Transportation Pathways for Mitigation

Challenges and opportunities in the transportation sector

The implications of fossil dependence in a rural state

Transportation – the movement of people and goods – is essential to the state's economy and Vermonters' quality of life. Due to the state's rural character and low population density, Vermonters depend primarily on personal vehicles – as opposed to public transit – to get them where they need to go. Over 97% of those vehicles rely on fossil gasoline and diesel fuels. This combination of factors makes transportation Vermont's largest source of climate pollution, now 39% of our greenhouse gas emissions. [1] It is also a significant reason why Vermont emits more greenhouse gasses per capita than any other state in New England. [2] Transforming the state's transportation system with cleaner vehicles and multiple transportation options to support getting where people need to go is essential to meeting the emissions reduction requirements of the Global Warming Solutions Act. In addition, cleaner, more multi-modal transportation options can have significant public health benefits (and cost savings) by reducing exposure to the air pollutants caused by gasoline and diesel burning and by expanding active modes of transportation. [3]

Vermont families and businesses spend more than $1 billion per year on fossil fuels for transportation, representing about 45% of Vermont's total annual fuel bill.[4] Electric vehicles (EVs) are inherently more energy-efficient than conventional combustion vehicles, so as more Vermonters transition to EVs, we expect to see reduced transportation emissions and transportation fuel and maintenance costs for EV drivers.[5] Policies to accelerate that transition are key elements in this CAP.

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[1] https://outside.vermont.gov/agency/anr/climatecouncil/Shared%20Documents/1990-2021_GHG_Inventory_Uploads/_Vermont_Greenhouse_Gas_Emissions_Inventory_Update_1990-2021_Final.pdf

[2] EAN, Assessing Vermont's Climate Responsibility, Updated March 2025.

[3] https://www.healthvermont.gov/sites/default/files/documents/pdf/ENV_CH_Transportation-Health.pdf

[4] EAN, Fossil Fuel Sales in Vermont report, 2025.

[5] At current average electricity rates in Vermont, electric vehicles can be fueled at approximately half the cost of gasoline vehicles, EAN 2024 Annual Progress Report. The size of the EV cost advantage will vary depending on

Lower-income Vermonters spend a greater proportion of their incomes on energy than upper income families. Transportation costs – primarily through owning, operating and maintaining a vehicle – make up about 45% of total energy expenditures for the average Vermont household. And because energy expenditures constitute a greater percentage of the household budget of lower income Vermonters, this reality places a disproportionate economic burden on these households. [6] Transportation recommendations in this CAP also aim to improve energy equity through thoughtful program design, incentives or new and expanded programs. [7]

Research also highlights that vehicle ownership is a significant requirement for job access and retention for lower income Vermonters.[8] Research found that "possession of a driver's license and a car was a stronger predictor of leaving public assistance than even a high school diploma," which speaks to the importance of vehicle access and ownership as an important justice issue.[9]

While the operating costs of electric vehicles are lower on an annual basis, the often-higher upfront cost of electric vehicles presents a barrier to getting EVs into the hands of households that can benefit most from the long-term cost savings. The relatively high cost of EVs and the limited number of pre-owned EVs available for purchase in Vermont means that EV uptake among lower income households has been lower than among more affluent households. Finding a continued source of funding for upfront incentives is essential to expanding the uptake of EVs among energy burdened households in the state.

changes in the price of electricity relative to the prices of gasoline and diesel fuel. Policies that limit avoidable increases in the price of electricity are an important factor in promoting electric vehicles and beneficial electrification generally.

[6] https://www.efficiencyvermont.com/Media/Default/docs/landing-pages/energy-burden-report/2023-EfficiencyVermont-EnergyBurdenReport.pdf

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

[8] https://ljfo.vermont.gov/assets/Uploads/9bc271c390/Reach-Up-Annual-Report_FINAL_2020.01.15.pdf

[9] https://www.sierraclub.org/sites/www.sierraclub.org/files/sce-authors/u2196/Arrive%20Together%20Transportation%20Access%20and%20Equity%20in%20Wisconsin.pdf

Transportation strategies to lower costs and reduce climate pollution

The GWSA requires us to take a comprehensive look at the pathways needed to reduce climate pollution, fuel costs and energy burdens. In the transportation sector as in the other sectors covered in the CAP, there is no single "silver bullet" policy to meet these goals. Achieving these goals will require short-term actions to sustain funding as well as serious consideration of tradeoffs inherent in each policy decision. This CAP covers the sector broadly by recommending four key pathways:

- Adopt a **cap and invest program,** including the transportation sector, to achieve GWSA obligations and create a sustainable revenue source for carbon- and cost- reducing transportation programs. We emphasize here, as we do in more detail elsewhere in the Chapter, that provisions to ensure equity in the design of the cap and in the distribution of benefits are essential elements of the cap-and-invest program that the CAP recommends.
- Reduce greenhouse gas emissions through **performance standards for vehicles.**
- Lower the **carbon intensity of fuels.**
- Reduce **dependence on private vehicles** through smart land use strategies and multi-modal transportation programs.

Together, these strategies will not only improve health outcomes and save Vermonters money but also set the state on a course to reduce transportation-related carbon pollution and more equitably shift to a cleaner, more accessible transportation system.

Pathway 1: Join a multi-jurisdictional cap and invest program covering transportation fuels and emissions

Vermont has made progress in transportation sector regulatory policy since the initial Climate Action Plan was adopted, particularly with the adoption of California's Advanced Clean Cars II and Advanced Clean Trucks standards (see Pathway 2). However, these new vehicle performance standards (which would apply, by definition, only to new vehicles purchased in Vermont or another participating state) are not yet in effect. There is also a possibility that

these rules will be delayed or their implementation barred by policy changes at the federal level. In sum, the clean cars programs are important but insufficient on their own to meet the GWSA's emission reduction requirements.

To make needed progress, Vermont must advance a primary regulatory or policy tool to reduce emissions – equitably and with certainty – in line with the obligations of the GWSA. The Climate Council has identified preparing for and joining a carbon cap and invest program, such as the Western Climate Initiative (WCI), or the New York Cap and Invest Initiative (NYCI), as the preferred approach to meeting the GHG emissions obligations in the GWSA.[10] Vermont has successfully participated in a similar cap-and-invest program for the power sector, the Regional Greenhouse Gas Initiative (RGGI) since 2009.

At the same time, there is recognition that additional policies will be needed to accelerate the pace of low-emission vehicle sales, to enhance public transportation options, to deploy electric vehicle charging points and to provide transportation assistance to lower-income Vermonters. As this CAP is being written, we do not know the details of the NYCI program. However, we do know that participating in a cap-and-invest program could be a powerful means of reducing climate pollution, lowering overall transportation costs, and supporting more equitable transportation options.

As re-affirmed by the Vermont Climate Council in November 2022, it remains clear that "*(t)he only currently known policy options for which there is strong evidence from other states, provinces and countries of the ability to confidently deliver the scale and pace of emissions reductions that are required of the transportation sector by the GWSA are one or a combination of: a) a cap and invest/cap and reduce policy covering transportation fuels and/or b) a performance standard/performance-based regulatory approach covering transportation fuels."*

[10] To be sure, the Western Climate Initiative stated in spring 2025 that it was not currently accepting new members, and New York has yet to implement its initiative. As of the writing of this Plan, there is not an immediate opportunity for Vermont to join a multi-state cap-and-invest program. However, this plan calls for taking the steps needed to join such a multi-state initiative in the future. The Council also recommends taking complementary actions to reduce emissions.

In this CAP, the Council continues to support this conclusion. The Council, however, also points to two reports since this 2022 statement that help provide more guidance on the ability of a cap-and-invest initiative to deliver the scale and pace of emissions reductions envisioned under the GWSA. One report is a technical study presented in early 2025. In addition, the Office of the State Treasurer issued a report responding to the technical work.

That is why, in this pathway, we recommend taking both administrative and legislative steps to monitor cap-and-invest options and undertake the necessary steps for Vermont to join a program, including: establishing the necessary reporting system within the ANR so that sales data and emissions rate baselines can be set, designing tools to address affordability concerns, and readying the state to receive and deploy potential program proceeds. These steps and others will support Vermont in joining a multi-state cap-and-invest program and should begin as soon as possible.

Pathway 2: Continue to participate in and to defend emissions performance standards for vehicles.

As recommended in the 2021 Climate Action Plan, Vermont moved forward with the adoption of the next phase of our state's long-standing participation in California's clean vehicle programs. In 2022, Vermont adopted both the Advanced Clean Cars (ACC) II program and the Advanced Clean Trucks (ACT) regulation. ACC II promotes the electrification of light-duty cars, requiring automakers to deliver a gradually increasing percentage of zero-emission vehicles into the Vermont market, eventually putting the state's car and light truck sales on a pathway toward 100 percent new electric vehicle sales by 2035. The ACT rule requires manufacturers to produce and sell an increasing percentage of zero-emission trucks and buses annually through 2035. Both programs – ACC II in particular – are foundational to achieving the targets of the GWSA and ensuring cleaner, more affordable vehicles are delivered to Vermont.

In recent actions, the federal government and other actors have sought to repeal California's (and thus Vermont's) authority to implement ACC II. Because implementing these rules is

essential to achieving needed emission reductions in Vermont, this CAP recommends a set of administrative actions to defend the ANR's authority to adopt ACC II, including working with other states on this and related regulations. We also recommend that the Attorney General join and participate in any litigation defending California's authority under the Clean Air Act.

Pathway 3: Continue transportation electrification by supporting the availability, accessibility, and affordability of EVs and reliable EV charging options

The beneficial electrification of transportation is an essential component of Vermont's clean energy future. We recommend a suite of policies and programs to advance the use of EVs in Vermont broadly and to make EVs affordable for lower-income Vermonters in particular. Recommendations include ensuring long-term consistent funding for EV incentives to low- and moderate-income vehicle purchasers; and the equitable deployment of fast-charging and Level 2 charging stations, in line with the Vermont Agency of Transportation's Electric Vehicle Infrastructure Deployment Plan.

Since the last CAP, Vermont has leveraged an unparalleled influx of federal funds to support investments in cleaner transportation. That included significant investments in electric vehicle incentive programs and EV charging infrastructure, helping support thousands of Vermonters in reducing pollution and saving money by switching to electric vehicles, with nearly 18,000 EVs registered in Vermont as of January 2025.[11] Federal and state funds also enabled significant investments in climate and equity-focused programs, like Mileage Smart and Replace Your Ride. Restarting and expanding electric vehicle point of sale purchase or lease financial incentives is important in that it can be an important consideration as car owners are deciding which vehicle to purchase, knowing that vehicle – whether fossil-fueled or an EV – may be on the road for a decade or more.

Many new and used electric vehicles are now available for purchase. They are more energy efficient than gas powered vehicles and cost far less per mile than a gas-powered vehicle to

[11] https://www.driveelectricvt.com/uploads/media/Documents/Maps/vt_ev_registration_trends.pdf

own and operate over time.[12] This means that rural Vermont drivers can see significant savings. A recent study estimated that a typical rural driver can save approximately $1,500 per year by switching from a conventional gasoline car to a comparable electric vehicle, made even more significant over the life of the vehicle [13]

This section and the related recommendations of the CAP focus on electrification of vehicles. However, aviation sector fuel switching is also actively advancing. Electric aviation has the potential to measurably reduce transportation sector emissions. Electric aircraft are currently being manufactured and tested in South Burlington by BETA Technologies, which has collaborated with VTrans to install two aircraft chargers at two state airport facilities. Reduced reliance on road vehicles for the movement of cargo and passengers in the years to come, has the potential to save both emissions and time.

Pathway 4: Invest in public, active, and shared transportation and support smart growth development patterns

This CAP, like its predecessor, recommends a range of programs and policies that can reduce emissions, improve public health, and provide improved mobility options to Vermonters. Avoiding car trips, reducing car trip lengths, and/or replacing car trips with clean and energy efficient transit, biking and walking options, carpool and rideshare programs and other non-single occupancy vehicle strategies have economic, equity and public health benefits – while also delivering climate emissions reductions. These policies are important for a host of reasons, even though they are unlikely to deliver the scale of GHG reductions that the GWSA requires and that the other three pathways in this section would accomplish – especially in the near term. Some of these options (e.g., carpooling and remote work options) can be implemented in the near term while some (e.g., building a bike path) may take a few years. On the other hand, building out a planned "smart growth" community center will take decades to meaningfully affect climate emissions.

[12] https://eanvt.org/wp-content/uploads/2025/01/EAN-APR-2024-updatedJan2025.pdf (Pages 5, 22)

[13] https://www.ucsusa.org/about/news/rural-communities-could-benefit-most-electric-vehicles