

Issue: VA Climate Change/Green Jobs

Climate Change and Green Jobs

Key Points

Dealing with climate change is difficult. But as a state particularly vulnerable to climate impacts, Virginia can lead the way. From its strong agricultural history to its thriving technology sector, Virginia is poised to innovate and pave a path for the rest of the country.

Virginia already has a clean energy economy that employs 75,000 people - but when compared with its neighbors, it's clear that Virginia's trailing the pack.

Solving climate change means creating clean energy jobs, investing in rural economies, and prioritizing people's health, homes, and livelihoods.

A multifaceted approach is needed to make the state more resilient. To show climate leadership, Virginia can promote innovation in five ways:

- Increase targets for requiring renewable energy
- Kickstart energy-efficiency investment
- Invest in clean cars and transit systems
- Control short-lived climate pollutants
- Ensure that all people – from fishing economies to historically marginalized communities – have the tools to adapt to climate change.

What do People in Virginia Think about Climate?¹

Number of people who know that global warming is happening: 71%

Percent who are somewhat or very worried about climate change: 62%

Support regulating CO₂ as a pollutant: 78%

Support tax rebates for people who purchase energy-efficient vehicles or solar panels: 82%

Climate Impacts

Climate change is already affecting Virginia – and is expected to create lasting instability for the Commonwealth if left unchecked. In Virginia, climate change means higher temperatures, sea level rise, increased flooding, more extreme storms, and threats to Virginia's military, internet, and agricultural infrastructure.

Climate Impacts on Human Health

Climate change causes sea level rise, contaminating drinking water and increasing storm damage. Norfolk alone has already seen 18 inches of sea level rise over the past 100 years. As seawater enters the coastal watershed and contaminates drinking water, the 5.5 million Virginians who live on a

watershed are vulnerable to increased risk of high blood pressure, heart disease, and other issues from corroded water pipes.

Higher seas also mean larger storm surges and flooding for coastal communities, with often-overlooked impacts on human health. Heavy rain increases the risk of sewer system overflow and the resulting spread of disease – demonstrated in the 2012 E. coli outbreak in the Richmond James River Basin.²

Temperatures are rising across Virginia. Warmer temperatures increase the range of blacklegged ticks carrying Lyme disease and mosquitoes carrying West Nile virus. In the past 20 years, the number of counties with blacklegged ticks has increased from 12 to 72 (out of a total of 95). Additionally, drought conditions increase the virulence of diseases carried by mosquitos including West Nile virus.³

Rising temperatures and fossil-fuel combustion contribute to asthma – from air pollution and pollen, both of which increase as temperatures rise.^{4,5} About 160,000 children and 520,000 adults in Virginia live with asthma,⁶ which costs each person an average of \$2,200 a year, and results in \$75 million in lost work and school days.⁷ This is an environmental justice issue – asthma disproportionately affects low income communities and communities of color.⁸

Coal plants in particular cause more than asthma – 91% of US coal plants, including six in Virginia, are currently poisoning surrounding groundwater with chemicals like arsenic, lithium, and radium. These toxins are associated with cancer, cardiovascular disease, diabetes, and lower cognitive development. The six plants in question are Yorktown (York County), Bremo (Fluvanna County), Chesterfield (Chesterfield County), Clover (Halifax County), and Possum Point (Prince William County).⁹

Climate Impacts on Jobs and the Economy

Higher air and ocean temperatures lead to sea level rise and more intense storms. Up to \$140 million worth of property will be underwater in Virginia by 2030, and storm-related damages directly from climate change will increase by as much as \$135 million.¹⁰ The Hampton Roads region is particularly threatened, and is home to 3 major Navy facilities that provide a direct economic benefit of 14.6 billion.¹¹

Climate change will increase temperatures throughout Virginia, particularly along the coast. By 2050, an estimated 33 days a year will be over 95 degrees, putting people's health, Virginia's data center industry, and valuable agricultural crops at risk.¹²

Yields of two of Virginia's staple crop commodities, corn and soybeans, are expected to decrease by 16% and 33%, respectively, by mid-century thanks to increased heat.¹³ Other climate-related threats to agriculture go beyond just heat, and include drought, pests, and disease.

Higher sea temperatures and increased salinity threaten Virginia's coastal and marine ecosystems, particularly in Chesapeake Bay. Species such as the blue crab and oysters--which together account for \$80 million in economic activity in Virginia--may face drastic population declines and could disappear entirely as the impacts of climate change continue to intensify.¹⁴

Clean Power Jobs in Virginia

Virginia's clean-energy economy employs tens of thousands of people. But compared to its neighbors, it's trailing the pack.

The state has 76,000 jobs in energy efficiency alone.¹⁵ These numbers represent a fraction of Virginia's potential. Virginia can create more than 5,000 energy-efficiency jobs in three years simply by increasing energy efficiency standards. This helps consumers, as the state's electricity bills are the 10th-highest in the nation.¹⁶

Virginia has 3,900 jobs in the solar industry but ranks 34th in the country for per-capita solar jobs.¹⁷ North Carolina has twice as many solar jobs, and Maryland has 25% more. Every state on the Atlantic seaboard except Georgia and Pennsylvania has more solar workers per capita than Virginia. Because of this, the Commonwealth is missing out on huge economic growth – in the past five years, nationwide solar employment increased 70%, adding 100,000 jobs.¹⁸

What Can Be Done — Climate Solutions that Make the Economy Stronger

Dealing with climate change demands a multifaceted approach. To show true climate leadership, the Virginia state legislature can promote innovation in five ways:

- Increase targets for renewable energy
- Kickstart energy-efficiency investment
- Invest in clean cars and transit systems
- Control short-lived climate pollutants
- Ensure that all people—from fishing economies to historically marginalized communities—have the tools to adapt to climate change

Increase Electricity Generation from Renewable Energy

Despite strong demand from businesses in the state, Virginia has underinvested in wind and solar resources. Promoting wind and solar through increased renewable targets, stronger utility requirements, and investments in storage technologies will ensure that the Commonwealth leads in the clean energy economy.^{19,20}

PRIORITY ACTION: INCREASE RENEWABLE ENERGY TARGETS

Join the Regional Greenhouse Gas Initiative: The Republican-controlled legislature has blocked Virginia's attempts to join the Regional Greenhouse Gas Initiative. This decade-old program has created \$4.3 billion in economic value for its member states along the East Coast, and RGGI states have seen electricity prices fall 6%—as opposed to increases in Virginia and nationwide.^{21,22}

Set a renewable energy goal: The state legislature should require that utilities get 30%-40% of their electricity from wind, solar and batteries by 2030. Representatives can expedite this process with streamlined permitting requirements for renewable projects, and with financial incentives for storage projects. They can also ensure that rural communities benefit by letting renewable energy developers create voluntary tax agreements with the counties they build in. This ensures that tax revenue flows directly into schools and infrastructure.

PRIORITY ACTION: BACK UP THESE GOALS WITH STRONGER UTILITY REQUIREMENTS

The Grid Transformation and Security Act of 2018 mandated that Virginia’s investor-owned utilities procure 5,000 MW of wind and solar. But there’s no required timeline for when this needs to happen— the legislature must make sure that it happens fast.

The legislature can accelerate the deployment of these new resources by requiring that Dominion and Appalachian Power Company have annual competitive procurement from 3rd-party developers, letting developers bid and get these projects started now.

It can also let businesses procure clean power more easily by relaxing restrictions of Power Purchase Agreements between businesses and independent power producers, and by letting smaller companies use Dominion’s clean-energy rate option, which is currently limited to large corporations only.

SECONDARY ACTION: MAKE VIRGINIA THE LEADER IN NEXT-GENERATION CLEAN ENERGY INVESTMENT

Create financial incentives for storage projects. Currently, the New York Independent System Operator offers a fixed sum for grid-scale storage technologies. Virginia should do the same. The cost of grid-scale storage, particularly lithium-ion batteries, is rapidly decreasing. These technologies offer multiple benefits to the grid, such as integrating clean renewable power and rapid responses to power outages. Developing this infrastructure needs government support, and Virginia can become a leader by doing so.

Promote pilot projects for offshore wind farms. Offshore wind is in the next generation of clean power, and Virginia is already forging ahead with 16 MW of proposed wind energy. To reach Virginia’s full potential – estimated at 2,000 MW of wind power and 14,000 jobs – studies and pilot projects need legislative support. Early-stage research and development support acts as an initial venture investment, letting the industry get off the ground and drive down future costs

Kickstart Energy Efficiency Investment

Virginia has recently taken some promising steps here, requiring \$1.1 billion in energy efficiency investments by the large investor-owned utilities. But Virginia lags far behind neighboring states on efficiency improvements, which means that Virginians are leaving a lot of money on the table. The Legislature can solve this by setting strict goals for utilities, increasing building efficiency standards, and helping local governments spur efficiency investment.^{23,24}

SET STRICT GOALS FOR UTILITIES

Thanks to the Grid Transformation Act, utilities have been told to spend \$1.1 billion on energy efficiency – but these aren’t tied to specific requirements in efficiency improvements. Virginia’s currently struggling to meet its voluntary target of a 10 percent increase in energy efficiency. The legislature can help by setting strict investment goals for these efficiency dollars, ensuring that the money gets spent on time and on projects with measurable impact.²⁵

INCREASE BUILDING EFFICIENCY STANDARDS

Buildings are the number one use of electricity – primarily for heating and cooling. Increasing new building efficiency standards costs more upfront but pays for itself multiple times over.²⁶

HELP COUNTY GOVERNMENTS IMPLEMENT PACE FINANCING

PACE (Property Assessed Clean Energy) financing lets private individuals and businesses pay for efficiency upgrades with low-cost loans.²⁷ But only one county in Virginia has adopted this common-sense program, due to lack of knowledge and the high upfront organizational cost of setting up and advertising the PACE program. The state can require or incentivize county governments to create PACE programs, fund capacity-building, and give administrative aid to county governments.²⁸

Invest in Clean Transportation

This sector is the No. 1 cause of climate pollution across Virginia. Great progress has been made here, thanks to the Governor's \$14 million investment in electric vehicle charging networks across the state. After this is complete, 95 percent of Virginians will live within 30 miles of a public electric vehicle charger. But electric vehicles are only one part of the transportation story – Virginia has opportunities to lower vehicle pollution, encourage clean vehicle purchases, and grow its public transit infrastructure, especially in the traffic-congested East.²⁹

PROMOTE CLEAN CARS

The state legislature should adopt the Advanced Clean Cars (ACC) program, which is used by nine other states to lower smog and climate pollution³⁰. This program saves consumers money (less spent on gas), lowers asthma-causing smog, and boosts electric vehicle sales. The state can also create clean vehicle purchasing standards for state agencies and collaborate with local governments to negotiate discounts for large purchases.

PROMOTE PUBLIC TRANSIT

The state can reduce traffic gridlock and pollution by investing in public transportation. The first priority here should be making state funds available for Metro, VRE, Bus Rapid Transit, and expanded express bus service. Next, Virginia should keep exploring options for high-speed rail between Washington D.C. and Richmond. High-speed rail is expensive and challenging and comes with local opposition – but developing it is necessary for a climate-safe future. Public transit ensures cleaner air, reduces traffic gridlock, and makes low-cost transportation available to all Virginians.

Eliminate Short-Lived Climate Pollutants

Eliminating short-lived climate pollutants (methane, hydrofluorocarbons, and others) is a climate solution that's not discussed much. But it's enormously important—pound-for-pound, short-lived climate pollutants can trap far more heat in the atmosphere than carbon dioxide (Methane is 20 times as potent, and hydrofluorocarbons (HFCs) are 1,000-3,000 times as potent at heating up the planet).³¹ The Virginia legislature can do several things on this front, such as:

- **Create an inventory of short-lived climate pollutants** in the state—what types are most prevalent, where they're located, and how they're used.
- **Cut methane leaks** by identifying leaky natural gas infrastructure (old cast-iron pipes are a main culprit) and using utility and state funds to plug these leaks. This will also help prevent devastating natural gas explosions.

- **Create state limits for high-polluting HFC refrigerants.** Seven states are already working to do so.³² This can be done by developing a commonsense list of unnecessary HFCs and banning them from foams and new refrigeration equipment. U.S.-based chemical manufacturers already make cost-effective alternatives that don't impact the climate.

Adapt to Climate Change

Climate change isn't something happening in the distant future – it's happening now. From Virginia's fisheries to its vulnerable communities and military infrastructure, Virginia can invest now to make communities more resilient.

OCEAN ACIDIFICATION

It's essential to tackle the consequences of ocean acidification, which could decimate the state's shellfish industry. Of all carbon dioxide released into the atmosphere, 25 percent ends up dissolved as acid in the oceans. For shellfish, this acid acts like osteoporosis in humans—it thins their shells and makes them more brittle.³³ The population of shellfish, which brings in \$67 million/year to Virginia's economy, is expected to plummet as oceans get more acidic.^{34,35} To solve this, the state should encourage investment in shellfish aquaculture techniques, support research into resistant shellfish varieties, and establish an ocean acidification task force to evaluate and deal with this problem.³⁶

ENVIRONMENTAL JUSTICE

The state should create an environmental justice mapping tool, like the EPA's EJ SCREEN³⁷ or CalEnviroScreen,³⁸ to identify environmentally disadvantaged communities. These are areas that deal with multiple issues at the same time—such as air pollution, water pollution, climate impacts, poverty, racism, and linguistic isolation. In addition, when making decisions about fossil fuel infrastructure, such as Virginia's two proposed natural gas pipelines, legislators should understand that oil and gas infrastructure has historically been placed in communities of color like Union Hill, creating disproportionate health impacts. One answer is to oppose infrastructure plans that increase this burden.^{39,40}

STORM SURGES AND SEA LEVEL RISE

To tackle storm surges and sea level rise, it is important to repair and protect natural seashore wetlands, which act as effective, low-cost storm buffers. As sea levels rise, the state should fund adaptation and resilience projects in the Hampton Roads area to protect its shipyards, military bases, property, hazardous waste sites, and waterfront habitat. More resources on this topic are available at the Georgetown Climate Center.⁴¹

What Have Most Republican Incumbents Done?

In the 2019 General Assembly, the Republican majority voted against most environmental legislation, blocking efforts to fight the climate crisis or to expand clean energy.⁴² The only positive vote was to agree with Democrats on the clean up toxic coal ash at Dominion Energy power plants.

Negative Vote: Voted against moving Virginia to clean energy by 2035, which stunts Virginia's growth as a leader on renewables. Virginia trails its neighbors in clean energy jobs, and Candidate's vote ensures that other states will reap the rewards of clean energy, not Virginia (HB 1635: Floor Amendment #3).

Negative Vote: Voted against letting Virginia partner with its neighbors to reduce climate pollution from cars and power plants through RGGI and the TCI (Regional Greenhouse Gas Initiative and the Transportation and Climate Initiative). This directly affects Virginia's ability to attract clean energy jobs and innovate in the transportation sector (HB 1700: Recommendation #34).

Negative Vote: Voted against integrating basic environmental education to Virginia's classrooms, a proposal that had both industry and environmental group support (HB 1908).

Negative Vote: Voted to block Virginia from solving climate change and air pollution in the transportation sector (via the Transportation and Climate Initiative). Pollution from vehicles causes childhood asthma (HB 2269).

Negative Vote: Voted to continue unnecessary limitations on renewable energy access, which prevents Virginia from reducing fossil fuel dependency (HB 2329).

Negative Vote: Voted to make it more difficult for Virginia to enter into a regional cap and trade program (RGGI). States in this program have seen lower electricity bills and more clean job growth - joining it makes common sense (HB 2611).

Positive Vote: Voted to ensure that coal plants dispose of coal ash— one of the largest types of industrial waste generated in the United States— safely and sustainably (SB 1355).

Future Resources

For more information on implementing the proposed solutions, reach out to:

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