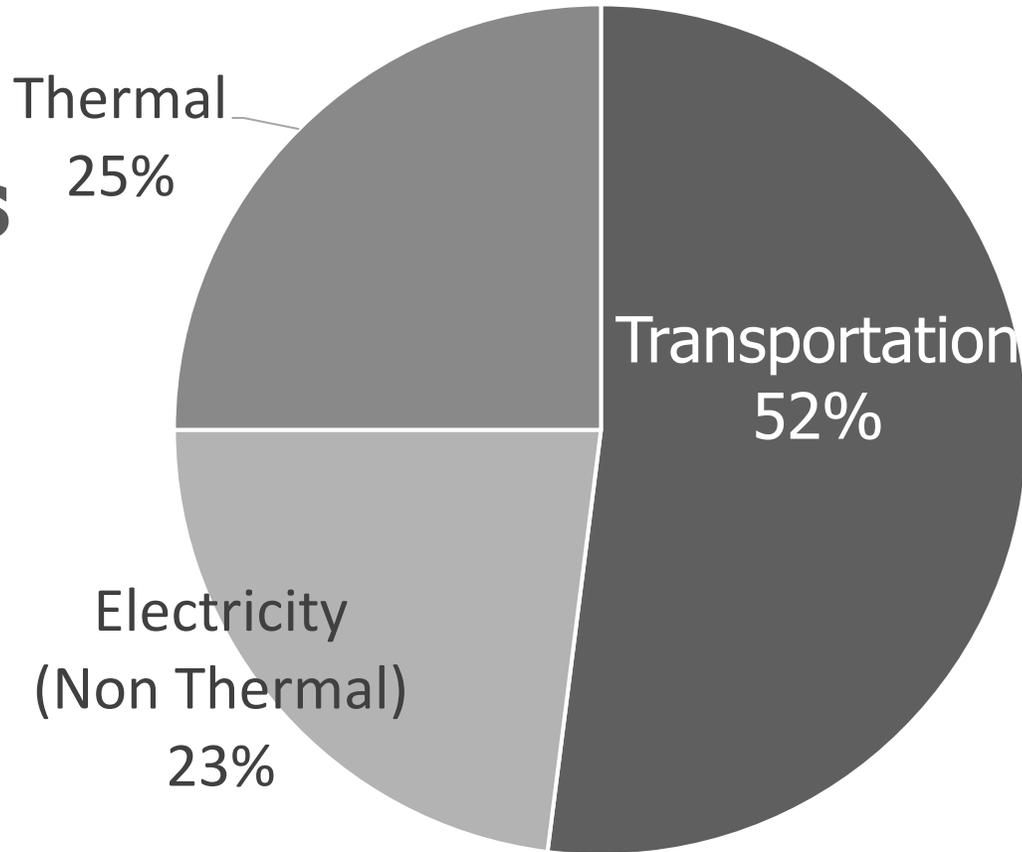
Vermont's GHG emissions by sector, 2018



Source: Vermont Agency of Natural Resources, Vermont Greenhouse Gas Emissions Inventory and Forecast (1990-2017), 2021.

Components of Total Energy Cost for Vermont Households

VEIC 2016



GHG and Energy Goals

80% GHG reduction by 2050
90% renewable energy supply by 2050
15% per capita energy use reductions by 2025
10% renewable energy in transportation sector by 2025

Transportation Sector

Vehicle Technology

Transportation System

Strategies

Vehicle Fuel Efficiency

Vehicle Fuel Source

Smart Growth & Demand Management

Outcomes

Reduce fuel use

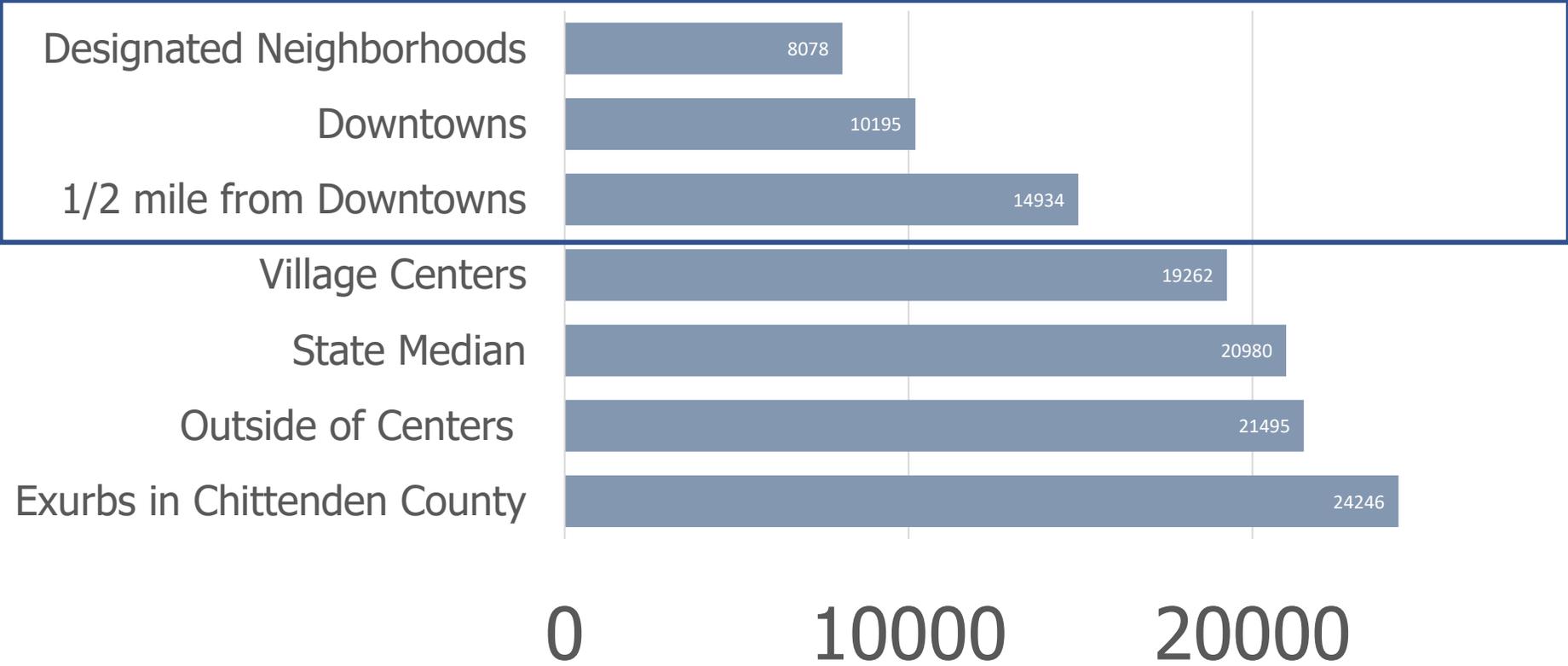
Lower carbon fuels

Shift trip mode

Reduce trip length

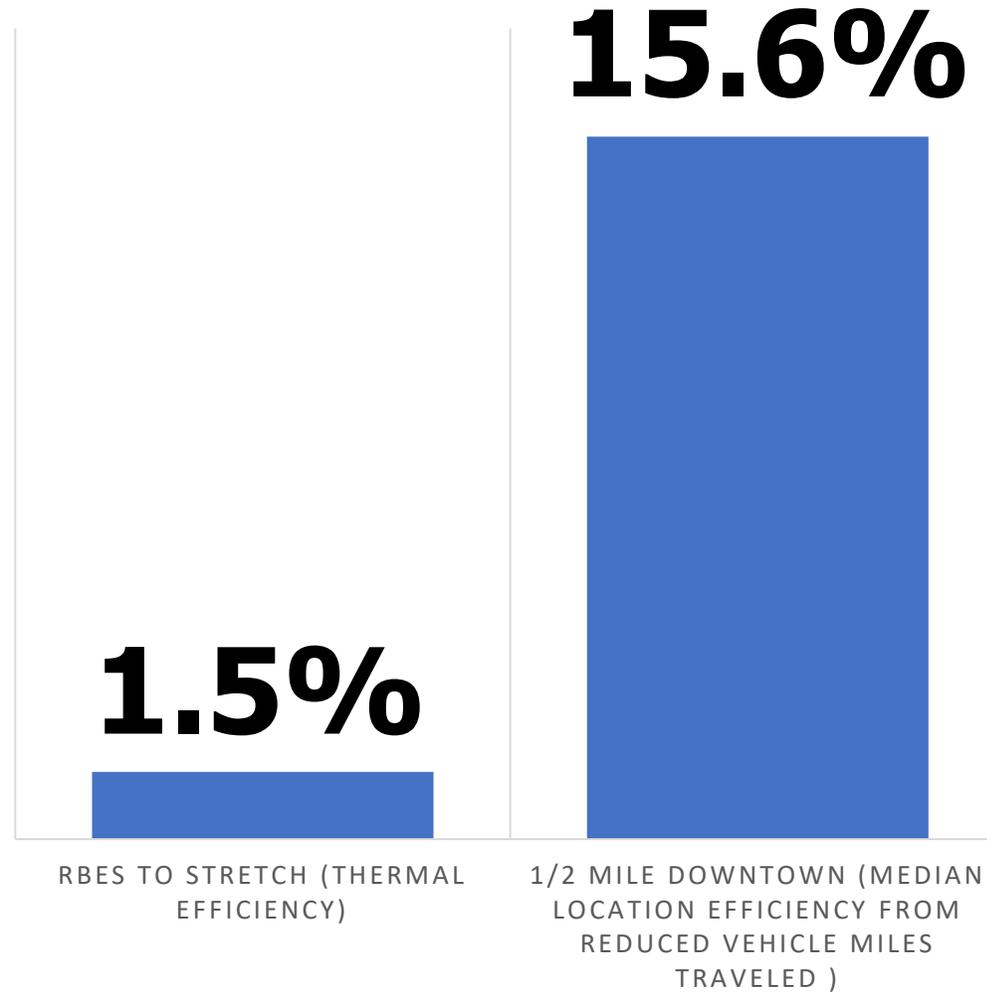
Reduce number of trips

Median Household Annual Vehicle Miles Traveled by Area

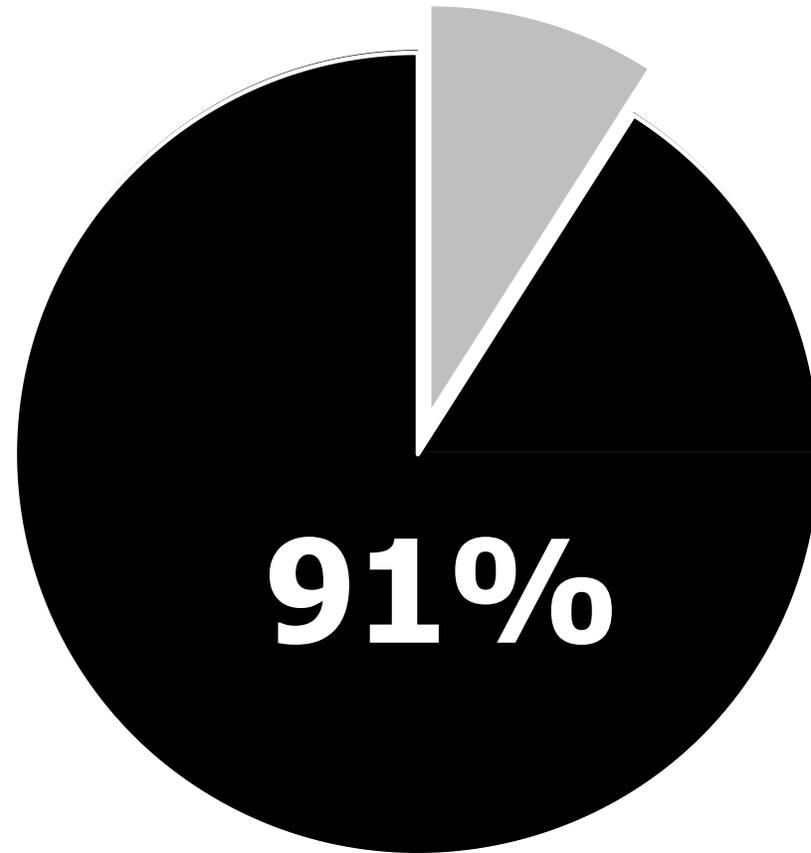


Source: AHTS 2009

% Reduction in Total Energy Cost for Vermont Households

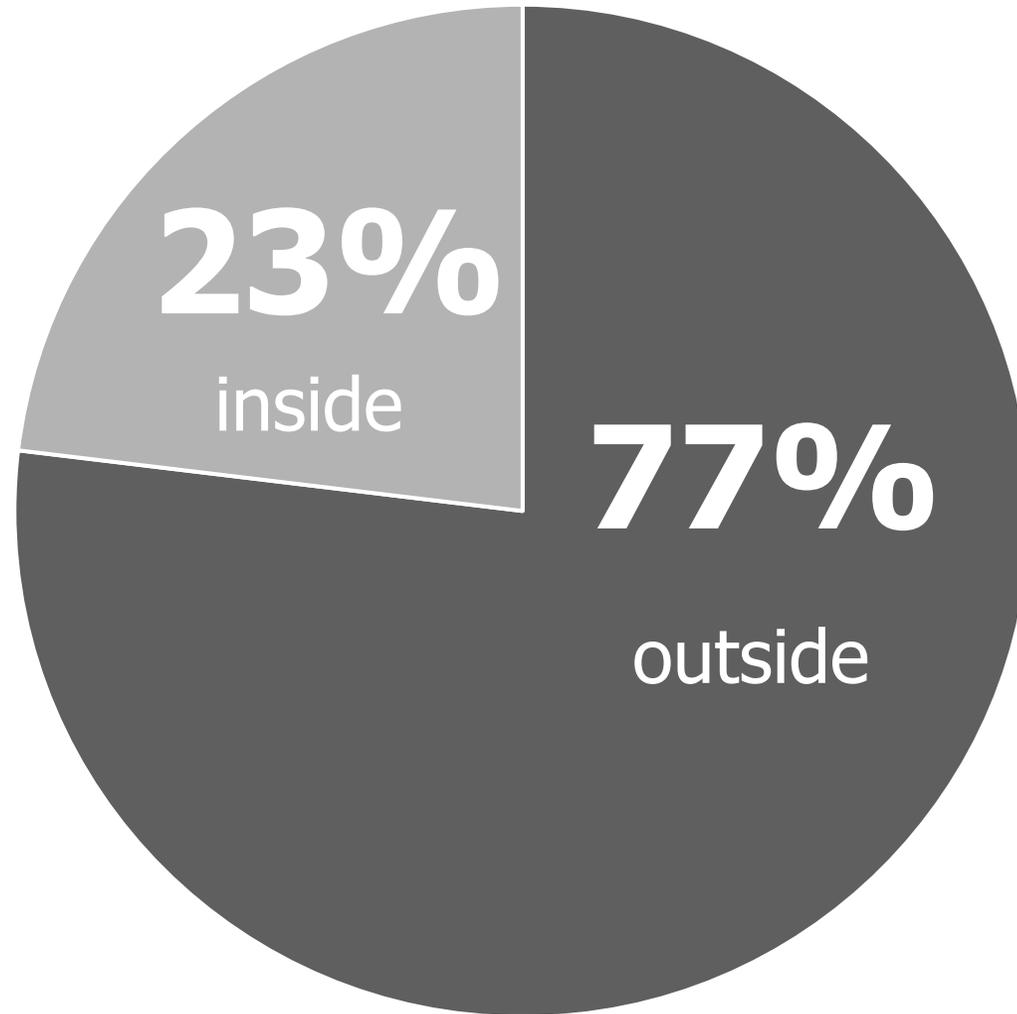


I would walk to
work, school,
shopping or
other activities
if they were
close enough...



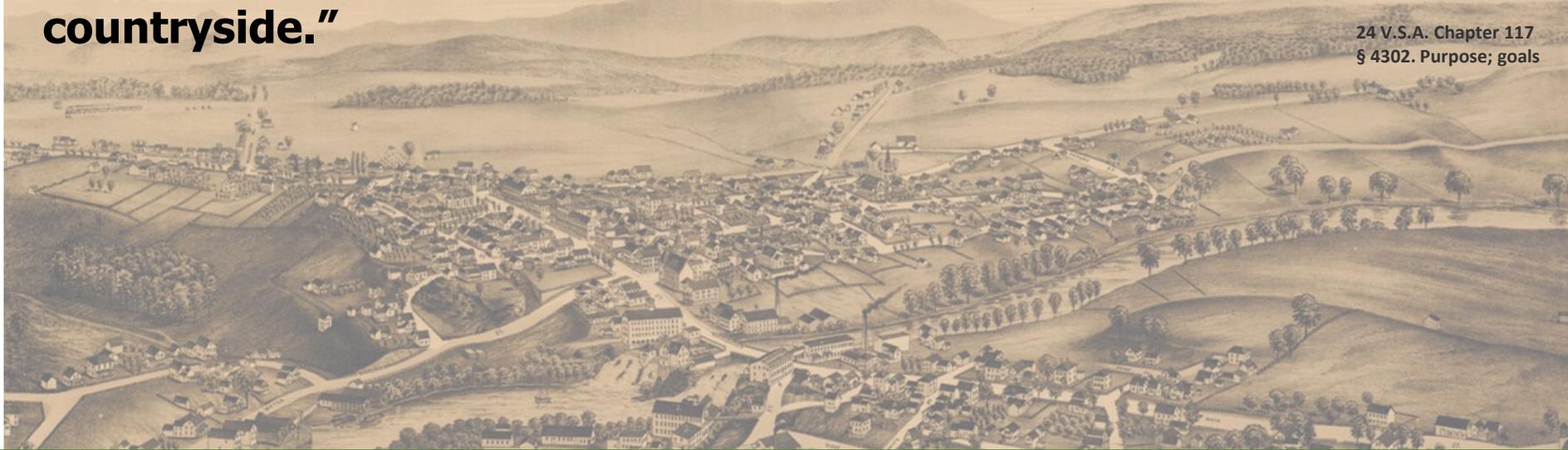
Residential Growth 2004-2014

Residential Structures

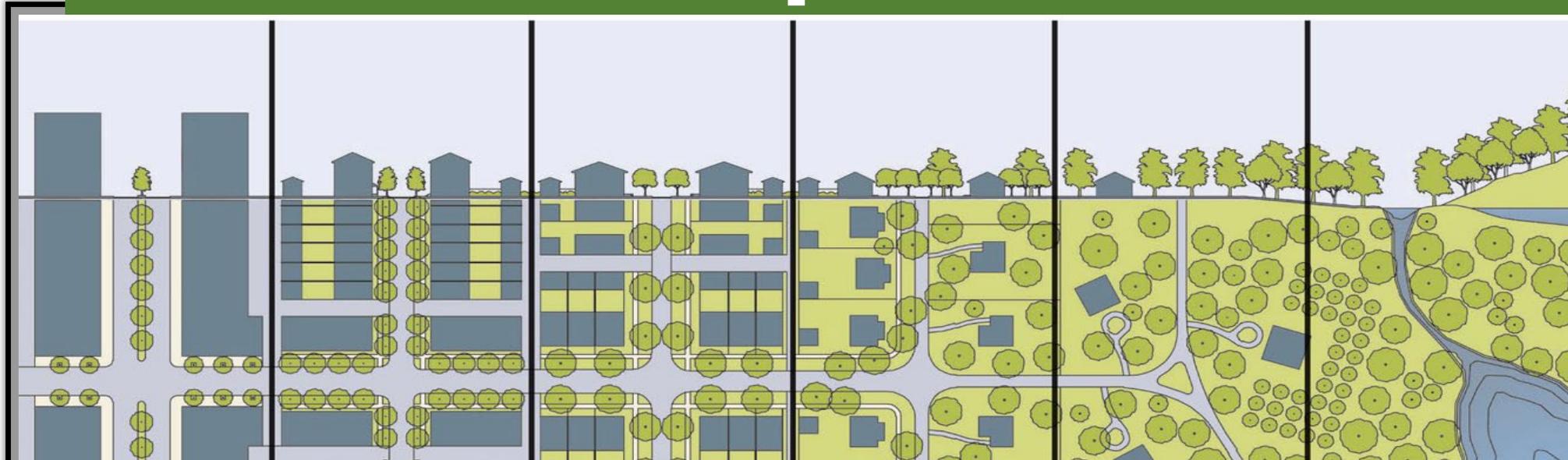


“To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside.”

24 V.S.A. Chapter 117
§ 4302. Purpose; goals



Impact



Coordinated Planning



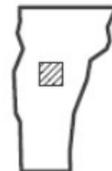
State Planning Goals

The state has 14 specific planning goals.



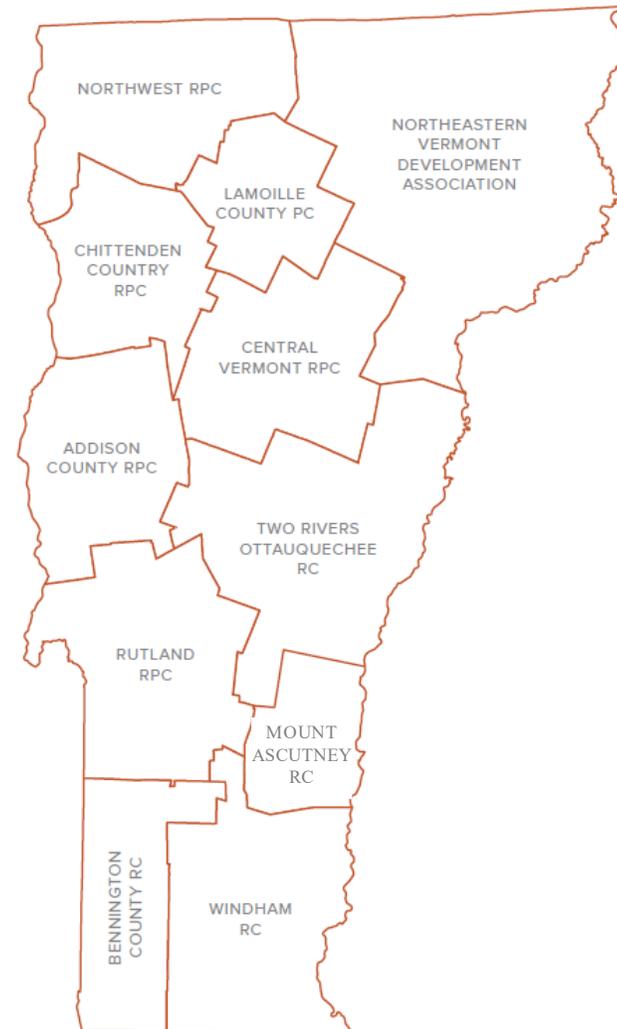
Regional Plans

Regional plans must be consistent with the state planning goals.



Municipal Plans

In order to have a regionally approved plan, municipal plans must be compatible with the regional plan and consistent with the state planning goals.



Community Planning + Revitalization

Providing **tools, training, grants, and incentives** for local leaders to plan and implement projects that support **thriving, walkable communities.**

The Five Designations

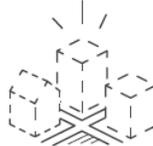
Core Designations



Village Centers – 216 (Est. 2003)

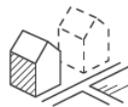


Downtowns – 23 (Est. 1998)



New Town Centers – 2 (Est. 2003)

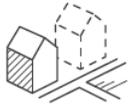
Add-On Designations (must have a core designation to qualify)



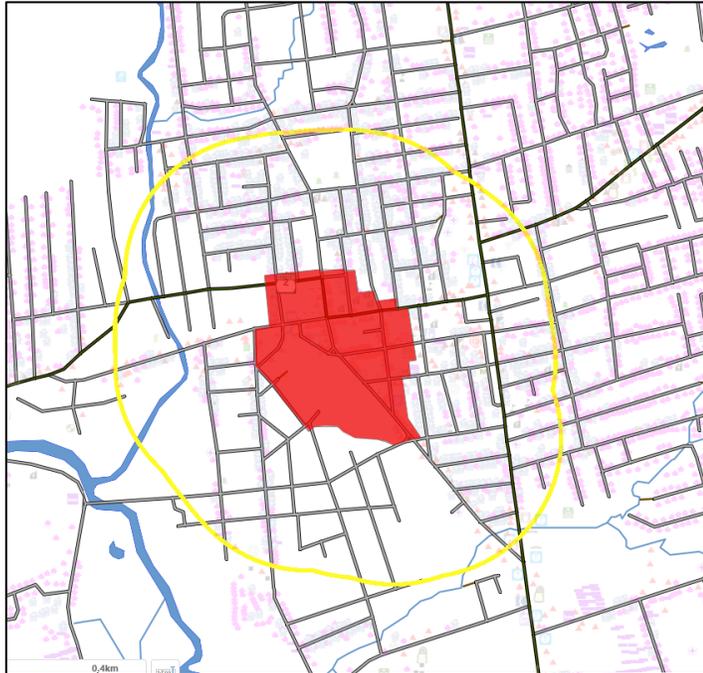
Neighborhood Development Areas – 7
(Est. 2013)



Growth Centers – 6 (Est. 2006)

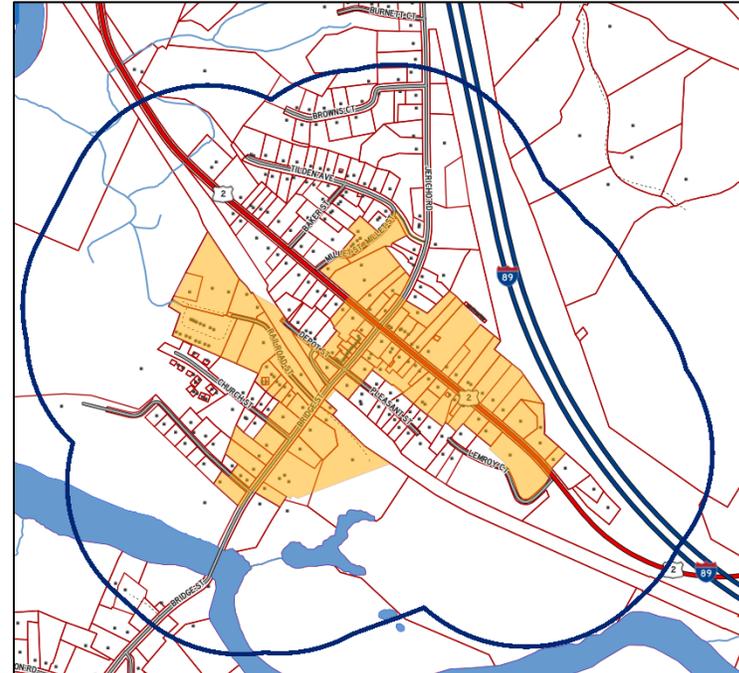


Neighborhood Development Areas



Downtowns – 1/2 mile

15 min walk



Village Center – 1/4 mile

5-10 min walk

Designation Benefits

- Downtown and Village Center Tax Credits
- Downtown Transportation Fund
- State Grant Priority
- Sales Tax Reallocation
- Act 250 Exemptions for Priority Housing Projects
- Reduction of Fees
- Exemption of Land Gains Tax



Funding, Tools, and Incentives



Breakout Discussions In Progress

- Raise your hand or use the chat box for assistance

Welcome Back!

- Breakout Group Reports
 - Group A
 - Group B
- Questions
- Final Meeting Wrap-up

Additional Opportunities for CEP/CAP Comment

Comprehensive Energy Plan:

- Website (information on upcoming events and other avenues for providing input):
<https://publicservice.vermont.gov/content/2022-plan>
- Email (to submit comments on the CEP): PSD.ComprehensiveEnergyPlan@vermont.gov

Climate Action Plan:

- Website (information on upcoming events and other avenues for providing input):
<https://aoa.vermont.gov/content/vermont-climate-council>
- Public Comment Portal:
<https://anrweb.vt.gov/ANR/ClimateCouncil/PublicInputForm.aspx?PKID=3209>

Thank You!