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2019 ENVIRONMENTAL BRIEFING BOOK

a publication of Virginia Conservation Network





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ABOUT

Founded as the Conservation Council of Virginia in 1969, Virginia Conservation Network (VCN) began as a roundtable of major conservation groups and has grown to include over 100 Network Partners across the Commonwealth (see page 68 of this book for a full list of Network Partners). VCN is committed to building a powerful, diverse, and highly-coordinated conservation movement focused on protecting our Commonwealth's natural resources.

VCN is a facilitator of strategic action, a resource for Network Partners statewide, and a constant conservation presence in Virginia's Capitol. Playing a unique role in Virginia's conservation community, VCN helps the community speak with one coordinated voice. The organization and its staff focus on strengthening the conservation community as a whole and winning environmental victories that benefit all Virginians.

VCN's Network Partners work on a wide range of issues from stream restoration to transportation reform to renewable energy advancement to promoting sustainable community growth and more. Given the diverse work of our partner organizations, VCN organizes its programs into three main categories: **HEALTHY RIVERS**, **CLEAN ENERGY**, and **GREEN COMMUNITIES**.

VCN is proud to serve as the state lead for the Choose Clean Water Coalition — the regional coalition advocating for clean rivers and streams in communities throughout the Chesapeake Bay Watershed — and as the Virginia state affiliate for the National Wildlife Federation.

HOW TO USE THIS DESCRIPTION





LEARN THE ISSUES

The Environmental Briefing Book is an annual publication of Virginia Conservation Network and outlines the conservation community's policy priorities. The book is separated into three chapters: **HEALTHY RIVERS, CLEAN ENERGY**, and **GREEN COMMUNITIES**. The briefing papers within each chapter include the background of the issue, where we are now, and what the conservation community's policy recommendations are for the 2019 Virginia General Assembly session.

At the bottom of each briefing page, you'll find the link to a webpage with more information on the topic. The webpages will be regularly updated, so you can always receive the most recent information.

ASK THE EXPERTS

Each issue briefing in this book has been researched and written by the leading environmental experts from Virginia Conservation Network's partner organizations. The authors' names are listed at the end of each briefing paper, and their contact information is included at the end of each chapter. If you have questions about the information or policy recommendations, you should reach out to the authors directly for clarification.

The legislative points of contact are also listed at the end of each chapter with their contact information.

SHARE THE INFORMATION

The information and policy recommendations in the Environmental Briefing Book are meant to be shared with conservation advocates and decision makers. Visit the webpages at the bottom of each briefing page for shareable fact sheets, articles, and talking points related to the topics covered in this book. You can also visit vcnva.org/learn for access to a digital version of this publication.



VCNVA.ORG/HEALTHY-RIVERS

HEALTHY RIVERS

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GIVING FARMERS THE TOOLS THEY NEED TO PROTECT OUR RIVERS AND STREAMS

INTRODUCTION

Agriculture is Virginia's largest industry by many metrics — economic impact, jobs, and area. There are approximately 46,000 farms covering 8.2 million acres (32%) of Virginia. Agriculture is also the largest source of nutrient and sediment pollution reaching local streams and the Chesapeake Bay. While many well-operated farms employ sound conservation practices that protect water quality, a lack of funding and technical resources prevent many farmers from implementing such practices. Consequentially, excess nutrients, sediment, bacteria, and toxins flow into local waterways, including the Chesapeake Bay.

Each of these pollutants has different negative impacts on Virginia's local waterways. Excess nutrients cause large algal blooms that can block light in streams or sink to the bottom of rivers and bays and rot. Rotting algae depletes oxygen from the water and can cause dead zones, which impact important commercial fisheries. Excess nutrients also support the growth of some species of algae, which produce toxic compounds. Sediment pollution buries important bottom habitats of waterways, including gravel spawning beds for trout and oyster reefs. Suspended sediment also blocks sunlight from reaching important underwater grasses, which act as habitat for blue crabs and other important aquatic species. Bacterial pollution impacts our ability to safely use waterways and can lead to beach and shellfish harvesting closures, as well as human health risks.

These pollutants cause a large proportion of Virginia's water quality impairments as described by the Virginia Department of Environmental Quality. The Chesapeake Bay is impaired for nutrients and sediment, and monitoring shows that nearly half of Virginia's rivers and streams have bacterial impairments. Virginia's Chesapeake Bay Watershed Implementation Plan has identified the agricultural sector as a critical component to addressing these water quality problems. To ensure the success of agricultural restoration across the state, we encourage Virginia lawmakers to fully fund the Virginia Agricultural Cost-Share Program (VACS).

BACKGROUND

The Virginia Department of Conservation and Recreation administers VACS through the Soil and Water Conservation Board and Virginia's 47 Soil and Water Conservation Districts. VACS provides financial and technical support to the Districts, which work with local farmers to implement practices that restore and improve water quality by addressing agricultural runoff.

VACS has assisted thousands of farmers in implementing more than 50 different types of best management practices (BMPs) to reduce pollution from reaching Virginia's waterways. These BMPs include stream exclusion systems, which keep livestock out of streams while providing alternative water sources; nutrient management plans, which help ensure farmers use a sustainable amount of fertilizer; riparian buffers; conservation tillage; cover crops; and many other practices essential to protecting our streams, lakes, rivers, and bays.

77 THE VIRGINIA AGRICULTURAL COST-SHARE PROGRAM HAS ASSISTED THOUSANDS OF FARMERS IN IMPLEMENTING MORE THAN 50 DIFFERENT TYPES OF BEST MANAGEMENT PRACTICES TO REDUCE POLLUTION FROM REACHING VIRGINIA'S WATERWAYS.

Investments in these agricultural BMPs help improve water quality, of course, but also create jobs and yield economic benefits. Livestock exclusion from streams can prevent calf losses and improve herd health. Increased efficiency of nutrient application helps reduce fertilizer costs for farmers. Finally, conservation tillage, cover crops, rotational grazing, and other practices help improve soil health, which in turn leads to improvements in yield. Implementation of these agricultural BMPs supports Virginia's agricultural economy while improving water quality.

Every other year, the Virginia Department of Conservation and Recreation — along with farmers, the Soil and Water Conservation Districts, and other stakeholders - compiles a needs assessment that details the cost of necessary BMP implementation across the Commonwealth. On average, the Virginia General Assembly has funded approximately \$30 million over last decade, resulting in considerable improvement in clean water and agricultural productivity. However, this investment represents less than 30% of the documented need. In order to maximize benefits to local and downstream waterways and Virginia communities, full funding of these programs is needed. It is important to note that this level of investment in clean water in the Commonwealth is not unprecedented. Virginia invested nearly a billion dollars in wastewater treatment plant upgrades over the past decade, which has resulted in substantial improvements in water quality — our waterways are already responding to those improvements. If the state provides a similar level of investment in VACS — which is the most cost-effective means of reducing polluted runoff — it can likewise achieve substantial improvements in water quality for Virginia's citizens.

CONCLUSION

Historically, Virginia's funding for agricultural BMPs and associated technical assistance has fluctuated significantly from year to year but has always fallen far below the state documented need. Enhanced funding is needed to improve water quality and ensure the continued vitality of agricultural economies in communities across the Commonwealth, both in and beyond the Chesapeake Bay Watershed.

AUTHORS

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POLICY RECOMMENDATIONS

Fund the Virginia Agricultural Cost-Share Program at the documented need of \$100 million per year according to the Agricultural Needs Assessment.

Uphold consistent and adequate annual funding to ensure certainty.

ON THIS AUGUSTA COUNTY FARM, CATTLE WERE FENCED OUT OF THE MIDDLE RIVER IN 2004, AND NATIVE TREES AND SHRUBS WERE PLANTED ALONG THE BANKS. WHEN THE RIVER ENTERS THE FARM, THE AVERAGE E. COLI LEVEL IS 2,471 COLONY-FORMING UNITS (CFU) PER 100 MILLILITERS OF WATER. THAT IS MORE THAN TEN TIMES VIRGINIA'S STANDARD FOR E. COLI, WHICH IS 235 CFU/100ML. BUT A REMARKABLE THING HAPPENS OVER THE COURSE OF THE FARM'S HALF-MILE STRETCH OF RIVER: BY THE TIME THE RIVER LEAVES THE PROPERTY, THE AVERAGE E. COLI LEVEL HAS BEEN REDUCED 30.6% TO 1,715 CFU/100ML. WHY THIS REDUCTION? FIRST, THERE ARE NO COWS IN THE RIVER CONTRIBUTING TO POLLUTION. SECOND, THE TREES AND SHRUBS — KNOWN AS RIPARIAN BUFFERS — REDUCE EROSION AND HELP. THE AQUATIC ECOSYSTEM FUNCTION.

INTRODUCTION

Virginians rely on local waterways in a variety of ways: clean drinking water, seafood production, and recreational tourism. Virginia is the largest seafood producer on the East Coast and the third largest in the United States — this is an example of an industry that provides jobs and tremendous economic benefits. Clean water also helps to support recreation and thriving communities across the Commonwealth the James River Park System alone generates over \$33 million in income per year for the Richmond region.¹²³

Counter to these uses, polluted runoff — the muddy stew of stormwater, dirt, bacteria, and toxins that runs off streets, roofs, parking lots, and other hard surfaces — is a growing issue for our local creeks, streams, and rivers. The Environmental Protection Agency recently confirmed this increase in urban and suburban runoff. We need to step up and address this issue, or we risk failing at the Commonwealth's goal to restore our local streams and the Chesapeake Bay by 2025.

BACKGROUND

Virginia has invested in upgrading wastewater treatment plants over the last decade, greatly reducing the pollution flowing into our rivers, streams, and the Chesapeake Bay. However, as we've increased the area of impervious surfaces — meaning our parking lots, roofs, and roads — we've seen an increase in the amount of polluted runoff (also known as stormwater). A combination of increased impervious surfaces and more intense rainfall events have also exacerbated flooding and the potential for loss of life and property damage.

STORMWATER LOCAL ASSISTANCE FUND (SLAF)

Much of our urban and suburban infrastructure was built before we fully understood how stormwater degrades local streams. Many larger localities have MS4 (urban stormwater) permits, which require a reduction of nutrients and sediment flowing into Virginia's waterways. Implementing programs to achieve these goals — particularly retrofits to older infrastructure — can be expensive. Fortunately, the Virginia General Assembly created the Stormwater Local Assistance Fund (SLAF), a state and local matching grant program that helps localities protect and improve the health of our waterways. Over its lifespan, SLAF has provided grants to 51 localities for 175 projects across Virginia. Although not funded in 2016 or 2017, the 2018 General Assembly session appropriated \$20 million for this program. This is a fraction of the funding needed to address the issue but continues the momentum toward clean and healthy waterways in Virginia.

LOCAL CASE STUDIES

Localities across Virginia have improved the health of their waterways using SLAF grants. The City of Hopewell restored a wetland to filter the water that flows into the James River. Hopewell used the SLAF grant as match for a federal National Fish and Wildlife grant, which enabled the city to achieve substantial nutrient reductions while providing a restored park as a city amenity.

77 OVER ITS LIFESPAN, THE STORMWATER LOCAL ASSISTANCE FUND HAS PROVIDED GRANTS TO 51 LOCALITIES FOR 175 PROJECTS ACROSS VIRGINIA.

Similarly, the City of Waynesboro restored a wetland using a combination of SLAF and federal funds to achieve significant pollution reductions and meet its permit requirements. The city's project provides a healthier environment for its citizens while attracting tourists to its lively trout streams.

These projects illustrate the multiple benefits derived from cleaning our waterways — from increasing tourism to beautifying public properties to reducing the potential for flooding.

VIRGINIA CONSERVATION ASSISTANCE PROGRAM (VCAP)

The Virginia Conservation Assistance Program (VCAP) provides cost-share assistance for smaller-scale residential and commercial projects, such as rain gardens, conservation landscaping, and permeable driveways. VCAP provides financial incentives and technical and educational assistance to property owners to address problems like erosion, poor drainage, or poor vegetation (bare soils).

Since the program began in 2012, Virginia's Soil and Water Conservation Districts and their partners have installed over 218 projects. However, a \$600,000 backlog in project applications currently awaits funding. Property owners, businesses, schools, and localities have come to rely on VCAP as a cost-effective method of addressing erosion and polluted stormwater runoff in their communities while helping to engage and educate the public.

STORMWATER DEFENSE

The stormwater technical rules that took effect in July 2014 are designed to minimize pollution from new construction. However, Virginia's stormwater management program comes under attack every year. Virginia's legislators must remain strong in their commitment to maintain; enforce; and where possible, improve the program.



AUTHORS

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POLICY RECOMMENDATIONS

The historical investments in wastewater treatment plants have been critical to improving the health of our rivers, streams, and the Chesapeake Bay. That same level of investment is needed now to address the growing problem of polluted runoff.

- \$50 million is required annually for the Commonwealth to keep up with its stormwater obligations. The Stormwater Local Assistance Fund is the perfect mechanism to provide these funds, and stable, consistent deposits will allow for great forward momentum towards meeting our restoration goals.
- Consistent and adequate funding for the Virginia Conservation Assistance Program will help restore the creeks and streams our children play in; create habitat for birds, bees, and other pollinators; reduce localized flooding; and protect property values.
- Legislators must not weaken and, where possible, improve Virginia's Stormwater Management Program.

THE GREENWAY AND RESTORED WETLAND WILL REMOVE 453 POUNDS OF PHOSPHORUS, 1,616 POUNDS OF NITROGEN, AND 78,843 POUNDS OF SEDIMENT FROM THE WATERSHED EACH YEAR.

ACHIEVING SAFE AND RESPONSIBLE CLOSURE OF COAL ASH PONDS

INTRODUCTION

Despite evidence of leaking toxins and contaminated groundwater supplies, utilities in Virginia have sought to close coal ash ponds by leaving the ash in decadesold pits and applying only a thin, synthetic cover. For the past two years, legislation has prevented cap-in-place closure by putting these plans on hold until 2019. Now is the time to implement solutions to this problem. Otherwise, Virginia risks falling behind neighboring states, which are making real progress toward cost-effective coal ash disposal and preventing further pollution. The Virginia General Assembly should require that utilities in Virginia dig up their coal ash ponds and either recycle the ash for use in concrete or other safe projects or dispose of it in modern, lined landfills. Doing so will provide a cost-effective solution that boosts the Commonwealth's economy; benefits local businesses; and protects the environment, Virginians, and our communities for future generations.

BACKGROUND

Coal ash — the waste product generated when coal is burned for energy — is the second largest industrial waste stream in the United States. This waste contains a long list of harmful heavy metals, including arsenic, mercury, hexavalent chromium, nickel, lead, cadmium, and selenium. Scientific studies have shown that exposure to these metals — even at low levels — is linked to cancer, respiratory problems, neurological difficulties, and gastrointestinal diseases.

For decades, utilities chose to store coal ash in primitive ponds adjacent to rivers, creeks, and streams. In Virginia, for example, millions of tons of ash sit on the banks of historic rivers, including the Potomac. James, Elizabeth, and Clinch Rivers. Because many of these facilities predate modern federal and state solid waste disposal safeguards, a large number of the coal ash waste sites are unlined and, in many cases, remain in direct contact with groundwater, creating serious pollution problems. In March 2018, utilities began releasing groundwater data from monitoring wells installed at their sites under the Environmental Protection Agency's federal coal ash regulations. These initial results paint a troubling picture in Virginia, with the data clearly establishing that coal ash pits across the Commonwealth are contaminating groundwater with pollutants, such as arsenic, beryllium, chromium, mercury, lead, and radium.

Importantly, these toxic pollutants are not confined to the utility's own property. The utilities' own data

and independent analysis confirm that the polluted groundwater is flowing directly into adjacent rivers and streams, putting Virginians' health, drinking water sources, and environment at risk. Moreover, this analysis shows that cap-in-place will not stop this pollution, but instead will ensure continual pollution of groundwater and nearby rivers. Such plans would also leave the lowlying ash ponds vulnerable to flooding or hurricanes, which could result in catastrophic failures with dire health impacts and high clean-up costs.

75 Utilities in North Carolina, South Carolina, And Georgia are excavating 90 million tons of Coal Ash and Placing It in Modern, Lined Landfills or Recycling It for USE in Concrete or Cement.

Despite these serious problems, cap-in-place has been the utilities' preferred approach in Virginia. In order to close these impoundments, utilities in Virginia must receive two key permits: 1) a water permit to first remove the water from the ponds and 2) a solid waste permit to close the ponds. With the water permitting largely complete, all eyes are on the solid waste permitting process. The solid waste permit will require the conversion of these ponds from wet storage into dry storage in accordance with federal and state laws. In 2017, a new Virginia law paused the permitting process — preventing cap-in-place plans from moving forward — and instead required utilities to complete an assessment of its coal ash ponds in the Chesapeake Bay Watershed with a focus on permanent, longterm solutions. Unfortunately, the utility-produced assessment — released in December 2017 — was clearly biased towards justifying cap-in-place and failed to present a realistic analysis of the existing pollution problems and potential solutions. In response, the Virginia General Assembly again prevented capin-place plans from proceeding, passing a new law that also required a competitive bidding process for recycling projects. The results of that process and more details on recycling coal ash should be available by November 2018.

WORKING TOWARD A SOLUTION FOR VIRGINIA'S COAL ASH

Virginia utilities' preference to date for capping-in-place is in stark contrast to that of utilities in neighboring states. Utilities in North Carolina, South Carolina, and Georgia are excavating 90 million tons of coal ash



and placing it in modern, lined landfills or recycling it for use in concrete or cement. Furthermore, in South Carolina, every single unlined coal ash pit is being excavated with much of the ash being recycled. As these utilities and states have recognized, excavation is a permanent solution to the environmental problems associated with coal ash, and incorporating sensible recycling projects greatly reduces closure costs while providing local economic benefits. In fact, demand for ash in the construction industry is already outpacing supply, and the supply continues to decrease as less ash is being generated due to the retirement of uneconomic coal-fired power plants.

CONCLUSION

While past legislative achievements were critical to preventing irresponsible cap-in-place plans from moving forward, Virginia must now secure safe, longterm storage of coal ash. Virginians deserve clean drinking water, healthy rivers, and safe communities just as our neighboring states to the south have provided. Requiring excavation will ensure these protections are in place, and incorporating recycling projects into the excavation will help keep closure costs low while benefiting local businesses and economies.

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POLICY RECOMMENDATIONS

The Virginia General Assembly must enact legislation to solve our coal ash problem permanently — this means requiring excavation of the ash to modern, lined landfills or for use in safe recycling projects.

The Administration should assume a leadership role on this issue, including ensuring that the Virginia Department of Environmental Quality strictly enforces its laws and regulations and rejects plans and permits — including capin-place plans — which do not comply with applicable requirements.

HEALTHY RIVERS // PIPELINES

SAFEGUARDING FAMILIES AND COMMUNITIES FROM RISKY AND UNNECESSARY PIPELINES

INTRODUCTION

Interstate natural gas pipelines are poised to have the most severe impact on Virginia's natural landscape in decades. Two pipelines that will bisect the Commonwealth — the Atlantic Coast Pipeline and the Mountain Valley Pipeline — pose risks to hundreds of crucial streams and rivers, rugged mountain slopes, productive family farmland, historic resources, sensitive karst geology, and drinking water supplies. These controversial projects would also disrupt and endanger the people living and working in the path of these pipelines and more than double greenhouse gas emissions in the Commonwealth.

Local governments, community leaders, and citizens have raised broad and serious concerns about the public and private lands at risk, including national parks and forests, historic resources, streams, rivers, wetlands, and conserved lands. Landowners whose property is being forcibly taken by condemnation raise important questions about fairness, safety, and property values. Communities along the proposed routes raise serious concerns about the potential for explosions and spills; contamination of public and private water supplies; and impacts to tourism, agricultural, and outdoor recreation-based economies.

BACKGROUND

Currently, two high-pressure, 42-inch pipelines are proposed to carry gas from fracking wells in the Marcellus and Utica shale fields in West Virginia through Virginia and into North Carolina.

The Atlantic Coast Pipeline (ACP) is a \$6 billion joint venture between Dominion Energy, Duke Energy, Piedmont Natural Gas, and AGL Resources. This 600-mile pipeline would originate in West Virginia, run south through Virginia into southeastern North Carolina. Ratepayers will cover the cost of development while shareholders receive a 15% rate of return — Dominion customers in Virginia are expected to pay approximately \$2 billion for the pipeline.

The Mountain Valley Pipeline (MVP) — a joint venture of EQT and NextEra US Gas Assets, LLC — would span approximately 300 miles, extending from northwestern West Virginia, south to Pittsylvania County, Virginia. A proposed 70-mile extension into North Carolina was announced in April 2018. Ratepayers and shareholders will cover the cost of development while shareholders receive 14% rate of return on stock holdings.

These pipelines will have long-lasting impacts on the

environment, water systems, and communities. Some of the impacts include:

- At least 95 million tons per year of greenhouse gas emissions would be produced during the natural gas life cycle. Currently, Virginia has 49.7 million tons per year of greenhouse gas emissions.
- The pipelines require a 75-foot permanent easement with a total easement of 125 feet during construction. This will result in significant forest and habitat losses, impacts to endangered species, and long-term slope and soil instability.
- Access roads, construction staging areas, and compressor stations that considerably compromise air quality and human health standards will impact communities and the environment. Four compressor stations are proposed along the MVP. On the ACP, the compressor station in Virginia is slated for Union Hill in Buckingham County in a historic African American community, raising questions of environmental injustice.
- Combined, these two pipelines will cross Virginia streams more than 1,000 times, including streams deemed "exceptional" by the Virginia Department of Environmental Quality (DEQ). This development will degrade streams locally and regionally set back Chesapeake Bay clean-up plans.

Construction of the MVP has contaminated several streams and springs with sediment during May and June 2018. Erosion control violations were reported to DEQ and West Virginia Department of Environmental Protection for remedial action and enforcement.

Meanwhile, pipeline developers' justification for the ACP and MVP have consistently eroded since plans for the projects were announced in 2014. At the time, the major rationale for the pipelines was to supply fuel to planned gas-fired power plants in the southeast and Mid-Atlantic. However, new infrastructure is not needed to meet present or future demand for natural gas in Virginia or the region, as documented by recent forecasts and expert analysis of an extensive existing pipeline network. Demand forecasts are well below pipeline developers' forecasts, casting doubt on any public benefit from these pipelines. Today, capacity in existing pipelines in the United States is 180 billion cubic feet per day. In 2017, just over one half of all pipeline capacity — 93 billion cubic feet per day — was used for gas transmission. Last year, retail electricity sales¹ in the United States decreased by 2%, the largest drop since 2009. Use of natural gas to produce



electricity declined by a whopping 7.3%.

Dominion's own 2018 Integrated Resource Plan shows its intent to scale back on fossil fuel reliance. It was reported in May 2018 that Dominion was "done building combined-cycle natural gas-fired power plants."

In addition to egregious violations and mounting evidence of a lack of need for new pipelines, more inadequacies continue to be discovered. In May 2018, the Fourth Circuit Court of Appeals revoked the U.S. Fish and Wildlife Service permit after finding the permit did not meet the standards of the Endangered Species Act. Additional lawsuits are challenging insufficient permit reviews at the federal and state levels. The Federal Energy Regulatory Commission received public comments in 2018 to assess the adequacy of the agency's review process. The State Water Control Board has done the same related to the Nationwide Permit 12 for the pipelines.

With little confidence in state and federal oversight, citizen groups have organized sophisticated monitoring efforts. The Pipeline Compliance Surveillance Initiative (CSI) for the ACP and Mountain Valley Watch (MVW) for the MVP support evidencebased efforts — through volunteer monitoring, drones, Pipeline Air Force, and incident-reporting hotlines — to ensure strict application of environmental laws and regulations during construction of the pipelines.

CONCLUSION

It is critical for state and federal agencies to conduct thorough, transparent, and independent analyses that investigate the need for the pipelines and impacts on Virginia's natural landscape and communities. To date, this has not occurred. The process has not effectively engaged the public, exposing communities and resources to risks from long lasting damage during pipeline construction.

The Virginia General Assembly should work to protect landowners, ratepayers, and the environment from risky and unnecessary natural gas pipeline development. It is essential that state lawmakers seriously consider how this industrial venture could permanently alter Virginia's environment and its citizens' quality of life. If these pipeline proposals are approved, then the state should provide assurances that environmental regulations are stringently enforced.



POLICY RECOMMENDATIONS

The Virginia General Assembly should consider legislation to modify SB950 *Interstate natural gas pipelines* (2018) to include stream crossing reviews for drainage areas less than five square miles, analysis of cumulative impacts from multiple crossings within a watershed, and approval of the erosion control plans as a condition for approval of the Water Protection Permit.

Members of the Virginia General Assembly should insist upon reform of outdated Virginia administrative review process for large natural gas infrastructure projects. Virginia's review process does not give the State Corporation Commission (SCC) authority to assess the actual need for duplicative, competing gas pipeline proposals. Legislation is needed that directs the SCC to disallow an electric utility's request to recover fuel costs resulting from the purchase of a greater amount of pipeline capacity for natural gas than the SCC finds is appropriate, and to conduct proceedings to establish the proper amount of natural gas pipeline capacity that an electric utility needs to purchase.

The State should repeal or amend § 56-49.01. Natural gas companies; right of entry upon property. This statute authorizes gas companies to survey land for potential pipeline projects without express permission from property owners. Property owners should have a right to say who can or cannot enter their own property.

The Virginia General Assembly should fully fund the Virginia Department of Environmental Quality (DEQ). DEQ's annual budgets and staff have been significantly reduced over the past 20 years and the agency does not have adequate funding to effectively administer programs. Budget growth by secretarial area from FY07 through FY16 shows a decrease for Natural Resources budgets of 133%.² DEQ's budget from FY08 to FY17 declined by 40% from 60.7 million to 40.8 million.³ DEQ funding was cut and staff were laid off during the recession of 2008-2009. The agency must have adequate resources to review permits, perform meaningful inspections, and fully enforce environmental regulations. We urge the Virginia General Assembly to increase DEQ's budget to pre-recession funding levels.

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PROTECTING WATER, HEALTH, AND COMMUNITIES FROM FRACKING

INTRODUCTION

Virginians have always treasured and relied on our waters to provide fresh drinking water, support healthy ecosystems, and sustain our economy — from the productive, historic Chesapeake Bay; its mountain headwaters; and the Clinch and Powell Rivers (which host some of Earth's most diverse fish and mussel populations) to our underground aquifers, springs, and "losing" streams.

Industrial gas development and hydraulic fracturing (fracking) threaten our waters. Over the past decade, drillers have shown interest in expanding this industry from the coalfields of Southwest Virginia to the farmlands of the Shenandoah Valley and waterfront communities of Tidewater. We must act now to protect our water, our health, and our communities.

BACKGROUND

Natural gas formations exist throughout Virginia, including in the coalbeds of Southwest Virginia and shale underlying the Shenandoah Valley and Tidewater. While there has been interest in pursuing all of these gas plays, drilling currently occurs in Southwest Virginia only.

Extracting gas is an intense industrial activity. Fracking breaks up underground coal and shale so that gas can flow to the surface. While the precise method varies based on local geology and conditions, drillers generally inject water, chemicals, and sand at high pressure to fracture the rock. The Virginia Department of Mines, Minerals, and Energy (DMME) reports that thousands of wells have been fracked in Southwest Virginia.

Gas drilling threatens the health and quality of life for those living near fracking sites and compressor stations. For example, noise and light pollution from around-the-clock operations disrupt sleep and cause headaches, hypertension, and cardiovascular problems. Methane leaks and other emissions pollute the air, increasing risks of respiratory illness and even congenital heart defects. Scientific research increasingly documents a causal connection between fracking and earthquakes. Given the proximity of the Taylorsville Basin to nuclear power plants, like Lake Anna and Calvert Hills, this raises serious questions about the suitability of fracking in this region. Work truck traffic damages and clogs small, rural roads. Lower property values can persist for decades after drilling stops.

"

PEER-REVIEWED STUDIES LINK FRACKING CHEMICALS TO A VARIETY OF HEALTH CONCERNS, INCLUDING RESPIRATORY AND NEUROLOGICAL PROBLEMS; CANCER; AND ENDOCRINE DISRUPTION LINKED TO CANCERS, INFERTILITY, AND BIRTH DEFECTS.

In addition to the drastic impacts of gas drilling and fracking on the quality and way of life for local, largely rural communities, they pose serious risks of contaminating surface waters and groundwater — this includes Virginia's Potomac Aquifer, which provides drinking water to approximately 2.5 million Virginians. Consider the following:

- Comprehensive Environmental Protection Agency (EPA) report documents fracking activities can lead to water contamination at every stage, sometimes rendering drinking water sources totally unusable (2016);
- Stanford University study, led by former EPA scientist, links fracking waste to contaminated drinking water wells in Wyoming, suggesting fracking chemicals contaminated entire groundwater resource in natural gas basin (2016);
- Investigation by DMME concludes drilling operation contaminated nearby drinking water well (2008);
- Pennsylvania reveals drilling activities contaminated 243 private drinking wells (2014); and
- Texas floods cause oil and fracking chemicals to flush into nearby rivers (2016).

Surface spills and fracking wastewater pit failures are the most frequent sources of water contamination. Causes include tank ruptures, impoundment failures, overfills, accidents, equipment defects, and human error. In addition, solid fracking waste, drilling muds, and cuttings can contain naturally occurring radioactive materials (NORM) and heavy metals that can leach into groundwater and contaminate soils:

- DMME investigator finds pit fluid and cuttings escaped a waste pit and settled in nearby spring that provided drinking water to nearby resident (2008); and
- 866 tons of radioactive drilling waste from West Virginia dumped illegally in Kentucky landfill

(2015).

These failures can have profound health effects. Peerreviewed studies link fracking chemicals to a variety of health concerns, including respiratory and neurological problems; cancer; and endocrine disruption linked to cancers, infertility, and birth defects.

CONCLUSION

Virginia's waters are a tremendous asset and critical to the health and way of life for millions of Virginians. The Virginia General Assembly must institute commonsense protections in the 2019 legislative session to address the documented risks that gas drilling and fracking pose to public health, our communities, and our environment.

AUTHORS

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POLICY RECOMMENDATIONS

The Virginia General Assembly needs to proactively address the significant risks associated with industrial gas development. Options include a regional or statewide moratorium on fracking, as well as stronger regulatory protections for Virginia's people, environment, and natural resources:

- Prohibit use of surface pits for fracking waste;
- Require safe management and disposal of contaminated wastewater and solid waste, including radioactive material; and
- Increase financial assurances requirements for drillers and funding to DMME for compliance and enforcement.

Any attempt to weaken existing environmental, health, and safety laws and regulations is unacceptable. This includes Freedom of Information Act (FOIA) loopholes that would excuse drillers from disclosing the fracking chemicals they use.

Local land use authority must be maintained with respect to oil and gas development.



ADDRESSING SEA LEVEL RISE AND OUR CHANGING CLIMATE TO PROTECT FUTURE GENERATIONS

INTRODUCTION

Virginia is facing and must respond to many challenges associated with a changing climate, particularly with respect to sea level rise, recurrent flooding, increased air and water temperatures, and increased storm and rainfall intensity. The potential effects on our agriculture, energy, land-use decisions, economy, health, and ecosystems were initially documented in the 2008 Governor's Commission on Climate Change. Since that time, little progress has been made towards implementing the recommendations of the Commission. Much more work is needed in Virginia to ensure that our natural systems, infrastructure, economy, and citizenry remain healthy and resilient in the face of change.

BACKGROUND

Virginia is experiencing a changing climate: carbon dioxide levels have increased by more than 40% since the late 1700s due to the burning of fossil fuels and human industrial activity. These greenhouse gases have warmed the surface and lower atmosphere approximately 1° F during the last 50 years — in 2008, the Governor's Climate Change Commission estimated a 3.6° F increase by 2100. As oceans warm, the water expands, and as the atmosphere warms, land-based glaciers melt and add large volumes of water into the oceans resulting in sea level rise. Coastal Virginia is facing a major threat from sea level rise with one of the highest rates of relative sea level rise on the Atlantic Coast (approximately 1.45 feet since 1930). The Hampton Roads region is particularly at risk, because in addition to rising seas, the land is sinking. A warmer atmosphere also results in increased rain intensity. Studies in Virginia Beach indicate increases in the number of high intensity rainfall events and in the ten-year storm precipitation rates. These studies recommend a 20% increase in the design storm criteria for stormwater practices to accommodate these precipitation increases.

The impacts of warming are not the only consequences of increased carbon dioxide. Carbon dioxide reacts with water to form carbonic acid, causing oceans, rivers, and estuaries — like the Chesapeake Bay and its tributaries — to become more acidic.

Virginia conducted a comprehensive review of these impacts in the 2008 Governor's Commission on Climate Change and again in the 2014 Climate Change and Resiliency Update Commission. In addition, many other studies have been conducted projecting sea level rise impacts coming to coastal Virginia, along with increased rainfall intensity. To date, little has been done at the state level to respond to these projections, leaving local governments in Virginia to find their own solutions. As a result, there are a variety of uncoordinated approaches to increased resilience needs in the state.

75 Coastal Virginia is facing a major threat from sea Level Rise with one of the highest rates of relative sea level Rise on the atlantic coast (approximately 1.45 Feet Since 1930).

State programs do not address the reality of sea level rise or other climate impacts in their operations, regulations, or plans. There is no state guidance being provided to localities on the future impacts for which they should be planning. While state programs exist to fund adaptation efforts — such as the Virginia Shoreline Resiliency Fund — no state funding has been provided to begin adaptation actions. The federal government's initiatives on sea level rise and climate change have been reversed in recent months. As a result, without state action, Virginia's communities are increasingly vulnerable to the economic, physical, and environmental consequences of climate change.

CONCLUSION

Virginia has acknowledged the impact that sea level rise and climate change have on coastal communities. Numerous studies have made recommendations on actions for Virginia to address sea level rise and mitigate the impacts of a changing climate. The state needs a targeted and coordinated response for state programs and explicit guidance for action by Virginia's localities.



AUTHORS

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RECOMMENDATIONS

MITIGATION

- Virginia's decision makers should take a comprehensive approach to addressing the factors contributing to climate change and sea level rise. Investing in energy efficiency is one of the most cost-effective means of reducing greenhouse gas pollution. For a detailed look at Virginia's energy efficiency options, see *Capitalizing on Efficiency*, *Virginia's Underutilized Energy Resource* on page 42.
- By joining the Regional Greenhouse Gas Initiative (RGGI), Virginia could reduce carbon emissions from electricity generation by as much as 30% by 2030. For more information on joining RGGI, see *Reducing Carbon Pollution and Investing in the Commonwealth* on page 34.
- Additionally, Virginia's policy leaders must address the largest source of carbon emissions in the Commonwealth — the transportation sector. For information and recommended steps to advance cleaner transportation, see Achieving Smart Transportation on page 62.

ADAPTATION

 The Administration — under the direction of the Governor's Special Assistant to the Governor for Coastal Adaptation and Protection should develop Virginia-specific projections for temperature change, sea level rise, storm intensity, and changes in rainfall.

- All state agencies and departments should evaluate and consider climate impacts when making decisions on agency operations, programs, funding allocations, planning documents, and regulations.
- The Administration under the direction of the Governor and the Special Assistant to the Governor for Coastal Adaptation and Protection — should provide consistent guidance, updated regularly, on climate change endpoints for which localities should plan.
- The Administration and state legislature should establish a state requirement that all localities and regional planning authorities include climate impacts in all long-range planning processes (e.g. comprehensive, transportation, water-supply, hazard mitigation) and land use decisions.
- The Administration and state legislature should fund adaptation efforts through existing funding mechanisms beginning with \$50 million annually to the Virginia Shoreline Resiliency Fund.
- Develop new or refocus existing programs to conserve natural areas along vulnerable coastlines to protect against development and to allow for marsh migration.
- Revisit design-storm criteria in Virginia's water quality regulations to ensure that they reflect current precipitation data.

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AVOIDING THE HEALTH AND ECONOMIC RISKS OF DRILLING OFF VIRGINIA'S COAST

INTRODUCTION

The Trump Administration is proposing to open nearly all United States waters to offshore oil and gas drilling and seismic airgun blasting — including off Virginia's coast.

This is a major shift in national policy. To date, no producing oil or gas wells have ever been drilled off the coast. At the same time, the federal administration is also proposing to roll back safety regulations put in place after the Deepwater Horizon disaster. Offshore drilling is not worth the risk to Virginia's coastal communities, military preparedness, local and state economies, and marine environment.

BACKGROUND THE THREAT TO VIRGINIA'S COMMUNITIES

More than 160 communities have passed anti-drilling resolutions up and down the Atlantic Coast, including major coastal cities like Miami, Savannah, Charleston, Annapolis, and Wilmington. In Virginia, numerous localities along the coast have opposed seismic testing and/or offshore drilling. This includes the cities of Hampton, Norfolk, Suffolk, Portsmouth, and Virginia Beach; and James City County, Isle of Wight County, and Accomack and Northampton Counties; along with the Hampton Roads Planning District Commission, which is comprised of elected officials representing each of the 17 localities in Hampton Roads.

In a worst-case scenario, a single oil spill could devastate Virginia's coastal waters and communities. Routine spills and accidents also pose ongoing environmental and health-related risks, as do onshore infrastructure and activities that accompany the offshore oil and gas industry, such as oil refineries, storage facilities, pipelines, and increased traffic. Increased industrialization of the coast would forever alter the character of our coastal communities.

The projected increase in the number and intensity of storms — both tropical and nor'easters — is also a significant concern, as severe weather would affect the safe operation of oil field support vessels and aircraft, as well as hamper any clean-up operations in the event of a spill.

THE THREAT TO OUR NATION'S MILITARY

The Department of Defense (DoD) has expressed concerns that drilling off Virginia's coast would interfere with military preparedness. The Hampton Roads Navy bases constitute the largest naval facility in the world and account for 40% of the region's economy. The open waters off the coast provide critical space for training and operations. Likewise, the Air Force utilizes the airspace and conducts air-to-surface training and testing operations off the coast of Virginia. For safety reasons, live weapons testing and training require expansive areas. A DoD report found that nearly threequarters of the area off Virginia's coast should be off limits to oil and gas exploration because of interference with military operations.

77 OFFSHORE DRILLING IS NOT WORTH THE RISK TO VIRGINIA'S COASTAL COMMUNITIES, MILITARY PREPAREDNESS, LOCAL AND STATE ECONOMIES, AND MARINE ENVIRONMENT.

NASA has also expressed concern that drilling structures and increased ship and air traffic would have a significant detrimental effect on launching and testing operations at the aerospace Wallops Flight Facility.

THE THREAT TO LOCAL ECONOMIES AND COASTAL RESOURCES

Tourism, fishing, and recreation are booming industries in Virginia. In 2017, tourism revenue reached \$25 billion and supported 232,000 jobs. In Virginia's coastal region in 2016, tourism generated \$4.7 billion in revenue and \$386 million in state and local taxes. Additionally, over 44,000 jobs and nearly \$1 billion in salaries rely on tourism along Virginia's coast.

Because of this, leading tourism associations — like the Virginia Beach Restaurant Association; the Virginia Beach Hotel Association; the statewide Virginia Restaurant, Lodging and Travel Association; and others — have joined hundreds of local businesses along the Atlantic Coast to oppose offshore drilling.

Virginia is the largest seafood producer on the East Coast and the third largest in the United States. Working watermen landed 417 million pounds of seafood in 2015 with sales over \$1.1 billion. Virginia's 50 commercial fishery species — including scallops, crabs, clams, flounder, and striped bass — and 15,000 jobs would be at risk from oil spills and ongoing pollution impacts from drilling.

The negative economic impacts of the 2010 BP oil spill disaster are severe and ongoing, with far-reaching consequences that are still being discovered — these consequences include devastating economic losses, human health impacts, and harmful effects on marine ecosystems. Impacts to fisheries could total \$8.7 billion by 2020. Roughly 10 million user-days of beach, fishing, and boating activity have been lost, with a projected loss of more than 22,000 jobs in fisheries-related sectors.

CONCLUSION

Drilling off Virginia's coast is incompatible with vibrant, clean beaches; healthy coastal habitat and resources; and the communities and economies that depend on them. Virginia should seek to protect our coast through both administrative and legislative actions.



AUTHORS

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POLICY RECOMMENDATIONS

The Virginia General Assembly should prohibit seismic exploration, offshore drilling, and drilling infrastructure in Virginia's coastal waters.

The Virginia General Assembly should repeal Virginia Code section §67-300 A and B, which currently expresses support for drilling 50 miles off the Virginia coast. Instead, policymakers should enact legislation that reflects opposition to any offshore drilling activity including seismic exploration — to protect the Commonwealth's coastal waters and resources.

The Virginia General Assembly and the Northam Administration should strengthen policies that protect Virginia's coastal zone from the risks associated with offshore drilling to Virginia's fisheries, marine life, coastal habitats, wetlands, and other coastal resources.



DRILLING OFF VIRGINIA'S COAST IS INCOMPATIBLE WITH VIBRANT, CLEAN BEACHES; HEALTHY COASTAL HABITAT AND RESOURCES; AND THE COMMUNITIES AND ECONOMIES THAT DEPEND ON THEM.

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REBUILDING VIRGINIA'S OYSTER POPULATION THROUGH RESTORATION AND REPLENISHMENT EFFORTS

INTRODUCTION

The native oyster (Crassostrea virginica) is one of the Chesapeake Bay's keystone species and of great ecological, economical, and historical importance in the Commonwealth. Fortunately, during the 2018 legislative session, the Virginia General Assembly authorized an increased investment in efforts to improve the state's fishery, and for the first time, made a monetary investment in ecological restoration, which supports a wide array of ecosystem services. These investments will ensure the Commonwealth is better positioned to take advantage of opportunities to further oyster restoration efforts with federal partners such as the U.S. Army Corps of Engineers, as well as opportunities to further improve water quality and support revitalization of other fisheries.

BACKGROUND

The Chesapeake (meaning "great shellfish Bay" in Algonquin) Bay had historical reefs so expansive, they posed navigation hazards to explorers and watermen. With the ability of each adult oyster to filter up to 50 gallons of water a day, they are a key ingredient to removing pollution and increasing water quality in the Bay and its tributaries. There was a time when the oyster population in the Bay was so vast, the entire 19 trillion gallons of water could be filtered in less than a week — our current population would take a whole year to filter the Bay.

Oysters are a keystone species that build threedimensional reefs. These reefs provide critical nursery habitat for many commercially important species, such as blue crab and striped bass. Restoration is important to increasing the vitality of oyster populations by providing areas for reproduction, which can spill over into nearby harvest bars and create disease-resistant stocks. It is estimated that sanctuary oyster reefs provide 34% higher economic value over a 50-year period than traditionally harvested reefs because of their important ecosystem services.

Fortunately, targeted successful restoration efforts are being implemented by a host of federal, state, and nongovernmental organizations to increase the population and meet the oyster goal for the Chesapeake Bay Watershed Agreement. In 2018, the Lafayette River was declared the first tributary in Virginia to meet the restoration metrics adopted by the Chesapeake Bay Program after significant contributions by local partners, the state, and federal agencies. Restoration efforts will now be focused on other tributaries such as the Lynnhaven, Piankatank, and Great Wicomico in order to meet the Chesapeake Bay Program's goal of restoring five tributaries by 2025.

7 THERE WAS A TIME WHEN THE OYSTER POPULATION IN THE BAY WAS SO VAST, THE ENTIRE 19 TRILLION GALLONS OF WATER COULD BE FILTERED IN LESS THAN A WEEK — OUR CURRENT POPULATION WOULD TAKE A WHOLE YEAR TO FILTER THE BAY.

The Chesapeake Bay is one of the last places in the world with a wild harvest oyster industry. Oyster replenishment efforts can help provide the necessary substrate for oysters to thrive and become selfsustaining once again. These replenishment efforts provide both ecological and economic returns to the Commonwealth due to the many water quality benefits of oysters and the increased harvest opportunities for our working watermen.



AUTHORS

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POLICY RECOMMENDATIONS

Rebuilding the Chesapeake Bay's oyster population provides multiple economic and ecological benefits. These benefits include more robust oyster harvests, cleaner water, and more habitat for economically important species, such as blue crabs and striped bass. To increase the replenishment of oysters in the Chesapeake Bay — both for restorative and harvestable purposes — Virginia's biannual budget should include \$4 million allocated for wild oyster replenishment and \$1 million for ecological restoration.





HEALTHY RIVERS // MENHADEN

SUPPORTING A HEALTHY MENHADEN POPULATION TO ENSURE VIABILITY OF LOCAL AND REGIONAL ECONOMIES

INTRODUCTION

The Atlantic States Marine Fisheries Commission (ASMFC) manages Atlantic menhaden (Brevoortia tyrannus) along with numerous other coastal migratory species through an Interstate Fisheries Management Program. In November 2017, ASMFC adopted Amendment 3 to the Fishery Management Plan, which resulted in modest changes for the management of this species in Virginia. During the 2018 General Assembly session, legislation necessary to bring Virginia into compliance with these changes was unsuccessful. Due to this lack of compliance, ASMFC initiated a noncompliance finding during its May meeting, because the Commonwealth failed to fully implement all provisions of Amendment 3 to the Interstate Fishery Management Plan.¹

BACKGROUND

Since colonial times, Atlantic menhaden (menhaden) have supported one of the largest commercial fisheries on the Atlantic coast. Omega Protein — whose Virginia operations are based in Reedville, Virginia - operates an industrial-scale fishery that catches menhaden and eventually "reduces" them to fish meal and oil. The Chesapeake Bay is also home to a large component of the menhaden bait fishery, which has become increasingly important from North Carolina to New England. The bait fishery supplies commercial fishermen with menhaden to catch species — such as blue crab and American lobster — while also supplying recreational fisheries with bait for a variety of sport fish. In 2015, the bait harvest accounted for 22% of the total menhaden harvest. Most importantly, the species serves as a forage fish to larger fish, marine mammals, and predatory birds in the marine and estuarine ecosystems.

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SINCE COLONIAL TIMES, ATLANTIC MENHADEN HAVE SUPPORTED ONE OF THE LARGEST COMMERCIAL FISHERIES ON THE ATLANTIC COAST.

Menhaden are managed through a partnership between the Commonwealth of Virginia and ASMFC. ASMFC is composed of 15 Atlantic Coast states and partnering federal agencies that provide technical support and set the coast-wide framework for managing species that migrate along the near-shore waters of the Atlantic Coast. ASMFC seeks to promote responsible stewardship of marine fisheries resources and also "...serves as a forum for the states to collectively address fisheries issues under the premise that as a group, using a cooperative approach, they can achieve more than they could as individuals. The Commission does not promote a particular state or a particular stakeholder sector."²

On November 17, 2017 — after much consideration and tremendous public comment supporting more conservation-minded menhaden management — ASMFC adopted Amendment 3, which included modest revisions to the Fishery Management Plan for menhaden. These changes were adopted primarily to slightly increase harvest along the Atlantic Coast and update changes to the fishing rate for menhaden in the Chesapeake Bay based on the most recent five years of reported harvest.

During the 2018 legislative session, the Virginia General Assembly failed to adopt necessary legislation, to bring Virginia into compliance with the coastwide management plan. The main objective of this legislation was to implement a new quotas menhaden fishing industry beginning with the 2018 fishing season.



AUTHORS

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POLICY RECOMMENDATIONS

In the 2019 legislative session, the Virginia General Assembly should pass legislation necessary to comply with the provisions of the coast-wide management plan included in Amendment 3 and any new management changes adopted by the Atlantic States Marine Fisheries Commission's Fishery Management Plan for menhaden. Virginia's coastal fisheries are dependent upon a healthy menhaden population to ensure the long-term viability of the fishery and the local and regional economies that are dependent upon them.



RECONNECTING AND RESTORING STREAM HABITAT TO INCREASE FISH POPULATIONS

INTRODUCTION

The eastern brook trout (Salvelinus fontinalis) — the official freshwater fish of Virginia — is valued by conservationists and sportsmen alike for its beauty and as an indicator of high water quality. Once widespread, the native brook trout has been lost from 38% of its historic range and are now found primarily in headwater streams in and around Shenandoah National Park and the George Washington and Jefferson National Forests. Brook trout need clean, cold water (no higher than 68° F) to survive, and land-use changes and habitat degradation over the course of the past century have significantly decreased their populations. Restoring riparian buffers and replacing failing road crossings on private and public property is a priority for the conservation of this species. It is also a way to increase climate and infrastructure resiliency, improve water quality, and restore habitat for numerous other aquatic species.

BACKGROUND

Virginia has the strongest native brook trout populations in the southern part of the species' historic range,¹ which spans from Maine to Georgia. According to the Virginia Department of Game and Inland Fisheries, there are 2,300 miles of wild brook trout waters in the state. It is an iconic species in the Appalachians, where descendants of mountain families can still recall seeing this beautiful fish in high numbers. The construction of roads and land clearing for development and farming over the centuries greatly reduced the availability of brook trout habitat. Undersized crossings constrict streams and make fish passage difficult — if not impossible in some areas - effectively cutting off pockets of fish from larger populations and important spawning habitat. Poor fish passage creates isolated populations, causing low genetic diversity and the inability to move to healthier habitat. Lack of riparian buffers further downstream increases water temperatures, polluted runoff, and restricts access to food, creating unsuitable habitat for many aquatic species and impacting water quality.

In 2013, the Piedmont Environmental Council (PEC) surveyed barriers to aquatic organism movement in all Class I trout streams (as designated by the Virginia Department of Game and Inland Fisheries) in Rappahannock, Madison, Greene, and Albemarle counties. PEC found that out of the 133 crossings assessed, only 41% had full aquatic organism passage. Perched culverts that sit higher than one foot above the water surface create significant barriers for aquatic organisms attempting to migrate upstream. Undersized crossings restrict natural stream flow, particularly during floods. They cause problems such as scouring and erosion, high flow velocity, clogging, and ponding. Improper crossings — coupled with inadequate vegetated buffers — negatively impact both fish and water quality. These passage and habitat issues also affect other species of anadromous fish and many sensitive species, such as American Shad, Atlantic River Herring, and imperiled freshwater mussels. Solutions discussed above could be replicated and would provide the same benefit for many aquatic species throughout the Commonwealth.

7 RESTORING RIPARIAN BUFFERS AND REPLACING FAILING ROAD CROSSINGS ON PRIVATE AND PUBLIC PROPERTY IS A PRIORITY FOR THE CONSERVATION OF EASTERN BROOK TROUT.

The Virginia Department of Transportation (VDOT) manages the majority of road crossings in the Commonwealth. VDOT is regulated by Total Maximum Daily Load (TMDL) goals for pollution reduction, as issued by VDOT's own Municipal Separate Stormwater Sewer System (MS4) permit. By working to replace failing crossings and restore stream buffers, efforts could be applied towards VDOT's water quality goals as described in the Chesapeake Bay Agreement and MS4 permit. Additionally, by replacing failing crossings with more flood resilient designs, VDOT will benefit from substantial long-term cost savings of infrastructure maintenance.

The Department of Game and Inland Fisheries (DGIF) monitors fish populations throughout the state. DGIF, Trout Unlimited, and other conservation groups rely on population data to make informed decisions on prioritizing stream restoration projects, which require a lot of resources. Many stream reaches in the brook trout's range are not regularly monitored due to limited staffing and resources. DGIF should be appropriated more financial resources to assess this species populations more frequently.

CONCLUSION

Revegetating riparian buffers and replacing failing road crossings is paramount for the conservation of eastern brook trout — our state fish — and other at-risk aquatic species. Improving habitat for aquatic organisms will also give VDOT the opportunity to improve infrastructure resiliency in the face of climate change while simultaneously allowing the agency to meet its MS4 goals.

AUTHORS

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POLICY RECOMMENDATIONS

Recommend that the Department of Game and Inland Fisheries (DGIF) enter into a Memorandum of Understanding (MOU) with the Virginia Department of Transportation (VDOT) and Department of Conservation and Recreation (DCR) designed to require the consideration of fish-friendly stream crossing design alternatives whenever new stream crossings are proposed or existing crossings are being replaced throughout the Commonwealth. This MOU will incite the alternatives consideration when these activities occur in DGIF-mapped trout habitat or would impede the movement of migratory fish species. Currently, there is a similar existing MOU between VDOT, DCR, and DGIF that requires the annual consideration of public water access at road crossings where work or maintenance is proposed. Including the consideration of fish-friendly stream crossing design alternatives provides another important avenue for interagency collaboration on projects that benefit fish and wildlife and are consistent with the Chesapeake Bay Agreement goals.

Support legislation or administrative action that would direct the Virginia General Assembly to appropriate \$250,000 from the general fund to the DGIF budget for Wildlife and Freshwater Fisheries Management (Item 372, Wildlife Management and Habitat Improvement 51106) to increase the frequency, specificity, and reliability of the fish shocking data collection efforts.



INTRODUCTION

The health of Virginia's rivers and streams is paramount to a strong economy and environment. The Commonwealth is blessed with natural aquatic wonders such as the James River and the Chesapeake Bay and has a storied history of responsible water conservation. Nonetheless, litter pollution in the watershed has long been an unresolved issue. Burgeoning research detailing the consequences of unchecked plastic pollution on waterways, wildlife, and human health has created a new urgency to the matter.

BACKGROUND

What kind of litter is most commonly found in our waterways? The main culprits, by prevalence: cigarette butts; plastic bottles; plastic bags; food wrappers; and fast-food cutlery, such as straws, cups, plates, forks, knives, and spoons. Where does the litter come from? Deliberate littering and illegal dumping in streets and parks are certain contributors, but litter is more often unintentional. Overflowing, unsecured trash and recycling receptacles from homes and businesses contribute a substantial portion of litter debris.

Currently, municipalities are given inadequate tools to control this kind of litter. Consequently, the litter is conveyed into waterways through the local stormwater system. During a rain event, uncontrolled debris is swept from streets into drains that flow directly into out-of-sight streams. From there, the litter is either permanently deposited into local tributaries or swept into larger bodies of water, such as the Chesapeake Bay or Atlantic Ocean. According to the Environmental Protection Agency, 80% of marine debris originates as land-based trash.¹

Litter is far from just an eyesore — its impact on water and habitat quality is wide-ranging. Ingestion or entanglement often proves fatal for wildlife. Turtles, birds, fish, mammals, and important filtering bivalves like oysters and mussels mistake plastic items for food.² Flooding from storm drain blockages due to litter is also common. The Virginia Department of Transportation estimates that it spends \$6 million a year picking up litter on roadways (not including its Adopt-A-Highway program, which provides annual savings of \$1.35 million) — this only scratches the surface of the overall economic impact.³

The use of plastics, which has exponentially increased in recent decades, poses a significant threat to Virginia's waterways. Plastics — especially bags and bottles —

fragment into increasingly smaller pieces, which are nearly impossible to remove from water and soil. The resulting microplastics do not biodegrade (e.g. they maintain their unique chemical properties even as they are no longer easily seen). Research finds that plastics can leach potentially harmful chemicals into water, and furthermore, they attract other persistent, bioaccumulative, and toxic (PBT) chemicals that can be passed back up the food chain via seafood. One recent study found microplastics in 98% of all water samples from the Chesapeake Bay. Both the Virginia Institute of Marine Science and University of Maryland are currently researching microplastics' effects on sediments and submerged aquatic vegetation, the bedrocks of the ecosystem.⁴

77 According to the environmental protection agency, 80% of marine debris originates as land-based trash.

Notably, Virginia is the first state on the East Coast with a plan in place to reduce marine debris — the Virginia Marine Debris Reduction Plan.⁵ While the plan outlines goals and priorities for local governments and nonprofits working on this issue, legislators are in a unique position to contribute to water quality improvements. Neighboring lawmakers are steps ahead, making significant strides with commonsense policy. Washington, D.C. and Montgomery County, Maryland have both implemented a polystyrene ban, as well as a five-cent fee on plastic bags to address the Anacostia River's pollution problem. City officials reported a 50-70% decrease in household plastic bag usage, and the Alice Ferguson Foundation reported similar decreases during recent cleanup inventories. Revenues from the bag fee (\$2+ million annually) are used to implement education, trash capture, and stream restoration projects throughout the Anacostia Watershed. Additionally, funds are used to distribute reusable bags to low-income and aging populations throughout the District.⁶ In contrast, over the past few decades, the Virginia General Assembly has failed to pass several versions of a plastic bag fee law, as well as a bottle bill that would allow each local jurisdiction to decide what's best for its own needs.

CONCLUSION

The Commonwealth of Virginia must take a proactive approach to litter prevention and reduction to sufficiently protect its natural resources. The Virginia General Assembly must take a leadership role on this issue and carefully consider plastic's staggering ubiquity in our local waterways and coastal waters. Virginia should encourage businesses — as well as citizens — to reduce waste generation. China's ban on the United States' trash and recyclables is a clear indication that there should be an expanded emphasis on waste prevention — not just recycling — in the region. Failure to do so could result in over-stressed landfills and a further imperiled environment.



AUTHORS

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RECOMMENDATIONS

The Litter Tax (58.1-1707) — an annual \$10-25 fee (established in 1977) on retailers that sell commonly littered products — needs to be adjusted to account for 41 years of inflation.

Legislators must consider allowing local jurisdictions to invoke fees or bans on commonly littered items, such as single-use plastics. Furthermore, any legislation with a possible feebased structure should consider diverting said funds towards clean-up programs or education that helps reduce waste.

Sample language of potential bill (adapted from McWaters SB1103 bill in 2015): "Allows any locality by ordinance to prohibit or add fee to the distribution or sale of disposable plastic shopping bags to consumers. Potential fee could be retained by retailer or utilized by locality for pollution and litter mitigation. The bill exempts from any such prohibition reusable bags of a certain thickness; bags that are used to carry certain products, such as ice cream or newspapers; and garbage bags that are sold in multiples."



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GIVING FARMERS THE TOOLS THEY NEED TO PROTECT OUR RIVERS AND STREAMS

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MEETING THE GROWING NEED TO TACKLE POLLUTED RUNOFF

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VCNVA.ORG/CLEAN-ENERGY

CLEAN ENERGY

REDUCING CARBON POLLUTION AND INVESTING IN THE COMMONWEALTH BREAKING DOWN BARRIERS TO SMALL-SCALE SOLAR TRANSFORMING A MODERN GRID FOR A CLEAN ENERGY ECONOMY REFORMING THE STATE CORPORATION COMMISSION CAPITALIZING ON EFFICIENCY, VIRGINIA'S UNDERUTILIZED ENERGY RESOURCE MAKING OFFSHORE WIND A REALITY IN VIRGINIA ADDRESSING ENVIRONMENTAL INEQUALITIES IN VIRGINIA

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REDUCING CARBON POLLUTION AND INVESTING IN THE COMMONWEALTH

INTRODUCTION

Throughout the Commonwealth, communities are experiencing the impacts of climate change storms are stronger, flooding is more prevalent, and temperatures rise each year.

However, just as science details the effects of climate change, it also clearly identifies humans as its driving force. Activities such as electricity generation and transportation produce carbon emissions that cause global warming. Additionally, our reliance on fossil fuels has had a negative impact on the health of our families, friends, and neighbors throughout Virginia.

Fortunately, Virginia has a unique opportunity to both address the cause of climate change while also mitigating its impacts. Additionally, this solution could drive the Commonwealth's transition to clean energy, create thousands of jobs, and make Virginia a leader on climate action.

BACKGROUND

In 2017, former Governor McAuliffe signed Executive Directive 11, a regulatory action that would allow Virginia to reduce carbon emissions by linking with a multi-state carbon market known as the Regional Greenhouse Gas Initiative (RGGI).

RGGI is a joint effort between nine Northeast and Mid-Atlantic States. RGGI functions by capping carbon emissions from certain power plants and then requiring those power plants to purchase emission allowances through quarterly auctions. These auctions create a valuable revenue stream for member states, encouraging investments in efficiency programs, lowincome energy assistance, and incentives for renewable energy.

States in the Mid-Atlantic and Northeast regions of the United States have begun to take action to prevent unnecessary health risks for their residents. Over a five-year period from 2009-2014, the nine RGGI states improved air quality throughout the region and created significant public health benefits while reducing greenhouse gas emissions. According to a study from ABT Associates, the greenhouse gas reductions in the nine RGGI states promoted significant health benefits for its states' residents. The public health impacts were significant — hundreds of premature deaths were avoided, along with heart attacks, bronchitis, emergency room visits, and hospital admissions. Additionally, several thousand asthma exacerbations were avoided due to limiting air pollution. Increased health allowed taxpayers to work and productively contribute to society, while employers didn't have to slow economic production due to lost workdays related to air pollution. In total, the reduction in air pollution saved employers about \$5.7 billion dollars. Rather than spending those dollars on ever-increasing health costs, that money could be put to work in the local economy.

RGGI is a cap-and-trade system — this means that each state sets a ceiling of total in-state carbon pollution and then allows participating power plants to purchase allowances to emit carbon in an open auction market. Many RGGI states reinvest their auction revenues in programs to reduce customer consumption and energy bills. In linking with RGGI through Executive Directive 11, Virginia enjoys the environmental benefits of lower carbon pollution; however, due to provisions in the state constitution, Virginia cannot directly use the auction revenue for energy efficiency and sea level rise mitigation efforts.

Merely linking with RGGI is not the only available option. Virginia's policymakers can access RGGIrelated revenue and direct its investment towards the benefit of families and communities across the Commonwealth. By passing legislation that allows Virginia to join — versus link to — RGGI as a full member state, the Commonwealth could receive up to \$1 billion in additional revenue by 2030.

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BY PASSING LEGISLATION THAT ALLOWS VIRGINIA TO JOIN — VERSUS LINK TO — THE REGIONAL GREENHOUSE GAS INITIATIVE AS A FULL MEMBER STATE, THE COMMONWEALTH COULD RECEIVE UP TO \$1 BILLION IN ADDITIONAL REVENUE BY 2030.

Joining — rather than linking with — RGGI would allow Virginia's leaders to invest in resiliency projects for coastal communities. Coastal Virginia has seen a 325% increase in nuisance flooding — defined as flooding that leads to public inconveniences, such as road closures and business disruption — since 1960. This problem is most prevalent in Hampton Roads, an area that is home to nearly 1.6 million people and the largest naval base in the world. Joining RGGI could provide the first consistent funding source for flooding mitigation and prevention by diverting a significant amount of RGGI market revenue to the Shoreline Resiliency Fund, which allows localities to receive loans for flooding
adaptation projects.

Funding opportunities would not be limited to the coast. RGGI revenues could also be allocated to advance development in economically distressed areas of Virginia, such as Southwest Virginia. By utilizing a portion of RGGI funds to create an account that would provide opportunity, education, and workforce training programs for families and businesses in Southwest Virginia, legislators can help empower and grow local economies and keep Virginians in the communities they call home.

Virginia could also have the opportunity to invest auction revenues into energy efficiency programs. Not only is efficiency the lowest-cost energy option, its effects are immediate and financially tangible for Virginians. This financial impact is twofold. First, energy efficiency lowers ratepayers' utility bills. This is especially impactful for low- and moderate-income Virginians. Second, the installation and implementation of energy efficiency projects require skilled labor. Increased demand for efficiency creates a corresponding workforce demand, creating jobs for Virginians across the Commonwealth.

In addition, auction revenues could be used to invest in clean transportation alternatives. Transportation is the largest source of carbon pollution in the Commonwealth. Other RGGI states have invested revenues into programs, such as rebates for the purchase of zero-emission fuel vehicles and grants to install fast electric chargers or to reduce freight vehicle idling. These measures don't only reduce greenhouse gas emissions — they offer health benefits by reducing other pollutants and economic benefits by reducing dependence on foreign oil and by cutting business expenses.

The RGGI market itself will also prove to be an enormous economic boost to the Commonwealth, if Virginia was to formally join. Over the last three years (2015-2017), the RGGI program led to \$1.4 billion of net positive economic activity in the nine-state region.¹ The program also led to savings of \$99 million for electricity consumers and \$121 million for consumers of natural gas and heating oil during the same time period.²

POLICY RECOMMENDATIONS

Policymakers should pass legislation allowing Virginia to formally join the Regional Greenhouse Gas Initiative.

Policymakers should invest a significant portion of auction revenue in projects that directly benefit Virginians, such as energy efficiency, flooding resilience, clean transportation, and economic development.

CONCLUSION

Formally joining RGGI provides a unique opportunity for Virginia. Becoming a member state will create a new revenue stream to fund important investments across the Commonwealth. Virginia's policymakers should take this next step to address climate change, bolster communities, increase the health of their constituents, and make Virginia a leader in job creation and renewable energy.

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IN AN EFFORT TO REDUCE ITS CARBON FOOTPRINT AND IDENTIFY WAYS TO LOWER ITS EXPENSES. THE FIRST PRESBYTERIAN CHURCH OF NEWARK RECEIVED AN ENERGY ASSESSMENT THOUGH ENERGIZE DELAWARE IN 2014. RECOMMENDED IMPROVEMENTS WILL SAVE THE CHURCH ALMOST \$20,000 ANNUALLY, AND CHURCH HAS IMPLEMENTED THE RECOMMENDED LED LIGHTING AND HVAC UPGRADES. Image credit: Delaware Sustainable Energy Utility

BREAKING DOWN BARRIERS TO SMALL-SCALE SOLAR

INTRODUCTION

Local governments, residents, and businesses want the ability to access solar energy in their communities. Rooftops, parking lots, closed landfills, former mine lands, and other spaces have the potential to produce nearly one third of Virginia's electric needs with clean energy, right within the communities, according to the National Renewable Energy Laboratories. Building this distributed solar saves taxpayer dollars, creates jobs, and stimulates the economy, all while lowering Virginia's carbon footprint. Additionally, distributed generation makes Virginia's communities more resilient in the face of climate change and threats to the grid.

Virginia law supports a growing market for utilities to build large-scale solar projects, but it has not kept up with the needs of local governments, communities, and individual customers. Virginia law lacks incentives for small-scale, customer-sited, distributed solar. Worse, policy barriers hold communities back from investing in the clean energy source that customers want most today.

BACKGROUND

Currently, most distributed generation in Virginia happens through net metering, which allows customers to consume the energy their solar panels produce. If the panels produce more than the customer needs, that excess energy rolls over as credit against energy the customer uses when the sun isn't shining. Customers only pay the utility for energy if — over an entire month — their consumption exceeds the total amount of energy the solar panels produced in that month. In addition, customers still pay a monthly fee for transmission and distribution.

The traditional utility business model relies on large, centralized power stations pumping electricity onto a one-way grid. Distributed generation disrupts that model by producing electricity where it's needed and consumed, without the need for long-distance transmission. This saves money for all customers. Distributed generation — particularly solar — provides numerous other benefits, such as reducing the need for the utility to build expensive new generation; helping to decarbonize the grid; and increasing grid resilience and emergency preparedness in our communities.

Net metering in Virginia has produced a growing solar industry with business models built around that structure; however, once grid transformation is complete in Virginia, other options may emerge to replace net metering as a tool for expanding distributed solar. Numerous other policy mechanisms could encourage additional growth in the Commonwealth's solar market. As Virginia thinks about the future of small-scale solar policy, policymakers must ensure that customers enjoy equal or better economic advantages from investing in rooftop solar.

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VIRGINIA LAW SUPPORTS A GROWING MARKET FOR UTILITIES TO BUILD LARGE-SCALE SOLAR PROJECTS, BUT IT HAS NOT KEPT UP WITH THE NEEDS OF LOCAL GOVERNMENTS, COMMUNITIES, AND INDIVIDUAL CUSTOMERS.

Additionally, Virginia can encourage the deployment of renewable energy by addressing the barriers and disincentives that exist under current code. Right now, Virginia offers none of the financial incentives offered by states that have the most distributed solar. Without tax credits, rebates, or a mandatory renewable portfolio standard that would support a market for Solar Renewable Energy Certificates (SRECS), many customers can't afford the upfront costs of solar.

In addition, Virginia law imposes a thicket of limitations, conditions, and penalties on the solar industry and customers. Together these barriers add up to millions of dollars of lost revenue growth for Virginia. These impediments include:

- Barriers for the solar industry include a limit on the total amount of net metered solar allowed in Virginia.
- Barriers to local government solar include a prohibition on using the electricity produced at one site to serve buildings on a different site, as well as limits on the use of third-party financing.
- Barriers to residential solar include added fees known as standby charges that act like a tax on large residential solar facilities and a requirement that a solar array can't be larger than would have been needed to meet the previous year's demand, regardless of a customer's current needs.
- Barriers to solar for businesses include a project size cap for net metered solar facilities, barriers to using a single solar facility to serve two or more meters, and a barrier preventing a building owner from selling the output of a solar array to tenants.

In recent years, the Virginia General Assembly has taken



action to support utility investments in utility-scale solar facilities, while consistently defeating legislation offering incentives or reducing barriers to distributed solar. Policymakers should embrace the opportunity to address carbon pollution and grow the economy by supporting small-scale solar in the Commonwealth.

CONCLUSION

Building solar in our communities makes sense for Virginia. The Virginia General Assembly should expand on the Commonwealth's success with utility-scale solar to support the market for distributed solar as well. A combination of creating new incentives, removing barriers, and protecting customers' rights to access renewable energy will create a robust market for local, clean energy.

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POLICY RECOMMENDATIONS

The Virginia General Assembly should:

- Support distributed solar through incentives, such as tax credits, rebates, or low-interest loans.
- Remove barriers that limit customers' access to distributed solar, including lifting the 1% cap on net metering, affirming the legality of third-party power purchase agreements for all customers, and allowing local governments to use electricity from a solar project on one property to serve buildings on nearby properties.
- Implement specific programs to expand access to distributed energy for low- and moderate-income customers.
 - Reject any changes to the net metering compensation structure, unless those changes, at a minimum:
 - Grandfather all existing net metering customers;
 - Mandate that any changes to net metering do not take effect for at least five years; and
 - Ensure the economic incentives for customers are as good as or better than the current net metering system.



TRANSFORMING A MODERN GRID FOR A CLEAN ENERGY ECONOMY

INTRODUCTION

The modern electric grid is rapidly changing with expanded opportunities to integrate renewable resources and reduce consumption through the use of smart meters and other technologies. Unfortunately, Virginia is not well-positioned to take advantage of these growing opportunities. To significantly cut greenhouse gas emissions and realize climate goals, Virginia will need to build a modern, responsive, and integrated power grid.

The current power grid was originally designed to support large fossil fuel power plants with oneway power flow from plants to customers. That is an outdated model, and now Virginia's grid needs more flexibility to maximize and push the aging infrastructure to do more than it was originally designed to do.

Transforming the grid to make it smarter and more resilient through the use of cutting-edge technologies, equipment, and controls that communicate and work together to deliver electricity more reliably and efficiently can reduce peak loads and pollution, increase integration of renewable generation, and lower operational costs. In addition, the adoption of advanced technology will yield more data on ratepayers' energy use. If this data is accessible to customers, this could afford them the opportunity to better manage their own energy consumption and costs.

BACKGROUND

In 2018, the Virginia General Assembly passed the Grid Transformation and Security Act (SB966), which allows utilities to invest in modernizing Virginia's power grid. This legislation, however, defines "electric distribution grid transformation projects" very broadly, which could result in missed opportunities, wasteful projects, or even costly abuse.

Although SB966 provides utilities with the funds and the framework to overhaul and transform the grid, the details of implementation are yet to be determined. If done correctly, utility investment under SB966 will increase integration of distributed energy resources, electric vehicle charging stations, storage, and energy efficiency, particularly through demand response programs. If done incorrectly, utilities in Virginia could spend billions of ratepayer dollars on physical infrastructure, without meaningfully advancing Virginia's carbon reduction goals or lowering long-term costs. To avoid missed opportunities, significant vigilance will be needed to ensure the State Corporation Commission approves electric distribution grid transformation projects that reduce Virginia's carbon output; lower customers' energy costs; and produce a flexible, adaptable grid. Successful grid modernization comprises not only the deployment of new infrastructure and technologies, but also the implementation of updated distribution planning and operations.

77 VIRGINIA'S GRID NEEDS MORE FLEXIBILITY TO MAXIMIZE AND PUSH THE AGING INFRASTRUCTURE TO DO MORE THAN IT WAS ORIGINALLY DESIGNED TO DO.

The Commonwealth's policymakers should promote electric distribution grid transformation projects that include the integration of the following, in rough order of implementation and immediate opportunity:

- SMART METERS, OR ADVANCED METERING INFRASTRUCTURE (AMI) – AMI is an integrated system of smart meters, communication networks, and data management systems that enable two-way communications between utilities and customers. It is the fundamental building block to support integration with the Internet of Things and smart technology, whose most promising use will likely be through user-friendly apps. Utilities will also likely need to upgrade their software capacities to fully exploit the new data produced by AMI.
- DATA ACCESS The implementation of AMI will develop data on every customer's energy usage. This data is very valuable to utilities, customers, and the energy industry. Customers should have access to their own personal data, including authority to release that data to third-party energy product providers, so customers can better manage their energy consumption and costs.

DEMAND RESPONSE PROGRAMS:

 DISTRIBUTED ENERGY RESOURCES (DER) – In order to best integrate and expand DER, utilities should develop hosting capacity maps and make these maps publicly available. Hosting capacity maps are interactive maps that indicate how much generation can be added in a particular area before the current infrastructure reaches capacity or other



limitations.

- STORAGE Certain renewable energy sources, such as wind and solar, continue generating electricity even when demand is low; however, there is virtually no way to store that surplus energy on today's grid. Utilities should combine integrated storage (namely, batteries and fuel cells) with renewable energy to transform renewable energy from an intermittent resource into a dispatchable resource.
- ELECTRIC VEHICLE (EV) INFRASTRUCTURE As the market for EVs continues to grow, EVs have the potential to help balance loads and improve the resiliency of Virginia's power grid. For example, smart charging systems can automatically vary the time or rate at which electricity flows into the vehicle, thereby charging vehicles during periods of cheap and abundant renewable energy. In addition, with the implementation of vehicle-to-grid communication technology, EVs can act as a quasi-battery, storing surplus electricity generated from renewable energy sources during non-peak periods and feeding power back to the grid when needed.

CONCLUSION

SB966 provides utilities with the opportunity to overhaul the Commonwealth's energy infrastructure, but we need to be vigilant to make sure that these electric distribution grid transformation projects are implemented effectively in order to reduce carbon output, empower customers, and prepare Virginia for the future.



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POLICY RECOMMENDATIONS

Enact legislation to make account-level comprehensive data easily accessible to the ratepayer.

Enact legislation to protect ratepayers' private information, but allow ratepayers to access their own data and disclose it to third-party energy efficiency providers.

Direct a state agency to oversee a comprehensive study — conducted by an independent third party incorporating feedback from a variety of stakeholders — on issues related to grid modernization.



REFORMING THE STATE CORPORATION COMMISSION

INTRODUCTION

The State Corporation Commission (SCC) regulates electric utilities; therefore, its decisions significantly affect the environment and Virginians' electric bills. The SCC decides what utilities can charge customers for electricity by determining the reasonable cost of service plus a fair rate of return (usually around 10%). This check by the SCC is an essential consumer-protection function, since utilities have monopoly service territories, and their customers don't have access to competitive pricing.

The SCC also makes determinations, like how much fuel utilities must have on reserve, whether new power plants may be built, and whether to approve utility energy efficiency programs. While it has protected customers from some costly proposals, the SCC has also been a barrier to energy efficiency programs and renewable energy facilities that would benefit millions of ratepayers and reduce pollution.

77 INCREASINGLY, CONSUMER PROTECTION AND ENVIRONMENTAL CONSERVATION GO HAND-IN-HAND.

BACKGROUND PROTECTING RATEPAYERS FROM EXCESSIVE COSTS

Balancing the interests of electric reliability, costs, and conservation is not easy. But increasingly, consumer protection and environmental conservation go hand-in-hand. Energy efficiency programs not only reduce Virginia's carbon footprint, they are also costeffective. The cheapest kilowatt is the one that is never generated. Additionally, in today's markets, wind and solar power frequently sell for less than power generated from fossil fuels.

The incentives of investor-owned utilities often are not aligned with the public interest, so the SCC should maintain strong regulatory authority over these monopolies in order to protect consumers and the environment. The Virginia General Assembly has removed some of the SCC's key authority over the years, and that authority should be restored. These decreases in authority include undergrounding and cost recovery.

UNDERGROUNDING

The Grid Transformation and Security Act of 2018 (SB966) removed the SCC's authority to determine if the costs of certain projects to place power lines underground are "reasonable and prudent." Some undergrounding projects have negligible environmental or reliability benefits, and they tend to be very expensive. The SCC should be allowed to apply its expertise; consider the costs and benefits in a fair manner; and make the final determination, rather than deferring to legislative mandate.

COST RECOVERY

SB966 also granted investor-owned utilities significant new flexibility in how they recover costs from their customers. The new law allows utilities to write down the full value of certain costs in one rate review period, rather than recovering those costs over a longer period of time, as has been done previously. This change may prevent the SCC from being able to order customer refunds or lower base rates. The SCC should have full authority to regulate the costs that monopolies pass on to their customers and the period over which they recover those costs from ratepayers.

ADDRESSING ENERGY EFFICIENCY AND THE ENVIRONMENT ENERGY EFFICIENCY

The SCC has a history of rejecting energy efficiency programs proposed by utilities or approving such programs at a lower level of investment than proposed. While the SCC should be critical of the cost of all investments that utilities want to pass on to their customers, the SCC has shown little regard for efficiency benefits in the past. The SCC often reasoned that investments in efficiency programs are not prudent, because only participating customers receive the benefits of a proposed program while all customers cover the cost — an alleged "cross-subsidy."

Yet, energy efficiency programs benefit all customers, even if they do not directly participate in the program. Efficiency reduces the carbon footprint of the energy system and reduces peaks in demand when power is more expensive. Moreover, if the SCC approved more efficiency programs, all customers might have the chance to be direct participants in at least one program.

ENVIRONMENTAL EXTERNALITIES AND RENEWABLE ENERGY

Over the past decade, the SCC has approved the construction or purchase of approximately 7.4 gigawatts (74,000 megawatts) of coal and gas generation capacity for Virginia's investor-owned utilities, with capital costs of over \$7.1 billion charged to customers. These costs do not include new gas pipelines or environmental compliance expenses.

At the same time, the SCC has approved only 86



megawatts of new utility solar generation, while rejecting several proposals to purchase or construct solar and wind resources. Of course, the costs of solar and wind energy have plummeted over the past decade. While the SCC should have full authority over all costs that utilities attempt to pass on to customers, it should also give greater weight and consideration to environmental impacts and the Commonwealth's renewable energy policy goals in its determinations.

CONCLUSION

Strong regulation is needed to protect customers from costs imposed by monopoly utilities. The Virginia General Assembly should defer to the SCC's economic and technical expertise. Instead of reducing SCC decision-making authority, lawmakers should focus on providing explicit legal guidance requiring the SCC to give greater consideration to programs that conserve energy, reduce pollution, and lower bills.

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POLICY RECOMMENDATIONS

The Virginia General Assembly should:

- Elect SCC commissioners who understand the broader, long-term benefits of energy efficiency to both customers' wallets and the environment;
- Restore the SCC's independent authority to review applications to bury distribution power lines;
 - Restore the SCC's authority to determine the time period for recovery of certain costs rather than allow the utilities to dictate that timeline, which in turn allows utilities to avoid ever paying refunds or having their rates reduced; and
- Require the SCC to consider environmental externalities and Virginia's clean energy and environmental policy goals in its determinations.

CAPITALIZING ON EFFICIENCY, VIRGINIA'S UNDERUTILIZED ENERGY RESOURCE

INTRODUCTION

Energy efficiency — meeting the same needs with less energy — is the least expensive way to meet consumers' energy needs. Efficiency is estimated to cost utilities 2.5 cents per kilowatt hour saved¹ — less than one-quarter of Virginia's average residential rate. Increasing energy efficiency will save Virginians' money, improve competitiveness, create jobs, and reduce pollution.

Unfortunately, misaligned incentives, up-front costs, and poor policies impede efficiency improvements. Virginia ranks near the bottom among states for efficiency investments and results. According to the Electric Power Research Institute, Virginia has captured only 2% of its efficiency potential, ranking 48th among 50 states and the District of Columbia.²

BACKGROUND

Across the Commonwealth, Virginians' wallets, health, and climate are harmed by unnecessary energy use. This energy waste hurts everyone, but it disproportionately impacts low-income individuals. Less efficient dwellings and appliances cause higher energy bills, which particularly harm those already struggling to make ends meet.

In addition to cutting energy bills and harmful pollution, efficiency investments can create jobs for efficiency contractors and for the overall economy by freeing-up money for families and businesses to spend elsewhere.

Independent studies demonstrate immense potential for reducing energy consumption with a positive payback. A 2013 study found that Virginia could gain \$3.48 for each \$1 invested in energy efficiency.³ This high multiplying effect means more money for Virginia's families and local economies. Another study reported that "the full deployment of cost-effective, energy-efficient technologies in buildings alone...could eliminate the need to add to United States electricity generation capacity."⁴

Unfortunately, Virginia has a number of barriers to full deployment of energy efficiency, and current policies fail to incentivize or require efficiency investments. For example, when it comes to new construction, builders' desire to minimize their own costs leaves buyers to bear higher energy costs for decades. Additionally, weak building codes facilitate inefficient construction. Existing dwellings also face efficiency barriers. In Virginia, landlords do not have to publicize tenants' utility costs or compete to lower energy costs. This places a burden on renters, especially low-income individuals.

From a utility perspective, economic incentives favor building new generation and other utilityowned facilities and paying affiliates for fuel and fuel-transportation services, rather than reducing customers' energy demand. Disincentives and barriers also exist for local governments. Near-term expenses deter localities from implementing efficiency projects, despite the long-term savings for taxpayers. Additionally, Virginia's "Dillon Rule" has prevented local governments from requiring energy efficiency improvements by businesses within their own jurisdictions.

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ACCORDING TO THE ELECTRIC POWER RESEARCH INSTITUTE, VIRGINIA HAS CAPTURED ONLY 2% OF ITS EFFICIENCY POTENTIAL, RANKING 48TH AMONG 50 STATES AND THE DISTRICT OF COLUMBIA.²

Over the years, Virginia has talked of improving energy efficiency, but results have been limited. For example:

- Voluntary goals for electric utilities have been ineffective. Virginia's largest utility, Dominion Energy, ranks 50th among the 51 largest utilities for energy efficiency savings and program performance.⁵ By 2016, Dominion was also only one-tenth of the way to the Virginia General Assembly's goal of 10% energy reduction by 2022 with no prospect for achieving that goal even a decade late.⁶
- Legislation passed in 2018 the Grid Transformation and Security Act — called for more utility spending on energy efficiency and made changes designed to encourage the State Corporation Commission to approve more efficiency proposals. However, this legislation did not require any specific, measurable results. Thus, there are no guaranteed energy or financial savings.
- Promoting greater energy efficiency in government operations, including street lighting, has been proposed but not adequately pursued or funded.

Failure to improve Virginia's energy efficiency will



burden our citizens, environment, and economy for decades. By contrast, incentivizing or requiring efficiency improvements will save money while improving the health of people, the environment, and the economy.

CONCLUSION

Virginia should enact robust, new policies that increase energy efficiency in the Commonwealth. Short-changing efficiency investments adds costs and pollution that can last for decades and harm people far beyond those who made the initial decisions to underinvest in efficiency. Increasing efficiency will save people money and boost economic growth.



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POLICY RECOMMENDATIONS

Implement a robust state fund to finance efficiency measures by local governments, schools, and possibly others, with loans repaid from savings.

Tighten efficiency requirements in building codes and empower local governments to require greater energy efficiency in their jurisdictions.

Require (or allow local governments to require) lessors and sellers to publicize average energy costs.

Prioritize cost-effective energy efficiency solutions over building new generation and burning more fuel, and require utilities to meet clear efficiency goals.

Require timely conversion to LED lights in outdoor fixtures serving state or local entities, while allowing affected entities to choose suppliers, styles, and lighting characteristics.

INTRODUCTION

In Europe, offshore wind projects can generate power at a levelized cost of electricity that is less than or equal to the price of purchasing power from the electricity grid. This is due to fast growth, increased investment, increased project size, falling costs, and new technologies. In the northeastern United States, coastal states excited for the potential of both clean energy and economic growth are vying for offshore wind developers to establish operations. Maryland, Massachusetts, New Jersey, New York, and Rhode Island collectively plan to develop more than 8,000 megawatts of offshore wind by the late 2020s. Several governors also unveiled comprehensive plans to invest in port infrastructure, preparing these states for the establishment of offshore wind facilities and paving the way for the creation of tens of thousands of jobs.

Similar to other coastal states, Virginia also has the opportunity to attract offshore wind developers, encourage economic development, and deploy thousands of megawatts of renewable energy. However, to be on the forefront of this booming industry, Virginia's decision makers and electric utilities must act quickly.

BACKGROUND

The wind resource off the Atlantic Coast is four times greater than our entire electric power demand today. Developing this clean energy resource would allow Virginia and the United States to quickly meet carbon reduction goals.

Starting in 2009 — after an extensive stakeholder process involving the military, shipping, and fishing industries — Virginia's designated offshore Wind Energy Area (WEA) was approved for development. Virginia's WEA contains both Dominion's large commercial lease area and the smaller adjacent research areas.

In September 2013, the federal Bureau of Ocean Energy Management (BOEM) sold the development rights for a large portion of this area to Dominion Energy. The 112,799-acre commercial lease area is located about 27 miles off the coast of Virginia Beach. When fully developed, the lease area will be capable of producing 2,000 megawatts of wind energy — enough to power 500,000 homes.

Development of the lease area is a multi-step, multiyear process. Dominion and BOEM officially completed the first stage in October 2017 with the approval of a Site Assessment Plan. Now, Dominion will submit a Construction and Operations Plan (COP) for the lease area. Submission of this plan must occur within 4.5 years of approval of the Site Assessment Plan. Thus, Dominion is required to complete this next step no later than April 2022.

In addition to the commercial lease area, Dominion is also the pilot project lead on an adjacent 2,135-acre offshore research area leased in 2014 to the Virginia Department of Mines, Minerals and Energy (DMME). The project involves developing two six-megawatt wind turbines.

In 2017, Dominion announced their plan to partner with Denmark's Ørsted the development of the pilot project. The Danish company is a proven leader, having built more offshore wind farms than any other company worldwide. In this partnership, Dominion will own the pilot project, and Ørsted is committed to developing the turbines and necessary infrastructure at a fixed price.

75 THE WIND RESOURCE OFF THE ATLANTIC COAST IS FOUR TIMES GREATER THAN OUR ENTIRE ELECTRIC POWER DEMAND TODAY.

The pilot project is now referred to as the Coastal Virginia Offshore Wind project, or CVOW. Dominion anticipates filing for rate recovery approval at the State Corporation Commission in mid-2018. CVOW should be operational in 2020.

When built, CVOW offers a number of firsts that would benefit both Virginia and the United States. Because this pilot project will be online before Dominion's commercial lease is developed, CVOW will be the first offshore wind project owned by an electric utility company. Additionally, it will be the first offshore wind development in federal waters.

If construction runs according to schedule, CVOW could also be operational prior to offshore projects in other coastal states. If this is the case, it will become the second completed offshore wind project in the nation, coming just behind Rhode Island's 30-megawatt Deepwater Wind installation, which was completed in 2016.

Furthermore, lessons learned from this pilot project could improve the entire United States' offshore wind industry. As more offshore wind projects come online,



turbine parts will become increasingly American-made, driving down the costs and creating thousands of jobs. Several Virginia-based studies indicate that full development of the Commonwealth's offshore wind could create between 10,000 and 14,000 jobs.

These studies point to the Hampton Roads area as a superior industry hub. With deep-water ports free of barriers (i.e. bridges), home to the world's largest shipbuilding industry, and a large veteran workforce, Hampton Roads could easily become a national center for renewable energy development.

For this to happen, Dominion must move forward quickly. The utility included the 12-megawatt pilot project (CVOW) in its 2018 Integrated Resource Plan (IRP). However, its IRP — a plan encompassing the period from 2018-2032 — does not include the 2,000-megawatt commercial lease area. Recent 2018 legislation (SB966) set a goal to deploy 5,000 megawatts of solar and wind in Virginia by 2028. The 2,000 megawatts of offshore wind generated from Dominion's commercial lease area will go a long way to meeting that goal. As offshore wind developers consider the Atlantic Coast for their development operations, they need the assurances that projects will move forward. Dominion must provide Virginia with that certainty and publicly commit to building its 2,000-megawatt commercial lease area within the next ten years, either by including it in its 2019 IRP or by stipulation of the exact makeup of its 5,000-megawatt goal.

CONCLUSION

Full development of both the pilot project and the commercial lease area are critical for the Commonwealth. Offshore wind not only addresses the threat of climate change — it also acts as a major economic driver. Virginia's policymakers should embrace the opportunity to be a national leader on renewable energy and job creation.



AUTHORS

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POLICY RECOMMENDATIONS

The Governor and other elected officials should consider and support legislative measures that prompt Dominion to expedite the development of the larger commercial lease area and the launch of an offshore wind industry in Virginia. Potential legislation includes re-establishment of the Virginia Offshore Wind Development Authority as an entity vested with the authority to issue bonds supporting investment in Virginia's ports.

The Governor's Administration should take the steps necessary — including development of a Virginia Offshore Wind Master Plan — to establish Hampton Roads as a major offshore wind industry hub for Atlantic projects, including Virginia's projects. Developing such a plan helps to ensure both the prompt and cost-efficient development of Virginia's offshore wind energy and sets the table for the creation of tens of thousands of new jobs in Virginia.

INTRODUCTION

Environmental justice is the fair treatment and meaningful involvement of all people — regardless of race, color, national origin, or income — with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. It is based on the principle that no segment of the population, especially individuals most impacted and vulnerable, should bear disproportionately high or adverse effects of environmental pollution. Environmental justice calls for the decrease of environmental burdens for everyone, rather than the equitable distribution of pollution and other negative environmental impacts.

BACKGROUND

Environmental justice has been a part of policy conversations and considerations on the federal level for more than two decades. In 1993, the Environmental Protection Agency (EPA) established the National Environmental Justice Advisory Council. The council advises the EPA Administrator on strategic, scientific, technological, regulatory, community engagement, and economic issues related to environmental justice.

The following year, former President Clinton issued Executive Order 12898, which directed all federal agencies to incorporate achieving environmental justice into their missions, strategies, and rulemaking. This order also created the Federal Interagency Working Group on Environmental Justice, which is convened by the EPA.

Virginia also has realized the importance of working towards environmental justice. In October 2017, former Governor McAuliffe announced the creation of Virginia's own Advisory Council on Environmental Justice (Executive Order 73). The goal of this council is to provide advice and recommendations to the Executive Branch on ways in which environmental justice should be incorporated into decision making in Virginia. The first official task of the council was to review and provide recommendations on the proposed carbon regulations for Virginia power plants.

All too often, environmental burdens disproportionately impact vulnerable populations, people of color, and low-income communities. In the Commonwealth, that is no different. For example, the NAACP Coal Blooded: Putting Profits Before People report gave grades to coal-fired power plants based on their impacts on low-income communities and communities of color. Virginia was ranked the fourth worst and had five failing plants. These failing plants are located in:

- Chesapeake (3 mile People Of Color Population: 43.3% and 3 mile average income: \$16,751);
- Richmond (3 mile People of Color Population: 59.4% and 3 mile average income: \$17,627);
- Portsmouth (3 mile People of Color Population: 40.4% and 3 mile average income: \$19,424);
- Alexandria (3 mile People of Color Population: 54.9% and 3 mile average income: \$34,352); and
- Hopewell (3 mile People of Color Population: 37.4% and 3 mile average income: \$17,961).

Living in close proximity to coal-fired power plants has adverse impacts on residents' health. Coal particulates are linked to cancer, heart disease, respiratory illness, and stroke. Low-income individuals lack the economic mobility necessary to move from these high-pollution areas.

ALL TOO OFTEN, ENVIRONMENTAL BURDENS DISPROPORTIONATELY IMPACT VULNERABLE POPULATIONS, PEOPLE OF COLOR, AND LOW-INCOME COMMUNITIES.

However, proximity to coal-fired plants is not the only environmental justice concern facing the Commonwealth. Other examples include:

- Buckingham County The Atlantic Coast Pipeline compressor station has been proposed in Union Hill, a historic community founded by former enslaved people. Within a one-mile radius of the proposed compressor site, 85% of residents are African American.
- Hampton Roads Increased flooding caused by climate change regularly impacts communities. Low-income residents bear a disproportionate burden, since they cannot afford high flood insurance premiums. Lack of access to transportation also leaves these residents stranded during flooding.
- Southwest Virginia Because of shifting energy markets and the reduction in coal mining in the region, communities in Appalachia are faced with significant economic concerns. That — coupled with continued impacts from coal mining and legacy pollution — leaves communities in far



Southwest Virginia with significant burden.

CONCLUSION

Much work can be done to advance environmental justice in the Commonwealth. The Advisory Council on Environmental Justice should be strengthened to have formal decision making authority and should be supported through resources in the state's budget. Additionally, Governor Northam should direct each agency to consider environmental justice strategies as has been done at the federal level.



AUTHORS

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POLICY RECOMMENDATIONS

The Virginia General Assembly should permanently acknowledge the importance of these issues by codifying the Advisory Council on Environmental Justice.

Advance environmental justice by appropriating \$100,000 of operational funding to the Advisory Council on Environmental Justice in the biennial budget.



VCNVA.ORG/CLEAN-ENERGY

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MAKING OFFSHORE WIND A REALITY IN VIRGINIA

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VCNVA.ORG/GREEN-COMMUNITIES

GREEN COMMUNITIES

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PROTECTING VIRGINIA'S TREASURED LANDSCAPES PRESERVING VIRGINIA'S HISTORIC AND CULTURAL RESOURCES MAXIMIZING BENEFITS AND MINIMIZING IMPACTS OF UTILITY-SCALE SOLAR INCENTIVIZING SMART GROWTH CONNECTING VIRGINIA'S COMMUNITIES THROUGH PASSENGER RAIL ACHIEVING SMART TRANSPORTATION INCREASING NATIVE PLANT USE AND CONTROLLING INVASIVE SPECIES

AUTHORS' CONTACT INFORMATION

INTRODUCTION

Successful land conservation requires action at all levels to protect the Commonwealth's diverse landscapes. Land conservation is also critical in achieving measurable goals on protecting water quality, water supply, climate resiliency, and the Chesapeake Bay. State agencies, local communities, and private individuals need the right tools to protect working farms and forests, scenic landscapes, natural areas, wildlife habitat and game lands, historic resources, and parks and recreational areas for present and future generations of Virginians. Virginia currently has a variety of programs and approaches that can deliver lasting results across the Commonwealth.

BACKGROUND

Virginians have said repeatedly in surveys, polls, and at the ballot box that they want the Commonwealth to invest in the protection of open space. Yet, according to the Census Bureau, Virginia's natural resource investments significantly trail other southeastern and Mid-Atlantic states. On average, states spend about double — as a percent of state budget — what Virginia does on natural resources.

Fortunately. Virginia does have an exceptional tax incentive that has conserved more than 819,962 acres since 2000. The Land Preservation Tax Credit (LPTC) is one of the best land conservation tax incentive programs in the nation. This program is an efficient and effective way to encourage private, voluntary land conservation by providing taxpayers who make gifts of land or conservation easements tax credits equal to 40% of the value of their donated interest. Landowners with lower incomes who are unable to use all of their tax credits may transfer unused but allowable credits to other taxpayers. Support for this program was evident during the 2017 Virginia General Assembly session, where legislation that would have significantly scaled back the program was soundly defeated after strong citizen opposition to the bill.

While the Land Preservation Tax Credit has long served as the mainstay of Virginia's land conservation approach, it is important to recognize that many important projects cannot be accomplished through the LPTC. As such, the 2013 General Assembly session (HB1398) addressed this need by requiring the Governor to appropriate certain funds for three existing conservation grant funding programs. It is unfortunate that we have yet to see funding levels match what is required by the legislation. The Virginia Land Conservation Foundation (VLCF) provides state matching grants for the preservation of various categories of special lands in the Commonwealth. These grants are awarded on a competitive basis for the protection of open spaces and parks, natural areas, historic areas, and farmland and forest preservation. This highly effective program leverages local and federal investment by paying no more than 50% of the cost of projects.

Since FY2000, VLCF received 337 applications requesting almost \$123 million in state funding, which was almost two-and-a-half times the available amount. In total, VLCF has awarded more than \$50.9 million, protecting more than 63,800 acres. The unfunded projects represent a lost opportunity for the Commonwealth to capture an estimated \$60 million in federal, local, and private matching dollars for land conservation.

7 IN TOTAL, THE LAND PRESERVATION TAX CREDIT HAS AWARDED MORE THAN \$50.9 MILLION, PROTECTING MORE THAN 63,800 ACRES.

For FY19, VLCF is slated to receive no funding, despite the call in HB1398 for the program to receive \$16 million per year. The funding level for FY20 is slated to be \$4.5 million. During the 2018 General Assembly session, the reduction in funding was attributed to recent mitigation and settlement agreements. The funding from those agreements, however, is highly restricted to offsetting impacts in particular places and does not replace the need to provide appropriations for the programs' statewide responsibilities.

In 2007, Virginia delivered on a commitment to working farms and forestland by providing limited grant funding to localities with certified farmland preservation programs. The Virginia Farmland Preservation Fund requires counties to match dollar for dollar the amount that is granted to them by the Commonwealth. In FY19, this grant program will receive only 12.5% of the funding called for in HB1398.

Virginia has witnessed multiple wars and conflicts, including the Revolutionary War, War of 1812 and the Civil War. With battlefields scattered across the Commonwealth, preservation of these sites remains a challenge. Continued support for the Virginia Battlefield Preservation Fund is the best way to meet this challenge.

The Northam Administration has announced a strategy for land conservation, aiming to preserve the next 10% of the Commonwealth's land resources with significant conservation value over a ten-year period. The Administration has not yet provided the details for accomplishing its goal. The conservation community believes that increased funding is a necessary objective of any land conservation strategy for Virginia.

CONCLUSION

Virginia needs to step up its investments in land conservation. Otherwise, Virginia will continue to lose the lands that support the backbone of Virginia's economy: agriculture, forestry, and tourism. Without providing additional funding, Virginia will miss out on the opportunity to grow the 197,000 jobs that depend on our existing outdoor recreation industry.

AUTHORS

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POLICY RECOMMENDATIONS

The Virginia General Assembly should make no changes to the Land Preservation Tax Credit that would reduce the impact and availability of this important land conservation tool.

Virginia should provide full support for its successful grant programs, as called for in HB1398 (2013) for a total of \$20 million, allocated as follows:

- \$16 million for the Virginia Land Conservation Foundation;
- \$2 million for the Office of Farmland Preservation; and
- \$2 million for the Virginia Battlefield Preservation Fund.

In 2017, the Virginia General Assembly for the first time included restrictions in the state budget that limit where the Department of Conservation and Recreation (DCR) can acquire land. This unnecessarily ties the hands of DCR and could prohibit the acceptance of important lands. Proposed budget amendments during the 2018 legislative session would have replaced these restrictions with reporting requirements that would ensure accountability without restricting expansion of state parks and natural area preserves. Those language amendments did not succeed.



PRESERVING VIRGINIA'S HISTORIC AND CULTURAL RESOURCES

INTRODUCTION

Virginia hosts a rich array of historic, archaeological, and cultural resources — arguably more than any other state — from Chief Powhatan's capital at Werowocomoco and the Jamestown colony; to the battlefields of the Revolutionary War, War of 1812, and Civil War; to under-recognized history of African American historic schools and cemeteries; to our many historic small towns and cities. Protecting these resources is essential to what makes Virginia a great place to live, work, and visit. It also supports the Commonwealth's two largest industries: agriculture and tourism.

BACKGROUND

Virginia has a number of tools — largely administered by the Virginia Department of Historic Resources (DHR) in the Natural Resources Secretariat — that can protect our historic, archaeological, and cultural resources. Broadly speaking, these include:

- Land conservation through the Virginia Battlefield Preservation Fund (VBPF), Virginia Land Conservation Foundation (VLCF), and Land Preservation Tax Credits (LPTC);
- Virginia Historic Rehabilitation Tax Credit Program (HRTC); and
- Section 106 of the National Historic Preservation Act of 1966, which is administered by DHR whose Director is the State Historic Preservation Officer (SHPO).

While these programs are targeted toward the protection of historic resources, they also play a key role in protecting the environment. In the Chesapeake Bay Watershed, for example, conservationists have worked to save tens of thousands of acres of battlefield land, helping to support agriculture, improve water and air quality, reduce erosion, and provide habitat for native plants and wildlife. These programs also promote smart growth by helping to concentrate development to existing communities and to make our cities and towns more livable and economically vibrant through the protection of open space and encouragement of heritage tourism.

LAND CONSERVATION

Conservation of historic land and buildings is supported by two competitive grant programs (VBPF and VLCF) and the LPTC. The VBPF is targeted to land fought over during the Revolutionary War, War of 1812, and Civil War. Out of more than 10,000 Civil War conflict sites and 3,000 sites associated with the Revolutionary War and War of 1812, the federal government identified 384 Civil War battlefields and 243 Revolutionary War and War of 1812 battlefields as historically significant.

7 PROTECTING OUR HISTORIC RESOURCES IS ESSENTIAL TO WHAT MAKES VIRGINIA A GREAT PLACE TO LIVE, WORK, AND VISIT. IT ALSO SUPPORTS THE COMMONWEALTH'S TWO LARGEST INDUSTRIES: AGRICULTURE AND TOURISM.

Of those 384 Civil War battlefields, 122 are located in Virginia — more than any other state — as well as nine Revolutionary War and four War of 1812 battlefields. Historically, Virginia's Civil War battlefields encompassed one million acres; however, when the National Park Service last surveyed the current state of Virginia's battlefields in 2009, only 576,000 acres of these landscapes remained. Despite this, they retained sufficient significance and integrity to make them worthy of preservation. At that time, approximately 76,000 acres (13%) were permanently protected by government and private nonprofit organizations. Of Virginia's six highest priority Revolutionary War and War of 1812 battlefields — comprising 12,500 total acres — more than 9.000 acres remain unprotected. As development continues at a breakneck pace, the remaining lands from the Revolutionary War, War of 1812, and Civil War are at risk of being lost.

For FY19, no funds were appropriated to VLCF and only \$1 million was directed to VBPF. Of course, we will not be able to preserve all of the remaining battlefield land in the Commonwealth, much of which is in the rapidly developing areas of the state, such as the Richmond to Washington, D.C. corridor. Virginia needs to step up the pace of preservation though. More information regarding the mechanics of land conservation may be found in the *Protecting Virginia's Treasured Landscapes* paper on page 52.

A further, specific opportunity to protect and promote Virginia's historic and cultural resources for current and future generations exists in Culpeper County, Virginia. At Brandy Station and Cedar Mountain battlefields, dedicated conservationists who are utilizing programs — including VBPF and VLCF — have preserved approximately 1,400 acres of hallowed ground. If added to the Virginia State Parks system, these preserved



acres would help to increase opportunities for public access and interpretation, while also filling in a gap in a region that currently is not directly served by the state park system.

VIRGINIA HISTORIC REHABILITATION TAX CREDIT (HRTC)

The HRTC provides a dollar-for-dollar reduction in state income tax liability for the rehabilitation of historic buildings. Since its inception, the HRTC has been a catalytic community redevelopment and economic development tool for urban and rural communities across the Commonwealth — it ensures that a building's historic architectural features and spaces are preserved, while modernizing the structure's use and spurring potential investment in the surrounding neighborhood. The program provides an income tax credit of up to 25% of qualified rehabilitation expenditures, according to a new report from Preservation Virginia.

Virginia's HRTC can be matched by federal rehabilitation tax credits. According to the National Trust for Historic Preservation, Virginia ranks fifth nationally for utilization of federal historic tax credits. From 2002-2016, Virginia leveraged more than \$630 million in federal historic tax credits from 1,286 projects. These projects had total development costs of more than \$3.79 billion.

Despite the success of the HRTC, a number of bills in recent legislative sessions have sought to trim or eliminate this critical preservation tool. Although most of these bills have been defeated — in light of the success of the HRTC — advocates need to be prepared to respond to suggestions of further caps or cuts to the program by sharing the economic return of the Commonwealth's investment.

SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

DHR is responsible for administering Section 106 of the National Historic Preservation Act (NHPA), which requires federal agencies to take into account the effects of their undertakings — including any funding or permit — on historic resources.

Given current staffing limits, VDHR is extremely challenged in adequately administering this important law. For instance, only one staff position is dedicated to review of all federally funded transportation projects. Threats posed by utility corridors — such as the Mountain Valley Pipeline, the Atlantic Coast Pipeline, and the transmission line across the James River — also have stretched VDHR's capacity.

AFRICAN AMERICAN RESOURCES

For too long, African American schools, cemeteries, and other historic resources have received inadequate protection. In the 2017 legislative session, the Virginia General Assembly passed several bills that help identity and fund the preservation of African American cemeteries. The Historical African American Graves and Cemeteries Fund was expanded in the 2018 legislative session to include additional cemeteries that qualify for this funding. Another bill was passed that establishes an effort to identify and document sites statewide. Additionally, federal funding through the Underrepresented Communities Grant Program is administered by VDHR to help support projects related to surveying and nominating African American and Native American sites for inclusion in the National Register of Historic Places.

250TH ANNIVERSARY OF THE AMERICAN REVOLUTION

With the Sestercentennial of the American Revolution fast approaching and Virginia being home to many of the historic sites that defined that conflict, it is only fitting that the Commonwealth take a lead role in what is sure to be a significant national celebration. The time is now for Virginia to create a commission to organize the Commonwealth's commemoration of our nation's founding, as it recently did so successfully for the sesquicentennial of the American Civil War — more than 3.4 million people attended local 150th anniversary events across the state.



AUTHORS

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POLICY RECOMMENDATIONS

Secure funding for Virginia Land Conservation Foundation at \$20 million annually, to include \$2 million annually for Virginia Battlefield Preservation Fund; establish new state park at Brandy Station and Cedar Mountain battlefields;

Remove the cap of \$5 million per project for Historic Rehabilitation Tax Credit (HRTC) projects, and oppose any further efforts to cap or weaken the HRTC program;

Provide increased funding for the Virginia Department of Historic Resources (DHR)'s administration of Section 106 of the National Historic Preservation Act. Require that project proponents fully fund DHR's cost;

Provide increased funding for the identification and protection of African American historic resources; and

Create statewide commemorative commission for the 250th anniversary of the American Revolution.

MAXIMIZING BENEFITS AND MINIMIZING IMPACTS OF UTILITY-SCALE SOLAR

INTRODUCTION

Virginia's use of electricity and reliance on large-scale centralized power generation comes at a price. Even with the cleanest power generation projects, best practices should be employed to achieve an optimal outcome and minimize environmental impacts. Utility-scale solar, by its very nature, uses many acres of land, which — if poorly developed — can unnecessarily harm primarily agricultural and forested lands. While renewable energy projects should be the primary means used to meet the Commonwealth's energy demand, Virginia's Executive Branch, General Assembly, and regulators should strive to minimize the environmental impacts while maximizing the benefits of solar.

BACKGROUND

A utility-scale solar facility is one that generates solar power and feeds it into the grid, supplying an electric utility with clean power. Planned and existing utilityscale solar facilities in Virginia range in size from a 100-acre project producing 17 megawatts of power to a 1,200 acre project producing 100 megawatts. There are many additional proposed projects, including one in Spotsylvania County. If built, the Spotsylvanian project would be one of the largest solar energy facilities in the country, consuming 3,500 acres of forested land and producing 500 megawatts. In contrast, distributed solar power generation has less negative environmental impact, as they consist of small scale installations (e.g. rooftop solar) primarily designed to meet the immediate demands of the property on which it is located.

7 WHILE RENEWABLE ENERGY PROJECTS SHOULD BE THE PRIMARY MEANS USED TO MEET THE COMMONWEALTH'S ENERGY DEMAND, VIRGINIA'S EXECUTIVE BRANCH, GENERAL ASSEMBLY, AND REGULATORS SHOULD STRIVE TO MINIMIZE THE ENVIRONMENTAL IMPACTS WHILE MAXIMIZING THE BENEFITS OF SOLAR.

Utility-scale solar will continue to develop in the future. The 2018 Grid Transformation and Security Act (SB966) declares 5,000 megawatts of utility-owned and operated solar and wind facilities to be in the public interest. It is expected that large, utility-scale solar facilities will produce the majority (some 4,000 megawatts) of that new generation.

Virginia needs greater deployment of renewable energy projects. However, all projects must consider sitespecific issues that hold true for any large-scale energy project, as well as some of the impacts that are specific to utility-scale solar generation. With solar requiring roughly eight acres for each megawatt produced, decision makers must ensure proper site selection and best practices to manage development and associated impacts from these projects. This level of development raises concerns with regard to conversion of farms and forests; environmental degradation; loss of habitat; and historic, cultural, and scenic resources. But those concerns can be minimized if handled correctly.

Virginia's policymakers should implement and promote best practices for utility-scale solar. Those practices would include measures related to:

- Proper Site Selection Prioritize and incentivize post-mining land, landfills, brownfields, former industrial, or commercial sites where future use is affected by real or perceived environmental contamination. Focusing the initial round of development on these sites can make use of otherwise fallow sites and avoid use of undeveloped parcels — such as forests and agricultural lands — whose highest and best use is to remain green, either for traditional uses or as a carbon sink for addressing climate change.
- Local Authority Assist localities in developing siting criteria and recommendations for the public permitting process without eroding local authority.
- Co-Locating Solar Facilities Maximize efficient use of the land by locating solar at a site that is already in use (e.g. rooftops, parking garages, pasture land, or other energy generation sites).
- Reclamation/Decommissioning Ensure reclamation plans are in place. Solar panels have an estimated life span of at least 25 years and can readily be replaced with new panels, possibly eliminating the need for site reclamation. When solar site decommissioning does occur, reclamation plans can help ensure that it is done appropriately. Most solar developers already include these plans in their operations and maintenance budgets, but local authorities should make sure this is the case. Opponents of solar sometimes seek to scare landowners and the public with claims that solar panels will leave land contaminated — these claims are without basis.

- Minimize Wildlife Habitat Disturbance and Protect Ecology – Minimize the impacts on habitat disturbance, particularly during construction. Ensure that solar developers are communicating early and often with federal and state wildlife agencies.
- Sustainable Grounds Keeping Maximize the benefit of the project by including agricultural best management practices. Examples include planting native grasses and wildflowers in low maintenance areas for solar facilities. This can improve erosion control, pesticide avoidance, stormwater infiltration, wildlife habitat, and reduce long-term maintenance costs and emissions. Once established, these naturalized meadows are more drought-tolerant, require little to no fertilization, and only need to be mowed once or twice a year.

CONCLUSION

Now that Virginia has set the wheels in motion for increased use of utility-scale solar, it is important that policymakers create a foundation for best practices to maximize the benefits and minimize the impacts.



AUTHORS

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POLICY RECOMMENDATIONS

Incentivize solar developers to use previously developed or degraded land — such as postmining land — by offering tax credits, such as a machinery tax abatement.

Break down barriers to distributed solar so that it can become a viable option in Virginia (for more information, see *Breaking Down Barriers To Small-Scale Solar* on page 36).

Direct a state agency to develop a list of statesupported best practices and incentives and work with utilities to encourage them to choose sites that employ these practices.

THE REMINGTON SOLAR POWER FACILITY IN FAUQUIER County, Virginia is the result of a partnership — including dominion energy, microsoft, and the commonwealth of Virginia — which will receive enough electricity to power 5,000 homes.

Image credit: Will Parson, Chesapeake Bay Program



INTRODUCTION

Virginia continues to grapple with the cost of sprawling development. This type of development is costly to taxpayers and has led to longer commutes; greater pollution; increased reliance on automobile travel that negatively impacts health, and a loss of historic, cultural, and scenic resources. Smart growth offers opportunities to meet changing market demand and to align growth, quality of life, and infrastructure savings. It also can boost economic competitiveness.

BACKGROUND

Sprawling development is costly to taxpayers and has led to longer commutes; greater pollution; and a loss of historic, cultural, and scenic resources. The impact on family budgets from long, costly commutes has been significant and contributed to the 2008 real estate collapse in the outer suburbs.¹ These challenges, combined with limited federal, state, and local funds, make smart growth — with its focus on locationefficient development — a public policy imperative.

"

A 40-YEAR SUMMARY OF FISCAL IMPACT STUDIES Showed that smart growth — compact and traditional cities, towns, and neighborhoods typically consumes less land and costs much less for roads, utilities, and housing than does sprawling development.²

Virginia has taken some steps to better link land-use and transportation including the 2014 transportation prioritization legislation. But during the 2015 Virginia General Assembly session, the legislature significantly weakened the ability of local governments to ensure that new growth pays for itself. This needs to be corrected. The state could also do more to focus transportation and other infrastructure investments in cities, towns, and locally designated growth areas to create the efficient, walkable, and mixed-use communities that reduce traffic congestion and costs to taxpayers.

Smart growth offers opportunities to meet changing market demand and to link growth, quality of life, and infrastructure savings. It also can boost economic competitiveness. The market wants more alternatives to sprawl, as changing demographics and preferences — among young professionals, empty nesters, retirees, and more and more families — are leading

neighborhoods — typically consumes less land and costs much less for roads, utilities, and housing than does sprawling development.² y to taxpayers and has r pollution; and a loss esources. The impact ostly commutes has rd to the 2008 real AUTHORS

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to greater demand for vibrant and walkable cities,

towns, and suburbs built more like traditional towns

and neighborhoods. The high quality of life of these

scenic landscapes and natural resources, enhances

retain businesses and workers. Further, a 40-year

economic competitiveness by helping to attract and

summary of fiscal impact studies showed that smart

growth — compact and traditional cities, towns, and

communities, combined with greater protection of our

POLICY RECOMMENDATIONS

Target scarce public tax dollars. Prioritize state infrastructure funds to existing communities and designated growth areas, including economic development; transit, bike, pedestrian, local street investment; schools; and water and sewer. Support the revitalization of cities, towns, and older suburban communities.

Ensure new development pays its fair share. There must be a fair balance between what the public taxpayer and the private developer each pay toward the cost of infrastructure. Costs necessitated by new development should not be borne by existing residents. Unfortunately, the 2015 Virginia General Assembly session saw the legislature make sweeping changes to the proffer system. These changes put excessive limits on localities' ability to accept proffers, removing one of the only effective mechanisms localities have to make sure new growth pays for itself. Whether impact fees or proffers, the Virginia General Assembly needs to enable localities to adopt measures to cover these costs and create incentives to develop within designated growth areas.

Oppose actions that would weaken local community planning. The Virginia General Assembly should reject efforts to erode local land use authority, including weakening local discretion over key planning tools such as comprehensive plans and zoning ordinances. When reviewing infrastructure projects (roads, energy or telecommunication facilities, etc.), the state should respect local planning efforts and require comprehensive environmental assessments; studies of need, alternatives, and location; consultation with local governments and residents, and context sensitive design.

Strengthen the partnership between state and local efforts to plan for the future and to guide growth. Good planning is as important to our local communities as it is to successful businesses. Ensure the Go Virginia economic development program and the new federally-designated Opportunity Zones are tied to smart growth, focusing on mixeduse, walkable, and transit-oriented locations and linking industrial sites to freight rail.

Strengthen the use of designated growth areas and service districts through cooperation between nearby towns and cities, and support interconnected streets and walkable community designs. This will help reduce statewide infrastructure costs and traffic congestion.

Respect property rights while saving tax dollars on infrastructure costs through Transferable Development Rights, Purchase of Development Rights, conservation easements, and other tools.

Improve data collection on land development and infrastructure costs, including:

- Require local governments to estimate and report to the Commonwealth their projected population and employment growth, as well as the buildout potential for residential units and commercial square footage under their existing comprehensive plans and zoning.
- Provide assistance to localities in measuring residential and commercial capacity of vacant and underutilized land if (re)developed as compact, mixed-use, walkable development, as well as in estimating infrastructure costs under both a business-as-usual and a re-development scenario.
- The state and localities should work together to compile and publicize estimates of the total maintenance and replacement needs of existing bridges, roads, water and sewer, schools, libraries, and other public facilities to help ensure that adequate funding is provided and prioritized for the upkeep of infrastructure already paid for by taxpayers.

CONNECTING VIRGINIA'S COMMUNITIES THROUGH PASSENGER RAIL

INTRODUCTION

Passenger rail is essential to reducing congestion, giving Virginians greater transportation options, increasing energy efficiency, and improving economic competitiveness. Recognizing the many benefits of passenger rail, Virginia became the first state in the nation with a dedicated passenger rail fund when the Virginia General Assembly created the Intercity Passenger Rail Operating and Capital (IPROC) Fund in 2011. Additionally, the transportation funding package approved in 2013 provided a dedicated source of revenue for IPROC.

Rail ridership has increased significantly over the past decade. It is crucial to build upon the funding for intercity passenger rail — and to improve rail policies — in order to sustain, improve, and expand Virginia's intercity passenger rail service.

BACKGROUND

Increased congestion on our roads and in our airways, vulnerability to volatile fossil fuel prices, and air and water pollution are just some of the problems with our current transportation system that have led many local, state, and federal officials to endorse more sustainable transportation options. Rail plays a critical part in a more sustainable transportation approach, and increased freight and passenger capacity can help maximize the energy efficiency and competitiveness of Virginia's economy, especially in corridors where additional highway projects are prohibitively expensive and/or environmentally detrimental.

High performance intercity passenger rail can link Virginia's economic, population, and education centers, giving people needed alternatives to driving. The Commonwealth's regional train corridors — the Piedmont and Urban Crescent — serve areas that are home to over 78% of our population. Further, these corridors serve 46 higher educational institutions and 85% of Virginia's college students, nearly 10% of the nation's active military personnel, and areas generating 82% of Virginia's economy.

These corridors are also home to some of the most congested roadways in the Commonwealth. The Piedmont and Urban Crescent corridors are home to 57% of Virginia's highways, but 87% of every highway mile driven in the state. Additionally, according to the Federal Highway Administration, roadway traffic has increased 3.8% since 2014. This has led to continued public demand for intercity passenger rail. Ridership on Amtrak in Virginia exceeded a million riders for the first time in 2008 and grew 72% over the last decade. Moreover, ridership on Virginia's regional trains has grown by 109% since 2006, and today Virginia has the top four best performing regional corridors in Amtrak's network. In 2017, Amtrak removed an estimated 517 million passenger miles from our roads, which reduced fuel consumption by 23 million gallons and avoided producing 469 million pounds of carbon dioxide.

7 IN 2017, AMTRAK REMOVED AN ESTIMATED 517 MILLION PASSENGER MILES FROM OUR ROADS, WHICH REDUCED FUEL CONSUMPTION BY 23 MILLION GALLONS AND AVOIDED PRODUCING 469 MILLION POUNDS OF CARBON DIOXIDE.

The good news is that long-term, sustainable funding for passenger rail became a reality in 2013 due to former Governor McDonnell and a strong bi-partisan coalition of legislators. The 2013 transportation package adopted by the Virginia General Assembly has allowed the state to build \$617 million worth of passenger rail projects, and allocate another \$574 million worth of projects in the current six-year improvement plan. That funding will be used to sustain and improve existing regional trains, add more trains to Norfolk/Virginia Beach and Lynchburg/Roanoke, study rail service to Bedford and the New River Valley, as well as add capacity as part of the Newport News new multi-modal station.

Furthermore, Virginia has programmed state funds to help complete the Richmond to Washington project and the Atlantic Gateway multi-modal project, as well as study the expansion of the Long Bridge over the Potomac.

However, Virginia lacks a long-term vision for the continued investment and expansion of intercity passenger rail. Recent federal proposals would also eliminate Amtrak's national trains and thus reduce the Commonwealth's rail service by 48%. Virginia must take the next steps needed to protect and improve its regional train service and to ensure that the taxpayers' resources are invested wisely.



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POLICY RECOMMENDATIONS

Articulate and adopt a strong, clear, long-term vision for passenger rail. To date, state rail plans have tended to focus on short-term projects and lack long-term vision.

Study the potential of a Virginia Rail Authority to help ensure continuity of policies and investments and provide a mechanism for ownership of assets funded by Virginia's taxpayers

Protect the baseline of funding dedicated to the Intercity Passenger Rail Operating and Capital Fund and secure additional federal, state, and local resources.

Ensure that future intercity passenger rail investments are better connected to land use plans.



ACHIEVING SMART TRANSPORTATION

INTRODUCTION

Virginia faces major transportation challenges. Transportation is central to our economy and quality of life — yet, many existing roads and bridges are in poor condition, congestion costs are high in many areas, transit is underfunded, changing demographics are creating demand for a greater range of transportation choices, and transportation is the leading source of carbon dioxide pollution in the Commonwealth. Despite some significant recent progress, we continue to focus heavily on highway construction and expansion — an approach that is costly to taxpayers, communities, and the environment — while doing little to relieve congestion in the long run. This costly and destructive approach needs to be changed.

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DESPITE SOME SIGNIFICANT RECENT PROGRESS, WE CONTINUE TO FOCUS HEAVILY ON HIGHWAY CONSTRUCTION AND EXPANSION — AN APPROACH THAT IS COSTLY TO TAXPAYERS, COMMUNITIES, AND THE ENVIRONMENT — WHILE DOING LITTLE TO RELIEVE CONGESTION IN THE LONG RUN.

BACKGROUND

A number of significant transportation reforms have been adopted over the past few years to help ensure that recent funding increases are spent wisely. These include the development of the SmartScale funding prioritization process the Commonwealth Transportation Board must factor in when selecting projects, improvements to the Public-Private Transportation Act, and changes to funding allocation formulas.

In addition, we have seen increased funding for alternatives to driving, including the first-ever dedicated state capital funding for Metro (matched by Washington, D.C. and Maryland), additional passenger and commuter rail service, and funding for Richmond's first bus rapid transit line, which opened in June 2018. However, the Commonwealth still spends a small percentage of its total transportation budget on rail and transit, despite the competitive benefits of these investments and their critical importance to Virginia's economy. Amazon made good transit a major evaluation factor in its request for proposals for its second headquarters — Richmond and Hampton Roads were eliminated with their limited transit, while keeping Metrorail sites in the Washington, D.C. area on

its shortlist.

Additionally, the SmartScale prioritization process has helped reduce funding earmarked for unneeded and unnecessarily large or destructive projects and to advance more targeted solutions to our transportation problems. Nonetheless, too many wasteful and damaging highway proposals are still moving forward with state and regional funding.

The bottom line is that Virginia's transportation spending is still too asphalt-centered, with nearly 80% of the new \$21.2 billion Six-Year Improvement Program dedicated to road projects. Evidence shows that new and wider highways often fail to provide long-term congestion relief since they cause development to spread out and generate significant new traffic. We need a more balanced transportation program that does more to protect our communities and our historic, scenic, and natural resources, while focusing on accessibility to daily needs that are central to our economy and quality of life.

In addition to advancing a more balanced, multi-modal transportation system, we need to promote cleaner motor vehicles. Little has been done at the state and local level in Virginia to encourage the adoption of electric vehicles in the private sector, for public transportation, or for governmental vehicles. We need to promote electric vehicles to reduce carbon pollution and other emissions.



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POLICY RECOMMENDATIONS

SUPPORT FUNDING FOR CLEANER TRANSPORTATION ALTERNATIVES.

Among the changes needed:

- Any new transportation funding, such as an internet sales tax, should devote a substantial percentage of revenues to transit, rail, bicycle, and pedestrian projects.
- Provide increased funding for transit, bicycle, and pedestrian projects to meet the market demand for mixed-use, walkable, transit-oriented communities. While the 2018 Virginia General Assembly session addressed Metro funding, it did not address long-term capital and operating funding needs for other transit services across the state.
- Dedicated funding for passenger rail should be protected and additional federal, state, and local resources secured. In addition, the state should study the establishment of a Virginia Rail Authority to help ensure continuity of policies and investments and provide a mechanism for ownership of assets funded by taxpayers.
- Support freight rail as a preferred means of adding capacity in congested corridors with high truck density, such as I-81 and I-95, and ensure that opportunities to move cargo by rail are seriously considered during the review and study process for any highway expansion. Further, Virginia's Rail Enhancement Fund should be reviewed and amended if needed to advance more projects that will shift freight from roads to rail.
- Allow regional tax revenues in Hampton Roads to be used for transit, rail, and other multimodal improvements — not just roads.
- Support a dedicated regional revenue source focused on expanding and operating transit in the Richmond region, which lags most mid-size regions in the extent of its transit system. Any regional funding for the Richmond region must be accountable; tie transportation investments to smart growth; include repair of existing aging infrastructure; and make funding for public transit, passenger and freight rail, and bicycle and pedestrian improvements the top priority.

Provide incentives for the purchase of cleaner vehicles, including financial incentives (such as a tax credit) for individuals who buy electric vehicles and incentives for deployment of electric vehicles in state, local, and transit agency fleets, including school buses. In addition, establish a commission to coordinate and encourage the installation of a comprehensive network of electric vehicle charging stations and to identify other measures to advance electric vehicle adoption.

SUPPORT IMPROVED PERFORMANCE STANDARDS AND PRIORITIES FOR TRANSPORTATION FUNDING:

- Expand requirements for the development of performance standards and require VDOT and large metropolitan areas to meet measures that include reduction in per capita vehicle miles traveled and increased mode share for transit, carpooling, walking, bicycling, and telecommuting.
- Oppose any measure giving even greater weight to congestion mitigation and economic development as priorities for state or regional funding, as well as any effort to weaken or eliminate environmental quality measures in project scoring.
- Oppose any effort to exempt a particular project from the funding prioritization process.

SUPPORT TRANSPORTATION PROCESS REFORM. Actions that will reduce the damage projects cause to environmental, cultural, and historic resources; enhance public involvement in planning; improve the Public Private Transportation Act; or continue reforms to Virginia Department of Transportation planning and Commonwealth Transportation Board oversight should be supported.

SUPPORT IMPROVING THE LINK BETWEEN TRANSPORTATION AND LAND USE AND PROVIDING INCENTIVES FOR SMARTER GROWTH.

Potential measures include: targeting transportation spending to existing communities and congested areas; funding and improving access management and local street connectivity; providing technical assistance to localities to promote transit-oriented development; and repealing recent requirements that local land-use plans conform to state transportation plans.

INCREASING NATIVE PLANT USE AND CONTROLLING INVASIVE SPECIES

INTRODUCTION

Promoting the use of native plants on public and private lands is vital to restoring habitat and enhancing water quality. Native plants are the backbone of healthy ecosystems. They provide habitat, food sources for wildlife, ecosystem resiliency in the face of climate change, and clean water. Virginia's landscape is constantly under threat from habitat loss, land conversion, and invasive species. The loss of native plant communities negatively affects biodiversity and water quality, resulting in significant impacts to ecosystem services (pollination, carbon sequestration, water conservation, natural hazard mitigation, etc.).

Another major threat to biodiversity — second only to habitat loss — is the spread of invasive species. Roughly 42% of threatened or endangered wildlife species are threatened by invasive species. Invasive plant species outcompete native plants and degrade wildlife habitat. They are found in every corner of our landscape: roadsides, public parks, and suburban yards. Many invasive plant species are still sold in the horticultural trade. Invasives gain footholds in disturbed habitats and highly traveled areas, which allows them to infiltrate natural areas and private property. Eliminating invasives and restoring native habitats on private and public lands should be a priority.

BACKGROUND NATIVE PLANTS

Controlling invasive plants and promoting native species are the cornerstones for land stewardship. Public and private land managers need access to the tools and materials to properly steward our environment.

Natives have evolved with Virginia's landscape, wildlife, and climate, and they play a key role in a variety of conservation projects. Landowners and natural resource professionals rely on the availability of native plants in the nursery industry to do conservation work, like installing riparian buffer plantings and suburban pollinator gardens, as well as restoring grassland habitat. Managers are constrained by the limited availability of native seed and plant materials. In Virginia, there are only a handful of nurseries that specialize in native plants and even fewer that grow stock from locally collected seed. Managers often have to order plant materials from out-of-state instead of supporting local businesses.

State cost-share programs are a valuable tool that

provide technical assistance and financial support to landowners interested in creating wildlife habitat and installing water conservation practices. One new state program in particular — the Virginia Conservation Assistance Program (VCAP) — offers support to urban landowners for practices that mitigate nonpoint source pollution. Eligible practices include conservation landscaping, green roofs, and rainwater harvesting. Funding for this popular program has not been approved yet, and its future remains uncertain.

The Virginia Department of Transportation (VDOT) maintains a network of 58,000 miles of highways and bridges, as well as 41 rest areas, 12 welcome centers, and over 100 commuter lots. As a large public landowner, VDOT's land management strategy affects the health of privately-owned land and the state's biodiversity. Several transportation departments across the country have adopted management practices that incorporate native species into their roadside plantings, invasive plant control and a low-mowing regime. By improving their approach to land management, VDOT could have a huge impact on water quality and wildlife.

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CONTROLLING INVASIVE PLANTS AND PROMOTING NATIVE SPECIES ARE THE CORNERSTONES FOR LAND STEWARDSHIP. PUBLIC AND PRIVATE LAND MANAGERS NEED ACCESS TO THE TOOLS AND MATERIALS TO PROPERLY STEWARD OUR ENVIRONMENT.

INVASIVE PLANTS

Controlling invasive plants requires a multi-faceted approach. Eradicating existing populations, preventing new species from gaining a foothold, and removing invasives from the horticultural trade are all crucial to protecting our environment. Public and private land managers should each have a role in controlling invasive plants, particularly VDOT. Invasives gain footholds in disturbed habitats and highly-traveled areas, which allow them to infiltrate natural areas and private property. Roadways enable the introduction and spread of invasive species and should be managed appropriately.

CONCLUSION

Promoting the use of native plants on public and private lands is vital to restoring habitat and enhancing water quality. Public and private land managers need access to the tools and materials to properly steward

our environment. Funding cost-share programs that provide financial assistance, like VCAP, and properly managing the state's extensive roadway system is needed in order to achieve this goal.

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POLICY RECOMMENDATIONS

Fully fund the Virginia Cost-Share Assistance Program.

Ensure consistent and adequate funding for the Virginia Conservation Assistance Program.

Support legislation or administrative action that would direct the Virginia Department of Transportation to adopt innovative land management strategies that focus on the use of natives in their roadside plantings, controlling invasives, and mowing both less frequently and with consideration for timing.



VCNVA.ORG/GREEN-COMMUNITIES

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OUR PARTNERS

Founded as the Conservation Council of Virginia in 1969, Virginia Conservation Network (VCN) began as a roundtable of major conservation groups and has grown to include over 100 Network Partners across the Commonwealth. VCN is committed to building a powerful, diverse, and highly-coordinated conservation movement focused on protecting our Commonwealth's natural resources today and for tomorrow.

VCN's Network Partners work on a wide range of issues from stream restoration to transportation reform to renewable energy advancement to promoting sustainable community growth and more. Given the diverse work of our Partners, VCN organizes its programs into three main categories: Healthy Rivers, Clean Energy, and Green Communities. To view our list of partners online, visit vcnva.org/our-partners.

BALD EAGLE



CARDINAL

Appalachian Citizens' Law Center • Environment Virginia • Friends of the Rappahannock • James River Association • Lynnhaven River NOW • Natural Resources Defense Council • Powered by Facts • Shenandoah Valley Battlefields Foundation • The Nature Conservancy in Virginia • Virginia • Virginia Aquarium and Marine Science Center Foundation

TIGER SWALLOWTAIL BUTTERFLY

Alliance for the Chesapeake Bay · Alliance for the Shenandoah Valley · Appalachian Trail Conservancy · Appalachian Voices · Audubon Naturalist Society · Blue Ridge Land Conservancy · Chesapeake Climate Action Network · Clean Fairfax Council · Coalition for Smarter Growth · Foundation Earth · Friends of the North Fork of the Shenandoah · Hillside Garden Club · James River Garden Club · New Virginia Majority · Northern Virginia Conservation Trust · Oceana · Potomac Riverkeeper Network · Preservation Virginia · Richmond Audubon Society · Roanoke River Basin Association · Scenic Virginia · Shenandoah National Park Trust · Spotswood Garden Club · Trust for Public Land · Tuckahoe Garden Club of Westhampton · Valley Conservation Council · Virginia's United Land Trusts · Virginia Association of Soil & Water Conservation Districts · Virginia Living Museum · Virginia Native Plant Society · Wetlands Watch

DOGWOOD

350 Central Virginia - Albemarle Garden Club - Ashland Garden Club - Audubon Society of Northern Virginia - Blue Ridge Garden Club • Boxwood Garden Club • Capital Region Land Conservancy • Climate Action Alliance of the Valley • Conservation Park of Virginia, Inc. • Drive Electric RVA • Fauquier & Loudoun Garden Club • Friends of Accotink Creek • Friends of Dyke Marsh • Garden Club of Norfolk • Garden Club of the Middle Peninsula • Garden Club • Briends of Accotink Creek • Friends of Dyke Marsh • Garden Club of Norfolk • Garden Club • Leesburg Garden Club • Martinsville Garden Club • Mattaponi & Pamunkey Rivers Association • Mill Mountain Garden Club • Nelson County Garden Club • Partnership for Smarter Growth • Potomac Conservancy • Rail Solution • Rappahannock League for Environmental Protection • Rappahannock Valley Garden Club • Rivanna Conservation Alliance • Rivanna Garden Club • Rockbridge Area Conservation Council • Rockfish Valley Foundation • Sierra Club – Blue Ridge Group • Sierra Club – Chesapeake Bay Group • Sierra Club – Falls of the James Group • Sierra Club – Great Falls Group • Sierra Club – Mount Vernon Group • Sierra Club – New River Valley Group • Sierra Club – Piedmont Group • Sierra Club – Rappahannock Group • Sierra Club – Roanoke Group • Sierra Club – Shenandoah Group • Sierra Club – York River Group • Virginia Audubon Council • Virginia Bicycling Federation • Virginia Chapter of the Wildlife Society • Virginia Clinicians for Climate Action • Virginia Council of Trout Unlimited • Virginia Green Travel Alliance • Virginia Society of Ornithology • Virginia Wilderness Society • Wild Virginia • Williamsburg Garden Club • Winchester Garden Club

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HEALTHY RIVERS MEETING VIRGINIA'S GROWING NEED TO TACKLE POLLUTED RUNOFF

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CLEAN ENERGY

REDUCING CARBON POLLUTION AND INVESTING IN THE COMMONWEALTH

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