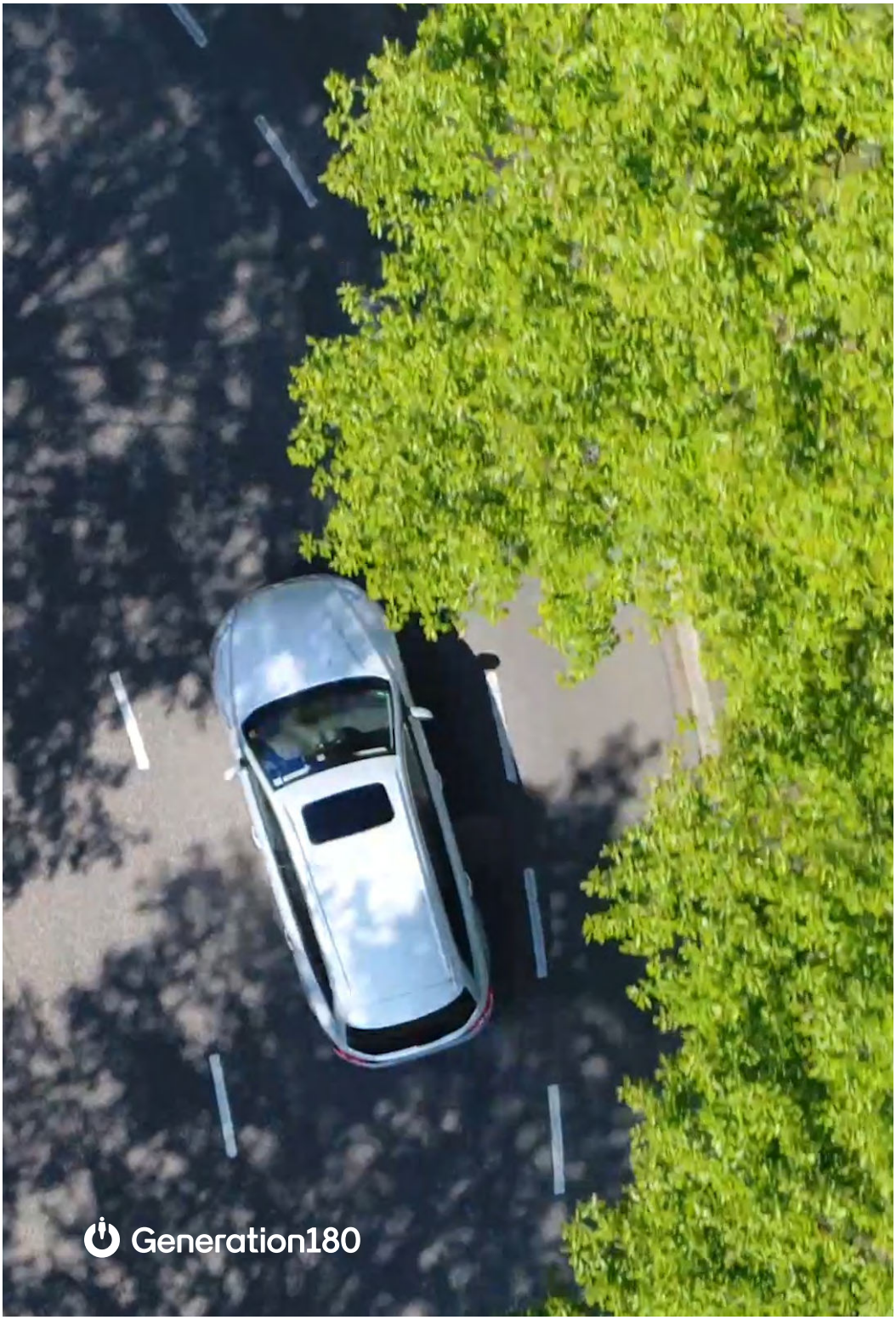
Virginia Drives Electric 2021

An Electrify Your Ride Campaign Report



Virginia Drives Electric 2021

Revitalizing and Electrifying Virginia's Transportation Sector

A REPORT BY GENERATION180

ACKNOWLEDGMENTS

Generation180 would like to thank the many individuals and organizations that contributed to the *Virginia Drives Electric 2021* report, including the Green Energy Consumers Alliance, Athenys Research, and contract editor Lisa Mastny.

Thanks also go to the entire Generation180 team for its hard work and dedication to this project. In addition, we extend a special thank you to the organizations listed below that have demonstrated their support for transportation electrification across the Commonwealth of Virginia and beyond.

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VIRGINIA CONSERVATION NETWORK

The Nature Conservancy Virginia

VIRGINIA ORGANIZING

VIRGINIA LEAGUE OF CONSERVATION VOTERS

VCCA Virginia Clinicians for Climate Action

Acadia Center

East Coast Greenway ALLIANCE

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Executive Summary

The *Virginia Drives Electric* report provides a comprehensive overview of the transportation sector in Virginia for advocates, policymakers, and engaged citizens, and examines the sector's role in the transition to a 100 percent clean energy future.

The analysis focuses on the sector's connection to public health, climate, and the economy, and identifies potential funding mechanisms that could help modernize and electrify Virginia's transportation sector. In addition to leveraging existing data to inform the report's conclusions, Generation180 conducted a representative statewide survey on transportation electrification and the Commonwealth's transition to a clean energy economy. The findings indicate that Virginians are overwhelmingly in favor of clean energy, electric mobility, and programs that accelerate the adoption of electric vehicles.

Virginia's transportation sector sits at the intersection of climate change, public health, the economy, and environmental justice. It is also the state's largest source of carbon dioxide emissions, resulting in negative climate, public health, and economic impacts. While the General Assembly took bold steps toward reducing emissions by passing the Virginia Clean Economy Act in 2020 and the Advanced Clean Cars Standards in 2021, additional action is needed to fully address pollution from the transportation sector. Cleaner alternatives such as public transit and rail need to be expanded, and thoughtful land use needs to be incentivized and pursued to reduce vehicle miles traveled. Simultaneously, there is an urgent need to accelerate the electrification of transportation to eliminate emissions from the vehicle trips that remain.

While transforming the Commonwealth's transportation sector is a daunting task, Virginia has a once-in-a-generation opportunity to lead in the country's clean energy transition and to transform the state's outdated and costly gasoline-powered transportation sector into a cleaner, electrified, more equitable system. With an emphasis on expanding access to cleaner mobility options, Virginia can begin to address longstanding inequities and further modernize its transportation system, creating positive health, climate, and economic benefits across the Commonwealth.

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Letter from the Executive Director

Our mission at Generation180 is to inspire and equip individuals to take action on clean energy and accelerate the transition to a healthier and more prosperous clean energy future. Part of this work includes increasing the accessibility of solar power and electric mobility so that more people can access these critical solutions.

Accelerating the transition to 100 percent clean energy and tackling the climate crisis will require significant investment from all levels of government and the private sector, but doing nothing will cost far more. Therefore, it is critical to identify robust and sustainable funding mechanisms, of which there are a number that are up to the task, that could enable Virginia to seize the opportunity of modernizing its transportation sector.

However, it is vitally important that advocates and legislators do their due diligence to ensure that such policies are designed and implemented equitably. Fair criticisms have previously been raised about certain programs not properly making space at the table for environmental justice communities and Virginia needs to make sure it doesn't make this same mistake. Our support for these policies is predicated upon an equitable design that leverages extensive community engagement and authentic outreach, prioritizing investments in disadvantaged communities.

Electrifying, modernizing, and expanding access to zero and low carbon transportation options will significantly improve Virginians' health and quality of life. We need to future-proof our state by investing in building a cleaner, more equitable transportation sector that supports all Virginians, and reap the economic and environmental rewards that come with accelerating the transition to a 100% clean energy economy.

Sincerely,

Wendy Philleo and the Generation180 Team

The past two years have put Virginia on the map for clean energy leadership.

Passage of the Virginia Clean Economy Act in 2020 made the Commonwealth the ninth U.S. state or territory to mandate a move to 100 percent carbon-free electricity, and in 2021 Virginia became the first southern state to adopt the Advanced Clean Car Standards.[1] While these policies were hard-fought wins for Virginia's health, climate, and economy, they are not sufficient on their own to tackle the climate crisis.

The Commonwealth needs to build on these successes and to continue addressing the state's harmful emissions, particularly from the growing transportation sector.

LURAY, VA
UNSPLASH

Virginia's transportation sector sits at the intersection of climate change, public health, the economy, and environmental justice. It is also the state's largest source of carbon dioxide emissions, resulting in negative climate, public health, and economic impacts.[2] To tackle these emissions, Virginia needs to rethink its transportation system across the board, shifting to cleaner and more equitable ways of getting around.

Transportation infrastructure is what connects Virginians to family and friends, food, housing, jobs, health care, and other essential services. Access to transportation is also the number one indicator of upward mobility, with studies showing that an individual's commute time is the single strongest factor in the odds of escaping poverty - the longer the commute, the lower the odds.[3] But clear disparities exist – both by income and by race – in access to the opportunity afforded by the transportation system in Virginia. This inequity is compounded by the fact that, on average, communities of color in the Northeast and Mid-Atlantic regions breathe 66 percent more air pollution from vehicles than white residents do.[4]

To fully address carbon pollution and create a cleaner, more equitable transportation sector, cleaner alternatives such as public transit and rail need to be expanded, and thoughtful land use needs to be incentivized and pursued, in order to reduce vehicle miles traveled. Simultaneously, there is an urgent need to accelerate the electrification of transportation to eliminate emissions from the vehicle trips that remain. The most recent United Nations climate report was clear that nothing short of transformational change will avert the worst of the climate crisis, but there is a better future within reach.[5] It is well past time for Virginia to address these inequities and to further modernize its transportation system – expanding public transit, accelerating transportation electrification, and reducing its reliance on fossil fuels.

...

As the world finds itself in this decisive decade to avoid the worst impacts of climate change, Generation180 developed this report to make the case for a clean mobility future, helping to transform the transportation sector in the Commonwealth.

Key Findings 2021

01

Support for Virginia's transition from fossil fuels to clean energy is strong.

When asked, "How important is it to you that Virginia reduce its dependence on fossil fuels and transition to clean energy?", 73% of respondents said it was "somewhat important" or "very important."

02

70% of Virginians think it's "somewhat important" or "very important" for Virginia to invest in modernizing and electrifying its transportation sector.

03

Over three-quarters of Virginians have a positive view of electric vehicles.

When asked, "Given what you know, what is your perception of EVs?", 79% of respondents said they had a "somewhat positive" or "very positive" view of electric vehicles. This is a 9% increase from the 2020 findings.

04

Over half of Virginians are likely to consider an electric vehicle for their next car.

Around 58% of respondents were "somewhat likely" or "very likely" to consider an electric vehicle for their next vehicle. This is a 5% increase from the 2020 findings.

05

The higher upfront cost of electric vehicles remains a barrier.

40% of respondents answered that the higher cost makes them "much less likely" or "somewhat less likely" to go electric. Conversely, 70% of respondents answered that access to discounts would make them "somewhat more likely" or "much more likely" to purchase an electric vehicle.

06

Nearly 70% of Virginians support state-level electric vehicle incentives.

Roughly 68% of respondents "strongly support" or "support" Virginia offering an electric vehicle incentive.

07

67% of Virginians "strongly support" or "somewhat support" Virginia implementing the Transportation and Climate Initiative.

Support held even after respondents were informed of the potential for a minor increase in gasoline prices.

Virginia's Transportation Landscape

AERIAL OF VIRGINIAN ROAD UNSPLASH

Impacts of Transportation Sector Emissions

Throughout the twentieth century, a complex network of roads, highways, ports, airports, and railroads was built all over the country. This infrastructure was often built through or adjacent to communities of color and lower-income communities.[6] At the same time, public transit was designed in ways that did not always meet the needs of these communities and many rural areas. Transportation planning and funding has historically been disproportionately focused on laying more and more petroleum-based asphalt roads as well as on accommodating single-occupancy gas-powered vehicles, often at the expense of other modes of mobility.[7] As a direct result, many of these communities have been cut off and isolated, separating people from jobs and public services, in addition to disproportionately increasing their exposure to vehicular pollution.[8]

This design has resulted in a dirty and inequitable transit system that has separated communities, resulted in endless commutes, and paved over millions of miles of Virginia's most important natural resources.[9] Virginians drive almost 234 million miles every day, and this alarmingly high level of driving has made transportation the largest source of carbon pollution in the state, accounting for 48 percent of total emissions. These emissions lead to negative health, economic, and climate impacts across the Commonwealth.[10]

TRAFFIC JAM EXHAUST
CEMEH C., ADOBE STOCK

Virginians drive almost 234 million miles every day. This alarmingly high level of driving has made transportation the largest source of carbon pollution in the state, accounting for 48% of total emissions.

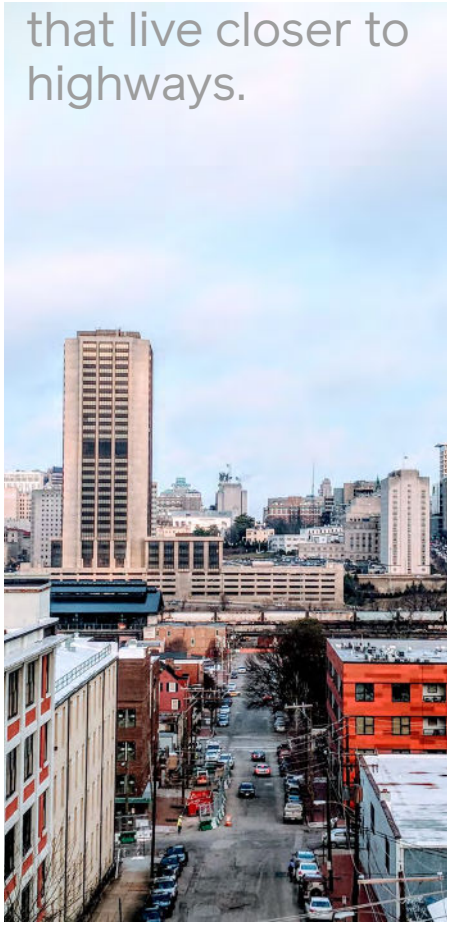
Health Impacts

Emissions from vehicle tailpipes create significant local air pollution, releasing nitrogen oxides, sulfur oxides, and particulate matter that is harmful to human health. Particulate matter – which includes airborne particles of soot and metals – can cause skin and eye irritation and allergies, and ultrafine particles can lodge deep in the lungs, leading to respiratory problems.[11] Hydrocarbons react with nitrogen dioxide and sunlight to form ground-level ozone, which can inflame the lungs and cause chest pain and coughing, making it difficult to breathe.[12] Carbon monoxide, released from the tailpipe, is particularly dangerous to infants and to people suffering from heart disease because it interferes with their blood's ability to transport oxygen.[13]

A 2020 study from Virginia Clinicians for Climate Action found that 10,000 lost workdays, 2,600 cases of exacerbated asthma, and 92 deaths per year are attributable to the release of transportation particulate matter ($PM_{2.5}$) emissions in the state.[14] These impacts are likely far greater when considering the full range of transportation emissions. A study led by the Harvard School of Public Health found that transportation-related $PM_{2.5}$, ozone, and nitrogen dioxide emissions led to 750 premature deaths in Virginia in 2016.[15] A recent study also found that rates of COVID-19 were higher in communities that live closer to highways, which tend to disproportionately be low-income communities, immigrants, and communities of color.[16]

These negative health impacts are even more pronounced among the most vulnerable populations in Virginia, including communities that live close to highways and other high-traffic areas. Nationwide, the transportation-related health burden is inequitably distributed, as communities of color in the Northeast and Mid-Atlantic regions breathe 66 percent more air pollution from vehicles than white residents do, on average.[17] These emissions lead to higher rates of respiratory issues (including childhood asthma), cardiovascular disease, and premature death.[18] This disparity in air quality has been even more evident during the COVID-19 pandemic, as prominent studies show that people living in neighborhoods with higher levels of fine particulate air pollution are more likely to die from COVID-19 infection than patients from areas with cleaner air.[19]

A recent study found that rates of COVID-19 were higher in communities that live closer to highways.



ROADWAYS
RICHMOND, VA
UNSPLASH

Economic Impacts

Even before the COVID-19 pandemic, the health impacts of tailpipe pollution were slated to cost Virginia $1.3 billion through 2050 in emergency room visits, lost workdays, and premature deaths.[20] On top of these costs are the millions of dollars that Virginians spend on imported fossil fuels to meet their transportation needs – $25 million per day.[21] Because the state has no operating petroleum refineries, most of the money spent on gasoline and diesel flows out of Virginia's economy and produces very few jobs. And the congestion plaguing the state's roads isn't just annoying – it costs the average household $2,000 annually in lost time and wasted gasoline.[22]

Transportation represents the second largest expense for many Americans.[23] The average middle-income household devotes nearly a fifth of its income to transportation costs.[24] Over a quarter of that goes just to gasoline and motor oil.[25] For low-income households in particular, transportation consumes around 30 percent of total income.[26] In addition to being a large household expense, fuel costs are the most volatile cost component of total household transportation spending.[27] Because low- and middle-income households devote a larger share of their income to transportation compared to higher earners, these communities stand to benefit most from the cost savings associated with electric vehicle ownership and expanded access to public transit options.[28]

NATURAL GAS PIPELINE CONSTRUCTION
CEHA, ADOBE STOCK

Virginia spends **$25 million per day** on imported fossil fuels to meet its transportation needs.

The Social Cost of Carbon

The social cost of carbon (SCC) is used to estimate in dollars all economic damage that would result from emitting one ton of carbon dioxide into the atmosphere. In other words, the SCC translates the future harm inflicted by the release of one additional ton of carbon dioxide into a present monetary value.[29] To put a ton of carbon dioxide into perspective, a typical passenger vehicle produces roughly 4.6 metric tons of carbon dioxide per year.[30]

In February, the Biden administration agreed on a tentative new number for the SCC—essentially, putting a dollar amount on the impact every ton of carbon dioxide has on society and the environment.[31] The new figure is $51 per ton.[32] This means that every time the government considers a project or purchase, this carbon cost now needs to be added to the calculus, potentially changing it dramatically.

The logic behind the approach is simple: if policymakers have a better understanding of the actual societal costs associated with decisions that involve burning fossil fuels (like supporting a new coal power plant), then they might think differently about whether or not to pursue it (opting instead for a cheaper, cleaner choice like investing in solar or wind power).[33] This type of carbon valuation could reshape significant decisions at the federal level, ranging from whether to allow new coal leasing on federal land, to determining what kind of materials to use in infrastructure projects, to deciding car and truck emissions standards and which highways or pipelines can be built.[34] [35] And applying it to the transportation sector could encourage drivers to switch to cleaner, more fuel-efficient vehicles, helping reduce emissions.

There are many policies that could potentially curb carbon dioxide emissions and slow climate change, some of which are projected to cost trillions of dollars for governments and taxpayers.[36] This high cost is often used to justify why tackling the climate crisis is too expensive, but it's clear that the cost of inaction is far greater especially when considering the social cost of carbon.[37]

Climate Impacts

The burning of fossil fuels such as gasoline and diesel releases carbon dioxide into the atmosphere. The buildup of carbon dioxide and other greenhouse gases like methane, nitrous oxide, and hydrofluorocarbons is causing the Earth's atmosphere to warm, resulting in changes to the climate that are already visible today.[38] Virginia's transportation sector is the state's largest source of greenhouse gas emissions, releasing over 52 million metric tons into the atmosphere each year.[39]

Climate change is already making communities across Virginia increasingly vulnerable to extreme weather, and population centers located near the coast and near tidal rivers are experiencing more and more flooding.

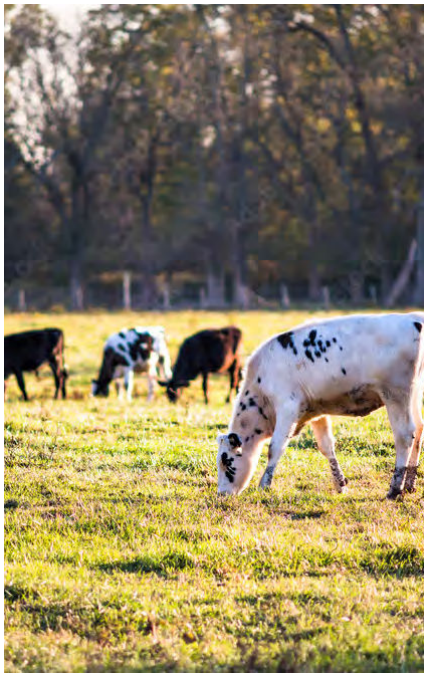
Scientists project that Virginia will experience at least 1.5 feet of sea-level rise over the next 20-50 years, putting coastal communities increasingly at risk.[40] Hampton Roads is the second-most vulnerable area in the country to rising seas, behind New Orleans.[41]

PORTSMOUTH
VIRGINIA ACROSS THE
ELIZABETH RIVER
HAMPTON ROADS, VA
CHRISTOPHER BOSWELL,
ADOBE STOCK

Scientists project that Virginia will experience at least 1.5 feet of sea-level rise over the next 20-50 years, putting coastal communities increasingly at risk. Hampton Roads is the second-most vulnerable area in the country to rising seas, behind New Orleans.

Virginia's agricultural sector – one of the state's largest industries by far – is also threatened by climate change. The sector faces growing risks to production from harmful effects of extreme heat on livestock, drought affecting water supplies and crops, and invasive weeds and pests that thrive in a warmer climate.[42] Virginia summers are undeniably getting hotter.[43] The year 2020 was the Earth's second-hottest on record, just behind 2016.[44] And this record may soon be broken, as June 2021 was the hottest June ever recorded in the United States.[45] According to the National Oceanic and Atmospheric Administration's annual temperature outlook, 2021 will almost certainly rank among the planet's 10 warmest years on record.[46]

The impacts of climate change are already here, causing real, tangible harm, and Virginia's response must match the enormity of the challenge.

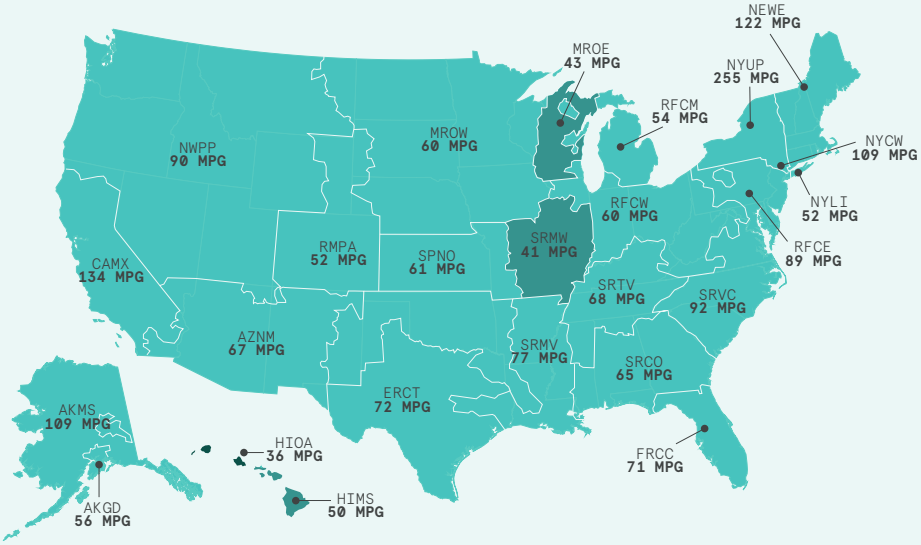


GRAZING COWS ON VIRGINIAN PASTURE
ANDRIY BLOKHIN, ADOBE STOCK

Electric Cars are a Climate Solution

EV Emissions as Gasoline MPG Equivalent

AVERAGE EV, 2021*



GOOD
31-40 MPG

BETTER
41-50 MPG

BEST
51+ MPG

*BASED ON 2019 REPORTED ELECTRICITY GENERATION EMISSIONS

Accelerating adoption rates of electric vehicles (EVs) is key to decarbonizing the transportation sector. One argument against EVs made by those that wish to maintain the fossil fuel powered status quo is that driving electric isn't actually cleaner than gasoline, but this is false.[47]

The average EV is cleaner than the average new gasoline vehicle everywhere in the US, even when the electricity used to charge them comes from a conventional power mix.[48] Here in Virginia, EVs produce 70% less emissions than a comparable gasoline powered vehicle. As more EVs hit the road and Virginia's electrical grid gets cleaner and cleaner, these emissions reductions will continue to rise. This is a distinct advantage EVs have over gasoline-fueled vehicles.

Transportation Landscape by Mode

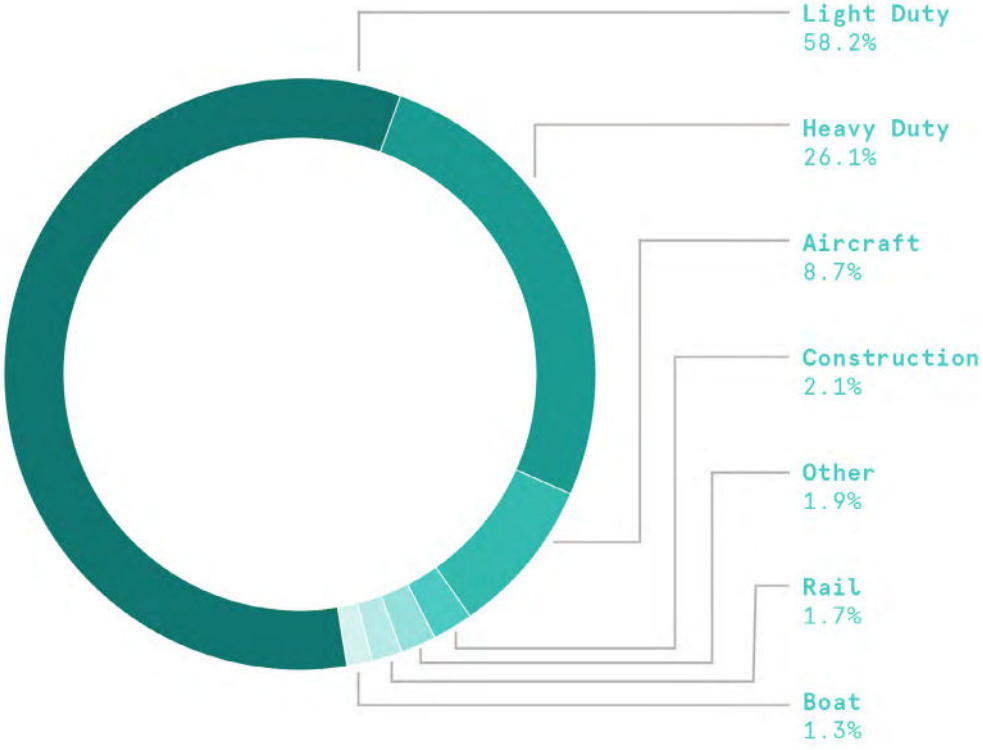
Addressing emissions from Virginia's transportation sector will require doing more than simply electrifying personal transportation across the Commonwealth – the key is reducing vehicle miles traveled while electrifying the rides that remain.

It can take time to expand access to biking, walking, and public transit transportation options, so it is critical to start now. Simultaneously accelerating transportation electrification can help to ease this transition, providing significant health, climate, and economic benefits for all Virginians.

Prior to the COVID-19 crisis, 87 percent of Virginia commuters got to work by driving, 4.4 percent took public transit, 3.8 percent walked, biked or used other modes, and 4.5 percent worked from home.[49] Although the pandemic has increased the number of Virginians working remotely, people are returning to their commutes.

GHG Emissions by Vehicle Type in Virginia

2018



SOURCE
Virginia Department of Environmental Quality, "Statewide Greenhouse Gas Efforts: Commonwealth Transportation Board Environmental Subcommittee Meeting Slide Desk," 15 September 2021.

Download here.

Single-Occupancy Vehicles

There are 7.5 million registered vehicles in the Commonwealth, resulting in an average of almost 234 million vehicle miles traveled (VMT) every day.[50] From 1990 to 2010, vehicle miles traveled in the state grew 36 percent.[51] For the past twenty years, the increase in road use and VMT has significantly outpaced growth in overall road capacity, leading to increased congestion.[52] According to TRIP, a national transportation research nonprofit, congested roads cost Virginia's drivers $4.6 billion each year in the form of lost time and wasted fuel.[53]

In the most congested urban areas, drivers spend as many as 102 hours per year sitting in traffic. Congestion also reduces worker productivity; exacerbates road and vehicle wear-and-tear; and increases driver stress, aggression, and certain kinds of vehicle accidents.[54] This problem will only get worse as the population continues to grow, adding even more drivers to the roads.[55] Unfortunately, expanding roadways will not solve the congestion problem, and would actually exacerbate other related issues.[56]

OVERHEAD TRAFFIC
SERGIO SOUZA,
ADOBE STOCK

The total cost of traffic associated with lost time and wasted fuel exceeds $100 billion in the U.S. each year.

Economic and Emotional Impacts of Congestion

Congestion has become a serious drain on the economy. The total cost of traffic associated with lost time and wasted fuel exceeds $100 billion in the U.S. each year.[57] Congestion increases fuel consumption, the cost to move goods and services, the number of crashes, and tailpipe pollutants harmful to human health.[58] But research also shows that congestion inflicts high emotional costs in addition to economic ones, adversely impacting quality of life.[59] Traffic congestion has been linked to depression, anxiety, low job satisfaction, and even domestic violence.[60]

Expanding access to transportation options that aren't reliant on single occupancy vehicle use – such as public transit, ride share, and safer biking and walking options – can help reduce congestion and alleviate these negative impacts.[61]

Public Transit

Increasing the use of public transit is key to reducing vehicle miles traveled, but access to reliable transit is not ubiquitous in the Commonwealth. For example, a 2018 study found that in the Richmond region, only 28 percent of people and less than half of low-income households live within a quarter mile of a bus stop, compared to 82 percent of the population and 91 percent of low-income households in Washington, D.C.[62] Too often, bus riders are forced to wait up to an hour for a bus, without benches or shelters to protect them — and that is if the buses come at all. In 2018, riders of Hampton Roads Transit (HRT) had to deal with 18,653 scheduled buses that never showed up.[63]

According to a 2019 Washington Post poll, Virginia residents reported that driving themselves to work was a more reliable and convenient option than transit, because in many cases public transportation isn't easy to reach and is too infrequent and limited in its service hours.[64] While these circumstances are unacceptable, the reality is that Virginia's transit providers are doing the best they can with their extremely limited resources. Two of the state's biggest bus systems – HRT and the Greater Richmond Transit Company – were ranked among the three worst-funded public transit systems in the country per capita.[65] It is no wonder that such a low percentage of Virginians utilize public transit.

Unfortunately, the COVID-19 pandemic has caused ridership to plummet even further.[66] Nationwide, public transit ridership dropped 79 percent in 2020 compared to pre-pandemic levels.[67] While some riders have returned to transit, in June 2021, the nationwide ridership of some bus, subway, and commuter rail systems was still down nearly two-thirds from 2019 levels.[68]

PUBLIC TRANSIT
RICHMOND, VA
UNSPLASH

School Buses

In addition to the buses that make up much of Virginia's public transit system, the Commonwealth is home to 17,000 school buses – the overwhelming majority of which are diesel powered.[69] These buses release harmful substances, including hydrocarbons, carbon monoxide, and other hazardous air pollutants, into the air. Research has shown that children who ride diesel school buses experience more pulmonary illnesses.[70] Add to that inefficient routing that puts buses on the roads longer than necessary, as well as the lack of green practices in bus maintenance facilities, and the school bus industry's carbon footprint takes on gigantic proportions.[71]

State level funding mechanisms exist to help Virginia electrify its school bus fleet, but they barely scratch the surface. When Virginia was allotted $93.6 million from the Volkswagen Environmental Mitigation Trust, the state designated $20 million of that to clean school buses, including battery electric and propane. The money covers the price difference between diesel and cleaner buses – up to $265,000 per electric bus or up to $20,000 per propane bus.[72] The first $10 million of the VW settlement funds has been allocated at this point, replacing 83 diesel buses with 39 electric and 44 propane school buses.[73] While better than diesel, It is important to note that propane school buses still produce tailpipe emissions, including ultrafine particles and carbon dioxide.[74]

In addition to the VW settlement funds, Dominion Energy, the primary energy utility in Virginia, launched a pilot program in August 2019 to electrify school buses. Under the pilot, in which the utility would own the bus batteries, school districts pay the cost of a diesel bus — roughly $115,000 — and Dominion covers the difference. Dominion's pilot program invited schools within its service territory to apply for a share of 50 electric buses. Currently, the program is not slated to expand beyond the first 50 buses without further legislative approval.[75] It's a start, but ultimately these two programs have replaced less than 1% of the harmful diesel school buses on Virginia's roads.

More than 99% of Virginia's school buses are powered by diesel.

LINE OF DIESEL SCHOOL BUSES
UNSPLASH

Biking and Walking

Equitable access to biking and walking is a similar story to that of public transit. Nationwide, 43 percent of people report the desire to ride bicycles more.[76] Many Virginians do not walk or bike as much as they would like because the infrastructure does not allow them to do so.

Biking on Virginia's roads often feels unsafe, and pedestrian fatalities have surged across the Commonwealth over the last decade.[77] Pedestrian deaths per billion vehicle miles traveled in Virginia increased in 2020, even though car traffic fell overall due to the pandemic, highlighting a need for safer infrastructure.[78] And as road and pedestrian fatalities continue to climb, pedestrians of color are up to twice as likely to be killed.[79]

CITY BIKING
UNSPLASH

Nationwide, 43% of people report the desire to ride bicycles more.

The Need for Change

Addressing these inequities and modernizing the Commonwealth's transportation sector is admittedly a daunting task. Even more so when one considers the relatively small window of time that Virginia – and the rest of the globe – has to address climate change.[80] Reducing vehicle miles traveled, expanding and electrifying public transit, and creating safer and more walkable and bikeable communities – all while simultaneously electrifying the remaining vehicles on the road – will require a methodical strategy combined with thoughtful and significant investment, but Virginia is up to the challenge.

Modernizing the transportation sector and using cleaner vehicles to move people and goods will help Virginia reduce transportation emissions while supporting its transition to a clean energy economy. Expanding public transit combined with ongoing expansion of the state's electric vehicle charging infrastructure as part of the transition to electric mobility will bring numerous benefits – including creating and supporting new jobs across the state, decreasing expenses for Virginia's families, and putting dollars back into the local economy.

Modernizing the Commonwealth's transportation sector is admittedly a daunting task, but Virginia is up to the challenge.

PEDESTRIAN TRAFFIC
UNSPLASH

Thankfully there is significant constituent support for tackling these issues. In Generation180's 2021 representative statewide survey, 73 percent of respondents said it was "somewhat important" or "very important" for Virginia to reduce its dependence on fossil fuels and transition to clean energy, and 70 percent answered that it is "somewhat important" or "very important" for Virginia to invest in modernizing and electrifying its transportation sector.

CHILDREN HELPING CHARGE CAR
GETTY IMAGES

The Transit Equity and Modernization Study (HJ 542)

Virginia's transit system has experienced decades of underfunding and disinvestment. Expanding public transit access is key to reducing vehicle miles traveled and helping address emissions from the transportation sector, and a new study being led by the Department of Rail and Public Transportation (DRPT) may help determine the best path forward.

The 2021 General Assembly passed HJ 524 – the Transit Equity & Modernization Study – patroned by Delegate Delores McQuinn from Richmond, Virginia. The legislation instructs DRPT to conduct a two-year study of transit equity and modernization in the Commonwealth, with a particular emphasis on transit services and engagement opportunities for underserved and underrepresented communities.

"This study will be looking at how transit service is provided, its accessibility, the adequacy of existing infrastructure, how we can best deploy emerging technology, safety, electrification, how transit systems engage with riders and how riders are represented," said Jennifer DeBruhl — chief of public transportation for DRPT.

An initial report is due to the General Assembly in December 2021, with the final report due in August 2022. The report will serve as a strategic assessment to guide investment towards a more equitable transit system in the Commonwealth.[81]

A TEMPORARY BUS STOP SIGN AT BROAD AND SEVENTH STREETS IN RICHMOND
VCU'S "THE BUS STOPS HERE PROJECT"

Funding a Better Transportation System

Creating a cleaner, modern, and more equitable transportation sector in Virginia will require significant funding, but the research is clear that not addressing climate change will cost far more.[82]

Overall, climate change is predicted to cost the United States more in economic damage than almost any other country, second only to India.[83] It is not simply the federal government's job to address climate change – state and local governments have a role to play, too.[84]

While Virginia could use taxpayer dollars to do this critical work, there are other potential funding mechanisms to consider. One such mechanism is the Transportation and Climate Initiative Program (TCI-P), a regional "cap-and-invest" program that reduces carbon emissions from the transportation sector.

If implemented, the TCI-P could generate $251 million in 2023 and $3 billion over 10 years for Virginia to invest in equitable transportation projects that benefit communities.[85]

MOTION BLURRED BICYCLISTS IN TRAFFIC CONNEL DESIGN, ISTOCK

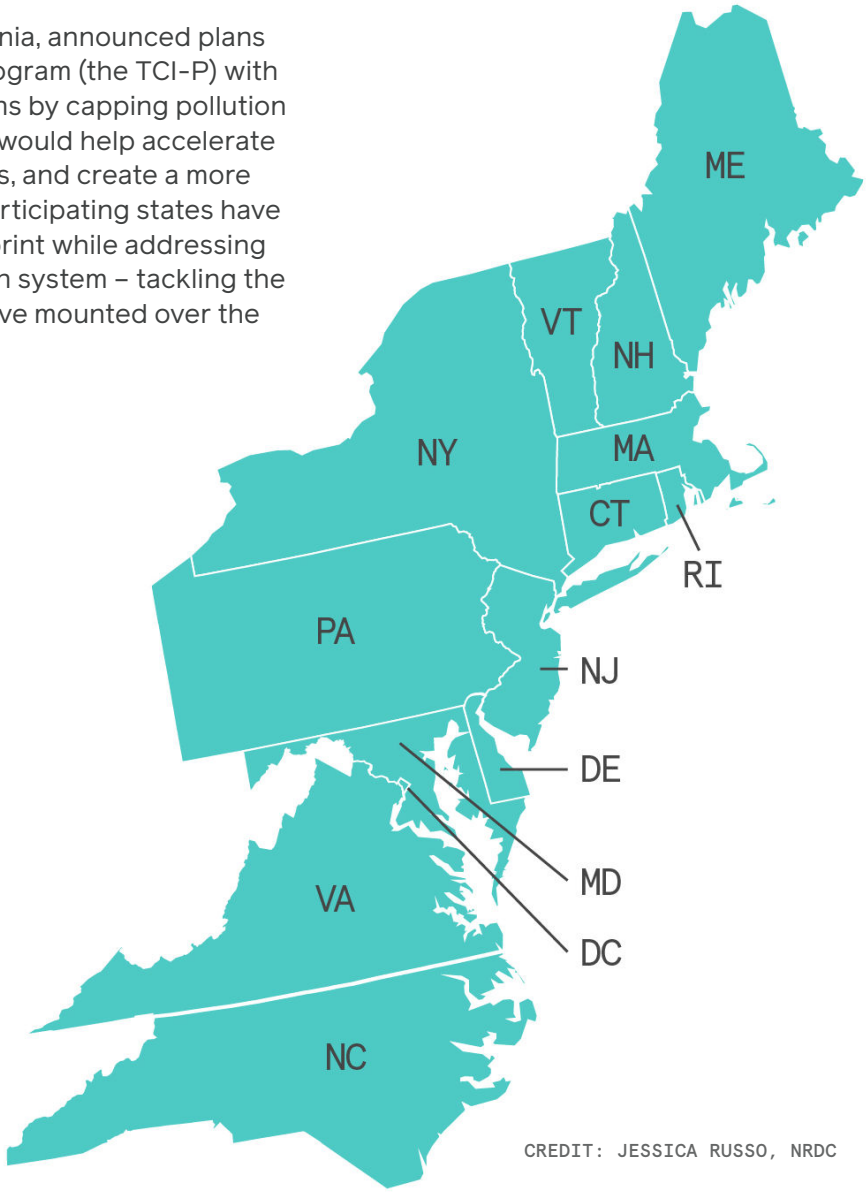
How the TCI-P Works

The Transportation and Climate Initiative (TCI), founded in 2010, is a collaboration of 13 states and the District of Columbia committed to decreasing greenhouse gas emissions from transportation sources.[86]

In 2018, nine of the members, including Virginia, announced plans to create a market-based cap and invest program (the TCI-P) with the goal of reducing transportation emissions by capping pollution and investing the proceeds in projects that would help accelerate transportation electrification, bring new jobs, and create a more equitable transportation sector overall.[87] Participating states have an opportunity to reduce their carbon footprint while addressing longstanding inequities in the transportation system – tackling the health, climate, and economic issues that have mounted over the last several decades.[88]

States part of the TCI-P planning group:

Connecticut
Delaware
Maine
Maryland
Massachusetts
New Hampshire
New Jersey
New York
North Carolina
Pennsylvania
Rhode Island
Vermont
Virginia
Washington, DC



CREDIT: JESSICA RUSSO, NRDC

The TCI-P would establish a regional cap on climate-warming emissions from burning fossil fuels used for road transportation. States would keep track of the cap by requiring fuel suppliers (not gas stations) to purchase an allowance for each metric ton of climate-warming gas released from the fuels they distribute. The number of allowances available in any given year is equal to the cap, and the cap would decline over time to drive down emissions. The sale of the allowances generates revenue to be invested in alternative, cleaner modes of travel that reduce the use of gasoline or diesel.[89]

PLANT PIPE WITH SMOKE
MAZUR TRAVEL ADOBE STOCK

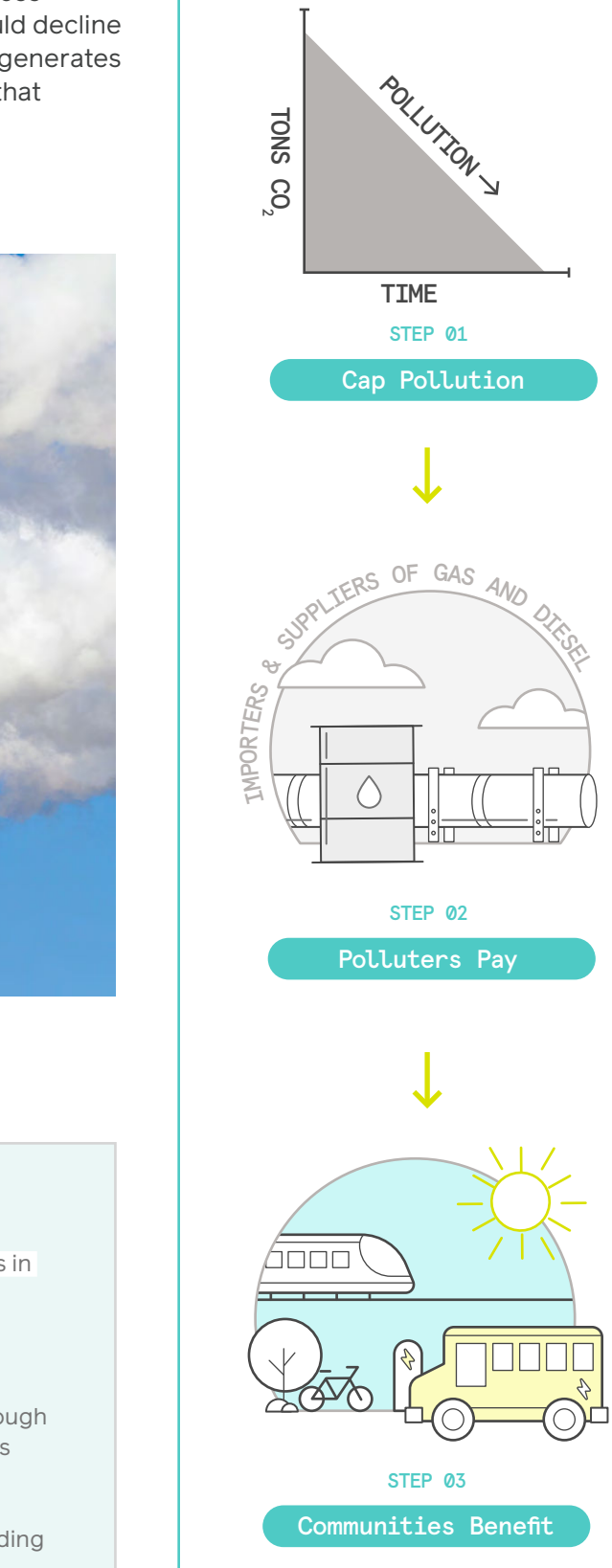
A Just Transition for Gas Stations and the Automotive Workforce

According to the Labor Network for Sustainability: A 'just transition' means a path or plan for those workers displaced by transformations in the economy.[90]

In terms of a clean energy transition, this can refer to supporting electrical workers displaced from jobs in coal plants. Considerable emphasis has been placed on helping those in the power sector through this transition, but a just transition must also apply to those in the gas station and automotive industry.[91]

Funding from the TCI-P could help support a just transition by providing financial support for gas stations to install EV chargers while also supporting workforce development training for industries impacted by the transition from fossil fuels.[92]

How the TCI-P Would Work



ORIGINAL CONCEPT:
JESSICAN RUSSO, NRDC

Unlike a carbon tax, which would put a fee on every gallon of fossil fuel sold in-state, the TCI-P is a market-based mechanism. That means fuel suppliers can reduce their compliance costs with the program's cap by selling less-carbon-intensive fuels, such as biodiesel, or by shifting to cleaner ways of moving people and goods.[93] The multiple methods of compliance give an advantage to businesses that can reduce emissions at the lowest possible cost.

Over the span of the 10-year program, the number of allowances decreases to ensure that each state reduces transportation carbon pollution at least 30 percent by 2032, helping Virginia tackle its leading source of greenhouse gas emissions.[94]

The Regional Greenhouse Gas Initiative

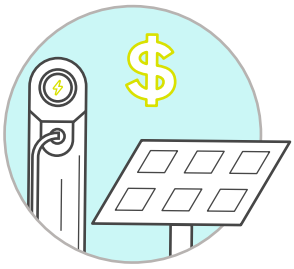
The TCI Program is modeled after the Regional Greenhouse Gas Initiative (RGGI), a successful multi-state cap-and-invest program to reduce emissions from the power sector.[95]

Virginia joined the RGGI program in 2020 and estimated the potential revenue to be between $106 million and $109 million for the first year. After the first of the quarterly auctions in March 2021 brought in over $43 million, however, it became apparent that revenues could exceed $174 million for just 2021.[96] RGGI funds are being spent on energy efficiency and coastal resiliency programs in the Commonwealth, with a particular focus on disadvantaged communities. For example, RGGI funding is helping Charlottesville, VA's affordable housing complex – Friendship Court – rebuild with top-of-the-line energy efficiency measures.[97]

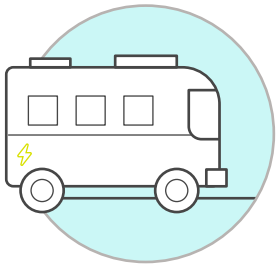
This cap-and-invest model has been effective in reducing emissions in the power sector across the Mid-Atlantic. Virginia, together with Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont, all participate in the RGGI program. The RGGI program caps the emissions of power plants and allows participating states to invest in a variety of greenhouse gas abatement and climate change mitigation strategies. The program was designed to contribute to a 45 percent reduction in the region's annual carbon dioxide emissions from the power sector by 2020 (from 2005 levels), and, indeed, emissions from RGGI-regulated power plants fell 47 percent.[98]

As of 2017, the RGGI program had delivered an estimated $5.7 billion in monetized health benefits to participating states, net economic benefits of $4.7 billion, and more than 40,000 job-years.[99] Although supporters of fossil fuels attack RGGI as a rate hike and a job-killer, a study by the Acadia Center found that retail electricity rates in the participating states decreased between 2008 and 2018.[100] [101] Furthermore, RGGI states were able to reduce climate-warming emissions 90 percent faster than the rest of the country while growing 31 percent faster economically. [102]

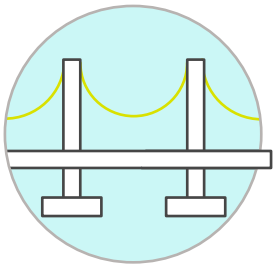
Possible Benefits of TCI-P



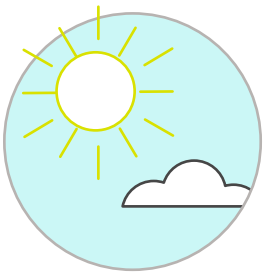
Jobs and Economic Growth



Better Public Transportation



Modern Resilient Infrastructure



Healthier Communities

ORIGINAL CONCEPT:
JESSICAN RUSSO, NRDC

Impact on Gas Prices

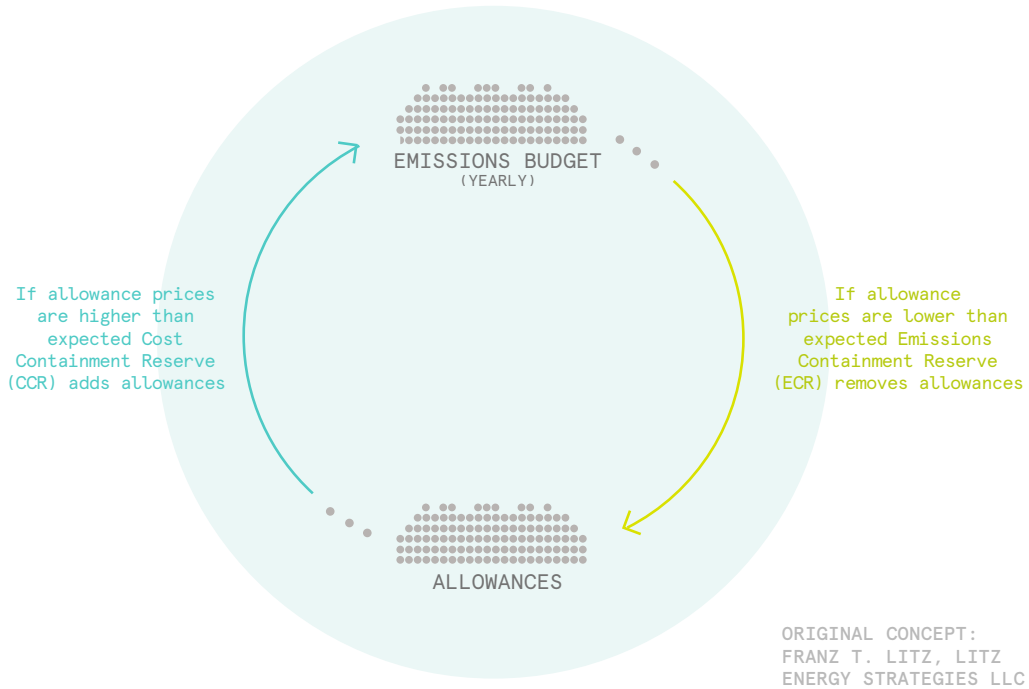
Opponents of the TCI-P claim that gas prices would dramatically increase under this policy, increasing prices by even 50 cents per gallon upon its implementation. The reality is that the program is structured specifically to keep that from happening.

Although the exact cost will depend on the outcome of the auctions, modeling from the Georgetown Climate Center shows that the TCI-P is designed around a price increase of no more than 5 to 9 cents per gallon of gasoline or diesel.[103]

The TCI-P leverages two specific stability mechanisms to keep the price impact of the program within its intended range. The Cost Containment Reserve and the Emissions Containment Reserve will automatically add or remove allowances from the available pool to control the program's effect on gas prices while ensuring emissions reduction. In other words, if allowance prices fall too low or climb too high because of unpredictable or unexpected changes in the fuels market, the program will self-correct. Because of these safeguards, there is no scenario in which the TCI-P increases the cost of fuel more than 9 cents per gallon.[104]

Managing Price Risk

These two stability mechanisms work together to ensure maximum emissions reductions are achieved with minimal impact to gas prices.



ORIGINAL CONCEPT:
FRANZ T. LITZ, LITZ ENERGY STRATEGIES LLC

Moreover, the projected price impact on fuels is minimal compared to the historical variation in gasoline prices that is caused by fluctuations in the global petroleum supply chain. The cost of gasoline in Virginia regularly fluctuates well beyond 9 cents – and it often leaves Virginians paying increasingly higher prices without any benefits. The health care costs of air pollution, and the costs of continuing inaction on climate change, far exceed the direct cost of the TCI-P to consumers.[105]

Opponents also argue that this program would result in limitations on the amount of fuel that can be sold, creating fuel shortages. This argument is a red herring. The TCI program design provides compliance flexibility and stability mechanisms help to avoid any limitations on fuel sales in participating states. The predictable nature of the cap will allow businesses regulated by the TCI-P to build compliance into their decarbonization plans, and businesses can buy and save extra allowances to use if necessary in future years.[106]

The projected price impact on fuels is minimal compared to the historical variation in gasoline prices.

The TCI-P's Impact on Gas-Powered Car Fueling Costs

Opponents of the TCI-P argue that this policy will make car ownership unaffordable because of it's impact on gas prices, but the reality is that the price impact is less than 2 percent of annual fuel costs. For example, an increase of 5 cents per gallon has a minimal impact on drivers, particularly when one considers the annual fuel costs and the annual cost of car ownership.

Below are sample cost considerations for six of the most popular cars in Virginia, representing two pick-up trucks, two sport utility vehicles (SUVs), and two midsize sedans.

VEHICLE	MILES PER GALLON	AVG. 2019 ANNUAL FUEL COSTS	ADDITIONAL ANNUAL COST FROM THE TCI-P
FORD F-150	20	$1,539	$31
CHEVROLET SILVERADO	17	$1,811	$36
TOYOTA RAV4	30	$1,026	$21
HONDA CR-V	28	$1,099	$22
TOYOTA CAMRY	34	$905	$18
HONDA CIVIC	33	$932	$19

Note: Assumes that the average Virginia driver travels 12,372 miles annually and that the gasoline price is $2.49 (the 2019 average for the lower Atlantic).[108]

For these vehicles, the TCI-P would add between $18 and $36 to a driver's annual fuel costs. This is just 2 percent of total annual fuel costs for drivers of gasoline-powered vehicles.[107] Unfortunately for many drivers, fuel costs represent just a small fraction of the total costs to own a vehicle - the costs of registration, insurance, financing, depreciation, taxes, and maintenance all pile up. The potential for the TCI-P to have a negligible impact on gas prices is not what makes car ownership unaffordable.

In fact, the TCI-P could help alleviate this issue by expanding access to public transit, biking and walking, and electric vehicles, helping to make gas prices a thing of the past.

Ensuring Equity

In general, drivers with low and moderate incomes devote a larger share of their income to transportation than higher-income households.[109] Owning a gasoline-powered car is expensive and can be a huge burden on personal finances, particularly for households that own older vehicles that are more prone to expensive maintenance and repair or that live in rural areas with greater distances between destinations.[110] This issue is compounded by the reality that in many areas, a gas-powered car is the only option to access jobs, food, health care, housing, and other basic needs.

Because of these complexities, any increase in gas prices could disproportionately impact low-to-moderate-income communities.[111] If implemented thoughtfully, however, the TCI program can help create more affordable and equitable transportation options for all Virginians, particularly low-income disadvantaged communities. Making electric vehicle ownership more accessible, expanding public transit, and creating safer walkable and bikeable communities are all more affordable modes of transportation than owning and relying on a gas-powered car.

PASSENGERS ON PUBLIC TRANSIT
DGL IMAGES, ADOBE STOCK

The TCI program can help create more affordable and equitable transportation options for all Virginians, particularly low-income disadvantaged communities.

However, these alternative modes will only be accessible to Virginians if the state makes major infrastructure investments to enable these choices in the same way that it invests in highways and roads to enable driving. Thus far, Virginia has failed to support these needed investments year after year.[112] The federal funding being considered by the U.S. Congress in both the bipartisan infrastructure package and the budget reconciliation package could be significant but is not sufficient on its own – states still have a role to play.[113] [114] History would suggest that without the TCI-P and the significant new funding it can provide, Virginia is unlikely to make these investments.

COUPLE EXERCISING OVER PAVED BRIDGE
RAWPIXEL.COM, ADOBE STOCK

Without the TCI-P and the significant new funding it can provide, Virginia is unlikely to make these investments.

Portland Clean Energy Fund

While the TCI-P is potentially the most robust funding mechanism for revitalizing the transportation sector in Virginia, there are additional policy ideas that can and should be considered. The Portland Clean Energy Fund is an example of one such policy.

In November 2018, frontline community leaders from the Portland, Oregon area who represent communities that are most impacted by climate change made history by successfully campaigning and passing a ballot initiative to create the Portland Clean Energy Fund (PCEF).[115] This breakthrough initiative raises an estimated $44 million to $61 million per year to support local clean energy and environmental justice initiatives.

The passage of the PCEF instructs large corporations that generation at least $1 billion in annual gross revenue and at least $500,000 in Portland-based sales to contribute 1 percent of their annual gross revenue to the locally managed fund.[116] The funding specifically supports local clean energy, energy efficiency, and climate justice projects.

Nonprofit organizations – both on their own and in partnership with for-profit companies, schools, and/or other government agencies – can apply for grants from the fund to help weatherize homes, install solar and other renewable energy projects, provide workforce development training, and build green infrastructure in Portland.

The most recent round of funding awarded 45 grants to 38 organizations working on clean energy, regenerative agriculture, green infrastructure, and workforce development – totaling $8.6 million.[117]

In addition to ensuring that the potential TCI-P investments are distributed equitably, Virginia must also commit to genuine outreach to disadvantaged communities on the program's design and implementation.

To make the TCI-P both effective and equitable, it is critical that the people and communities impacted the most play a key role in the policies being written and the decisions being made. Market-based mechanisms that pre-date the TCI-P have previously not made room for the voices of disproportionately impacted communities. These same community members have unique, lived experiences that make them particularly qualified to advise on how these programs should be structured to work for and benefit their communities.

TOWNHALL MEETING
PUBLIC DOMAIN

Community Listening Sessions

According to Green for All - an environmental justice organization working to build a green economy while lifting people out of poverty - an effective carbon pricing program that delivers equitable results must engage and be responsive to the needs of impacted communities throughout the policy design and implementation process.[118]

Far too many market-based mechanisms that pre-date the TCI-P have not made room for the voices of disproportionately impacted communities. These same community members have unique, lived experiences that make them particularly qualified to advise on how programs must be structured to work for and benefit their communities.

It is critical that this mistake is not made when considering this program in Virginia, and that administrative agencies take primary responsibility for this important work. Environmental justice groups, community led organizations, and other nonprofits should be brought in to lead the conversation and help guide how the program should be structured.

To that end, several nonprofit organizations – including Virginia Organizing, the Virginia Environmental Justice Collaborative, Generation180, and Ceres – came together in July 2021 to start these important conversations and hear different perspectives on how the existing transportation system in Virginia can and should improve, and what projects should be prioritized. This session focused on the Tidewater region, providing a safe space where community members could learn about how the TCI program works, share their perspective on how potential funding should be prioritized, and express questions or concerns.

Two key takeaways were voiced repeatedly:

1) Efforts to elevate impacted community voices with regards to transportation are long overdue.

2) Access to reliable transportation and public transit is woefully inadequate, particularly for underserved communities. Participants also expressed that cleaner and more frequent buses, expanded routes, more drivers who are paid a living wage, and 24-hour service would better support the needs of their community.

Participants also expressed that cleaner and more frequent buses, expanded routes, more drivers who are paid a living wage, and 24-hour service would better support the needs of their community. These important dialogues need to continue, and Generation180 is ready to support and provide resources for organizations that want to host their own listening sessions – helping ensure that the TCI-P benefits communities who need it the most.

All participating states that implement the TCI-P must abide by certain requirements, referred to as the Model Rule.[119] However, each state still has a great deal of flexibility in prescribing how program proceeds should be spent. These yet-to-be-determined details are where Virginia can ensure that the TCI-P benefits the communities that need the most help and begins to address the inequity in the transportation system and the disproportionate harm it causes.

The equity provisions that already exist in the TCI Model Rule include a unique set of recommendations to ensure that the program's costs and benefits are distributed equitably among all state residents.[120]

These include:

- A minimum 35 percent investment of the TCI-P revenue in overburdened or underserved communities, which are defined as communities that experience the most air pollution while receiving the fewest benefits from the existing system.

- Each participating state must establish a statewide Equity Advisory Body made up of representatives and community members from communities overburdened and underserved by the existing transportation system. The responsibilities of this body include defining overburdened and underserved communities, weighing in on investment priorities, and establishing metrics for program success.

Importantly, while the Model Rule establishes minimum program requirements, each participating state can and should choose to exceed them based to their needs. For example, Massachusetts has proposed using 70 percent of all TCI-P funds in overburdened and underserved communities, to ensure that the benefits reach the most vulnerable populations.[121]

If established early, the equity advisory bodies can help shape policy, develop criteria to define which communities should be prioritized for funding, make recommendations on investments, and identify ways to measure results that matter to their communities. To be effective, these bodies must be populated with people and organizations that truly represent the communities impacted most and must be paid for their time to support active participation.

Virginia must ensure that the TCI-P will prioritize and benefit the communities that need the most help.

SMOG POLLUTION OVER SMALL TOWN
ANDRIY BLOKHIN, ADOBE STOCK

A 2020 report from the Virginia Council on Environmental Justice supports Virginia's participation in the TCI-P, saying the program "will benefit vulnerable communities throughout the state with increased access and health, reduced pollution, and important reductions in greenhouse gas emissions."[122]

Beyond minimum investment requirements in disadvantaged communities, Virginia can ensure that the TCI-P has equitable outcomes by investing the revenue in a thoughtful manner. There are numerous ways that the program can begin to completely overhaul Virginia's transportation sector and ensure a just transition to a clean energy economy.

These include helping Virginia bus systems go fare-free forever, expanding and electrifying public transit, helping schools phase out diesel-powered buses and replace them with electric buses, investing in programs that make electric vehicle ownership more affordable, expanding vehicle charging infrastructure, creating safer walkable and bikeable communities, and even supporting clean energy job training – particularly in communities impacted by the transition away from fossil fuels. All of these can and should be done while prioritizing under-resourced communities with higher levels of air pollution and respiratory illnesses.

The TCI-P would benefit vulnerable communities throughout the state.

SOLAR WORKER
PIXABAY

Transportation Electrification and Emissions Shifting

While EVs powered by the current electricity sector are still far cleaner than gas powered vehicles in the Commonwealth, valid concerns have been raised about how an increase in EV adoption could impact fenceline communities. Increased EV adoption does indeed increase electricity demand, meaning that while EVs create overall emissions reductions, emissions could increase in communities surrounding power plants, particularly low-income communities and communities of color.[123]

Policymakers and advocates in Virginia have been thoughtful in their approach to the clean energy transition, making sure to tackle the power sector before electrifying transportation. In 2020 the General Assembly passed the Virginia Clean Economy Act, which made Virginia the first southern state to pass a 100% clean energy Renewable Portfolio Standard (RPS).[124]

This transition to clean energy helps mitigate concerns that electrifying transportation will increase emissions elsewhere, thereby avoiding emissions shifting. Powering electric vehicles with clean energy makes them an even more powerful climate solution.

It is important that the power sector is held accountable and meets the stipulated goals outlined in the Virginia Clean Economy Act, as well as expand access to distributed power options like shared and residential solar.

Policy Recommendations

State-level policy has a meaningful role to play in revitalizing Virginia's transportation sector. Although the Commonwealth has recently begun to address greenhouse gas emissions, there is significant work still to be done. For Virginia to continue leading in the nationwide transition to a clean energy economy, this report recommends moving forward with and exploring how an equitably designed TCI-P could be implemented in the state.

VIRGINIA CAPITOL BUILDING IN RICHMOND
SBGOODWIN
ADOBE STOCK

The TCI Program

Virginia is actively participating in regional discussions on the Transportation and Climate Initiative Program, but the state has not yet formally decided to move forward. Implementing the TCI-P would enable the Commonwealth to continue tackling climate change, advance job creation and innovation, and create a cleaner, more equitable transportation system for all Virginians.

In Generation180's representative statewide survey, 67% of participants reported that they "strongly support" or "somewhat support" Virginia implementing the Transportation and Climate Initiative. Support held even after respondents were informed of the potential for a minor increase in gasoline prices.

Beyond simply implementing the TCI-P, this report recommends dedicating the vast majority of the proceeds toward projects that directly reduce transportation emissions, prioritizing over-burdened or underserved communities.

Such investments should include:

- Electrifying and expanding public transit access and making it fare-free
- Creating and maintaining and creating additional connected bike lanes, sidewalks, and multi-use trails
- Helping schools electrify their bus fleets
- Installing public electric vehicle charging infrastructure in low-income and disadvantaged neighborhoods, including rural communities
- Making electric vehicle ownership more affordable by funding a point-of-sale rebate program
- Supporting clean energy workforce development training, particularly in communities impacted by the transition away from fossil fuels

67%
of Virginians support Virginia implementing the Transportation and Climate Initiative Program.

This report also recommends that Virginia go beyond the 35 percent minimum outlined in the Model Rule and instead invest at least 60 percent of the proceeds in disadvantaged communities. The Equity Advisory Board must have oversight over the allocation process so that if the program fails to achieve its desired outcomes – including reductions in localized air emissions in fenceline communities – adjustments can be made in real time.

Additionally, the Commonwealth can make two advanced investments to ensure that the TCI-P is implemented in an equitable manner. These are:

1. Early investment to make Virginia's existing public transit system fare-free moving forward

2. Investments in localized air quality monitoring of $PM_{2.5}$ levels in high-traffic areas in overburdened neighborhoods.

INDIVIDUAL PAYING BUS FARE
JACKF, ADOBE STOCK

At least 60% of the TCI-P proceeds should be invested in disadvantaged communities.

TCI-P Impact Modeling

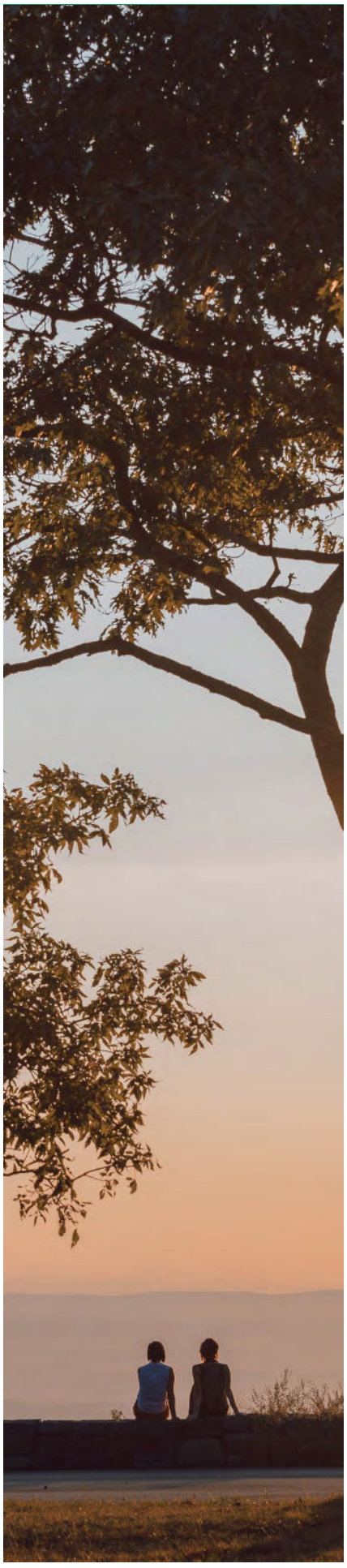
Participation in the TCI-P would improve air quality in the state of Virginia, but especially in areas that have the worst air quality and that are bogged down by historical inequities in access to healthcare, economic opportunities, and affordable housing.

Program modeling conducted by the T.H. Chan School of Public Health at Harvard University suggests that because people of color tend to live in closer proximity to highways, where air quality is the worst, the TCI-P program would shrink the exposure gap between people of color and white people.[125] In other words, communities with the dirtiest air would see the greatest benefits.

Targeted investments would increase these benefits further. Regionally, the Model Rule recommends that at least 35 percent of total TCI-P revenue (around $84 million) be spent in communities that are historically overburdened by air pollution and underserved by the existing system to ensure this outcome. This 35 percent is a minimum, not a maximum; states can and should choose to target a larger percentage of program revenue to overburdened and underserved communities.

Coupling these recommendations with genuine community engagement can help Virginia commit to an equitable and sustainable TCI-P that builds in strong safeguards and standards in tandem with the pursuit of the most aggressive emission reduction targets that can be supported. This should include outreach to communities on the program's design and implementation; sustained tracking to ensure that local benefits are achieved (including pollution reductions, improved air quality, and job creation); and continuous reporting, monitoring, transparency, and improvement.

Virginia has a once-in-a-generation opportunity to transform the state's outdated and costly transportation system to make moving around more equitable and sustainable. It is an opportunity that the Commonwealth cannot afford to miss.



SHENANDOAH SUNSET
UNSPLASH

Complementary Policies

Banning the Sale of New Gas-Powered Vehicles

California, New York, and Massachusetts have all taken bold action by declaring that they will phase out the sale of all new gasoline-powered light-duty vehicles by 2035, encouraging the states' drivers to switch to electric cars.[126] [127] New Jersey is also considering a similar policy.[128] [129]

The order signed by California Governor Gavin Newsom, the legislation signed by New York Governor Kathy Hochul, and the 2050 Decarbonization Roadmap championed by Massachusetts Governor Charlie Baker will still allow such vehicles to be owned and sold on the used-car market.[130]

The feasibility of this policy solution is supported by announcements from almost every major auto manufacturer indicating that their line-ups will be all-electric between 2030 and 2040.[131]

Additional Policies

Beyond the policy recommendations outlined in this report, Generation180 also supports the proposed transportation related policies in the Virginia Conservation Network's 2022 environmental briefing book, Our Common Agenda.[132] These include:

- Prioritize carbon pollution reduction in transportation planning and funding, increasing the weight given to climate factors in funding prioritization processes
- Advance recommendations from the Department of Rails and Public Transportation's Transit Equity and Modernization study
- Improve access to EV charging infrastructure by providing funding for charging equipment, protecting EV charging stations, and streamlining EV charging signage

Conclusion

Addressing emissions from Virginia's transportation sector will require bold leadership and comprehensive solutions that reach every corner of the Commonwealth.

Virginians drive nearly 234 million miles every day, and this alarmingly high level of driving has made transportation the largest source of carbon pollution in the state, harming Virginia's public health, climate, and economy.[133] To address this, Virginia must radically transform and electrify its transportation sector.

The size of the societal problems associated with gas-powered cars is significant, and no single policy solution will address every aspect of the health, climate, congestion, mobility, and economic problems caused by fossil fuels. The General Assembly took an important first step toward reducing transportation emissions by passing the Advanced Clean Car Standards and related bills in 2021, helping to make electric vehicles more available statewide – but many more steps are needed.

Reducing vehicle miles traveled through expanded public transit and rail, along with thoughtful land use and design, while rapidly transitioning from the old, outdated technology of polluting, fossil fuel-powered engines to better, cleaner, and more innovative electric cars, trucks, trains, and buses will bring wide-ranging health, economic, and climate benefits – creating a cleaner mobility future for all Virginians. The Transportation and Climate Initiative Program (TCI-P) can provide the needed funding to help make this future a reality, creating a new transportation system that is not just healthier and more resilient, but also more equitable.

Policymakers and advocates must continue to focus on tackling pollution from the transportation sector while enforcing and building upon clean energy wins that address the Commonwealth's utility sector. **Thankfully there is broad constituent support in Virginia for a clean energy economy and the transition to electric mobility...**

... how quickly we get there is largely a matter of political will.

SHENANDOAH VALLEY UNSPLASH

How you can help

The following page provides a reference guide for policymakers and advocates that outlines how you can support the revitalization of the transportation sector in Virginia and an equitably designed TCI-P.

You Can Help Revitalize the Transportation Sector in Virginia

Through an equitably designed Transportation and Climate Initiative Program (TCI-P), Virginia has a once in a generation opportunity to invest in a stronger, cleaner Commonwealth and transform the state's outdated and costly transportation sector.

By supporting an ambitious TCI-P, advocates and policymakers can help Virginia invest $3 billion over the next decade to reduce pollution, support our communities, create good family-sustaining jobs, and accelerate our transition to a clean energy economy. Virginia should consider implementing the TCI-P to create funding mechanisms that reduce transportation emissions and pursue the most aggressive emissions reduction targets that can be supported by an equitably designed program.

67%

of Virginians support Virginia implementing the Transportation and Climate Initiative Program.

Support held even after respondents were informed of the potential for a minor impact on gasoline prices.

Generation180
2021

Benefits

Support Public Health

- Pollution from gas powered vehicles contributes to respiratory illnesses (asthma) and heart disease
  Virginia Clinicians for Climate Action, 2020
- The overall health burden of vehicle emissions in VA is $750M per year
  Virginia Clinicians for Climate Action, 2020
- Air pollution-related health costs are borne disproportionately by Virginia's most vulnerable communities
  Union of Concerned Scientists, 2019

Support Our Environment

- Transportation accounts for 48% of all carbon emissions in Virginia
  Virginia Conservation Network, 2021
- The TCI-P would reduce transportation carbon pollution at least 26 percent by 2032
  NRDC, 2020

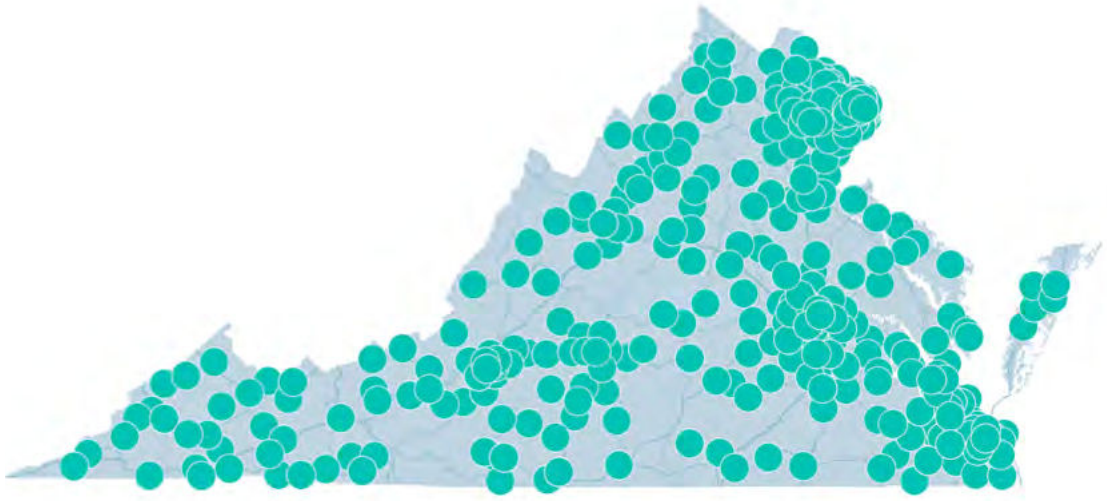
Support Our Economy

- Transportation represents the second largest expense for many Americans
  Union of Concerned Scientists, 2017
- Virginians spend $25M on imported fossil fuels every single day
  Business Insider, 2019
- Expanding public transit would reduce vehicle congestion and its negative economic impacts
  World Economic Forum, 2019
- Investing in electrification creates more jobs than investing in petroleum and keeps money in the local economy
  M.J. Bradley, 2019
- The TCI-P would generate $3 billion over 10 years for Virginia to invest in equitable and clean transportation projects
  NRDC, 2020

Virginia Constituent Awareness Survey

OVERVIEW

This document highlights the key findings from a survey designed to explore perceptions of clean energy, electric mobility, and related policies among Virginia residents. This survey was conducted online from June 6 through July 20, 2021, using a sample and platform provided by the national market research firm Dynata. The following analysis is based on a representative sample of 1211 Virginians aged 18 and older across the Commonwealth and has a 95% confidence interval and a margin of error of +/- 3.0%. Survey analysis was conducted by an independent consultant specializing in data analytics from Athenys Research.



Distribution of Survey Participants

DEMOGRAPHICS

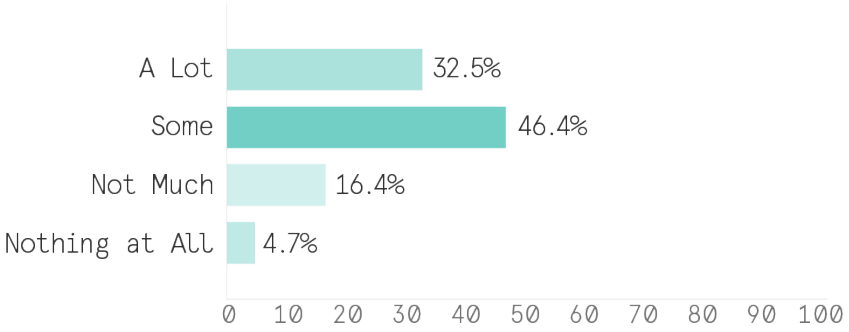
The reported gender composition of respondents was 55.1% female, 43.8% male, and 1.1% other or unreported.

15.8% of respondents were ages 18-24, 25.7% were ages 25-34, 30.1% were ages 35-44, 14.1% were ages 45-54, 12.2% were ages 55-64, and 2.1% were 65+.

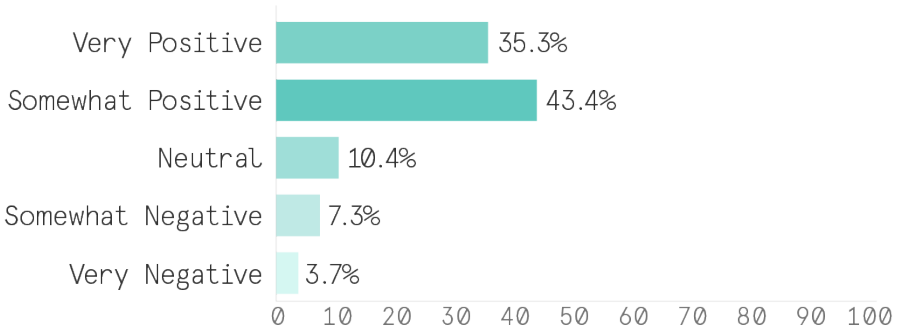
The highest educational attainment of respondents was as follows: 3.1% of respondents completed some high school; 19.1% graduated from high school; 24.1% had completed some college; 30.1% graduated college; 23.0% completed postgraduate work or a postgraduate degree; and 0.7% preferred not to answer.

The distribution of 2020 gross household incomes was: Less than $25,000 - 15.6%; $25,000 to $49,999 - 24.0%; $50,000 to $74,999 - 16.4%; $75,000 to $99,999 - 14.3%; $100,000 to $149,999 - 17.0%; $150,000 to $199,999 - 7.8%; More than $200,000 - 4.9%.

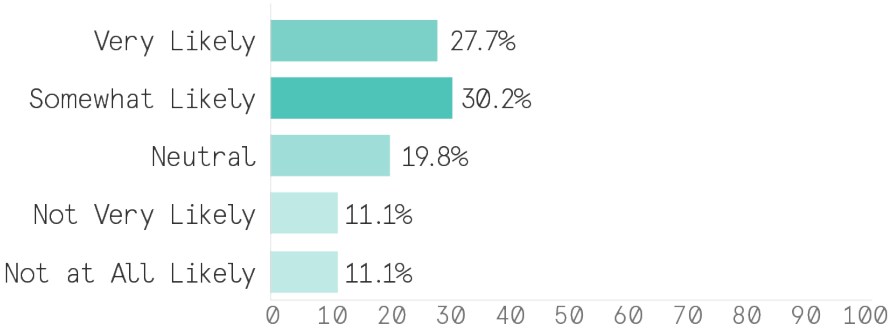
How much have you seen, read, or heard about electric vehicles?



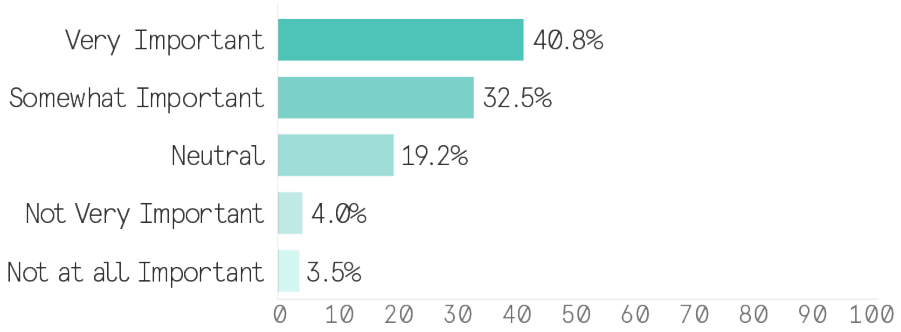
Given what you know about electric vehicles, what perception do you have of them?



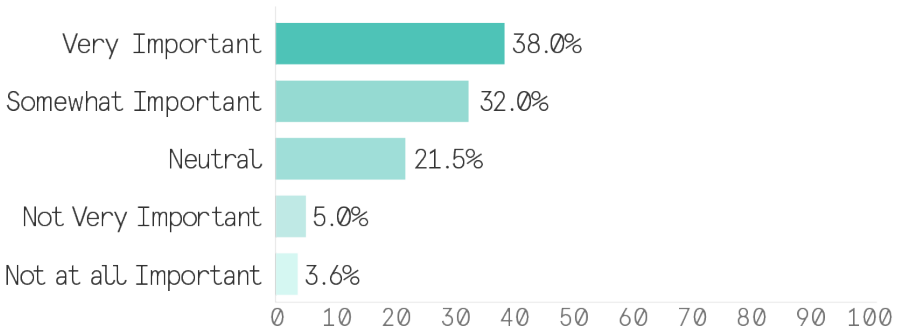
How likely are you to consider buying or leasing a plug-in electric vehicle for your next car?



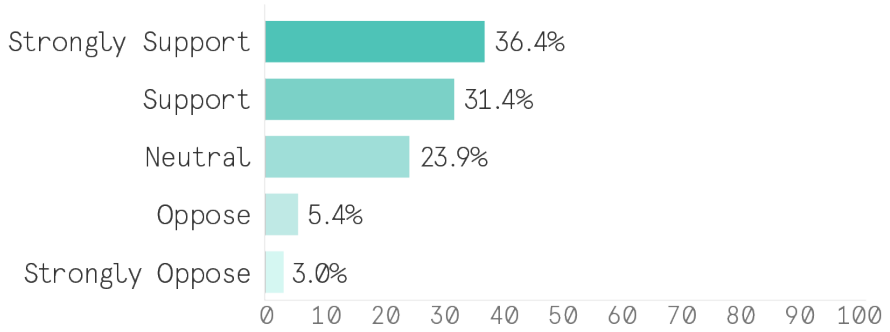
How important is it to you that Virginia reduce its dependence on fossil fuels and transitions to clean energy?



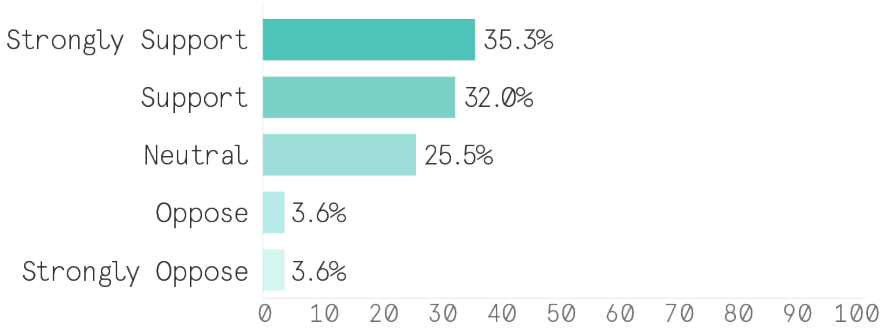
How important is it for Virginia to invest in modernizing and electrifying its transportation sector?



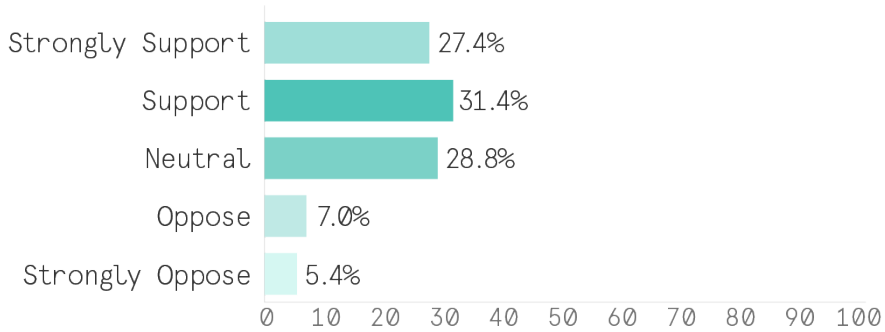
As you may know, some states offer incentives for buyers and leasers of electric vehicles. Do you support or oppose Virginia offering such an incentive?



Several Northeast and Mid-Atlantic states and the District of Columbia have joined together in a regional climate collaboration called the Transportation and Climate Initiative (TCI). Under this program, states will reduce vehicle pollution and raise funds through the sale of allowances to gasoline distributors, more commonly referred to as a cap and investment program. The states will use these proceeds to invest in cleaner, more efficient, and more accessible transportation options, such as public transit, electric school buses, and electric vehicle charging infrastructure. Do you support or oppose Virginia participating in the Transportation and Climate Initiative (TCI) to tackle emissions from the transportation sector?



The Transportation and Climate Initiative program has the potential to have a minor impact on gas prices, such as an increase of five cents per gallon. This increase is within normal gas price fluctuations that happen regularly. After being informed about potential effects on gas prices, do you support or oppose Virginia participating in (TCI)?



Do each of the following factors make you more likely, less likely, or make no difference at all when thinking about purchasing an electric vehicle?

BETTER FOR THE ENVIRONMENT

MUCH MORE LIKELY	40.0%
SOMEWHAT MORE LIKELY	34.0%
NO DIFFERENCE	21.0%
SOMEWHAT LESS LIKELY	2.2%
MUCH LESS LIKELY	2.7%

SAVINGS ON GASOLINE

MUCH MORE LIKELY	44.2%
SOMEWHAT MORE LIKELY	34.8%
NO DIFFERENCE	15.9%
SOMEWHAT LESS LIKELY	2.8%
MUCH LESS LIKELY	2.4%

ACCESS TO DISCOUNTS

MUCH MORE LIKELY	35.3%
SOMEWHAT MORE LIKELY	34.8%
NO DIFFERENCE	24.4%
SOMEWHAT LESS LIKELY	2.4%
MUCH LESS LIKELY	3.0%

PROXIMITY TO A PUBLIC CHARGING STATION

MUCH MORE LIKELY	34.1%
SOMEWHAT MORE LIKELY	31.5%
NO DIFFERENCE	22.1%
SOMEWHAT LESS LIKELY	8.3%
MUCH LESS LIKELY	4.0%

HIGHER UPFRONT COSTS

MUCH MORE LIKELY	17.9%
SOMEWHAT MORE LIKELY	18.4%
NO DIFFERENCE	23.1%
SOMEWHAT LESS LIKELY	26.8%
MUCH LESS LIKELY	14.6%

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