

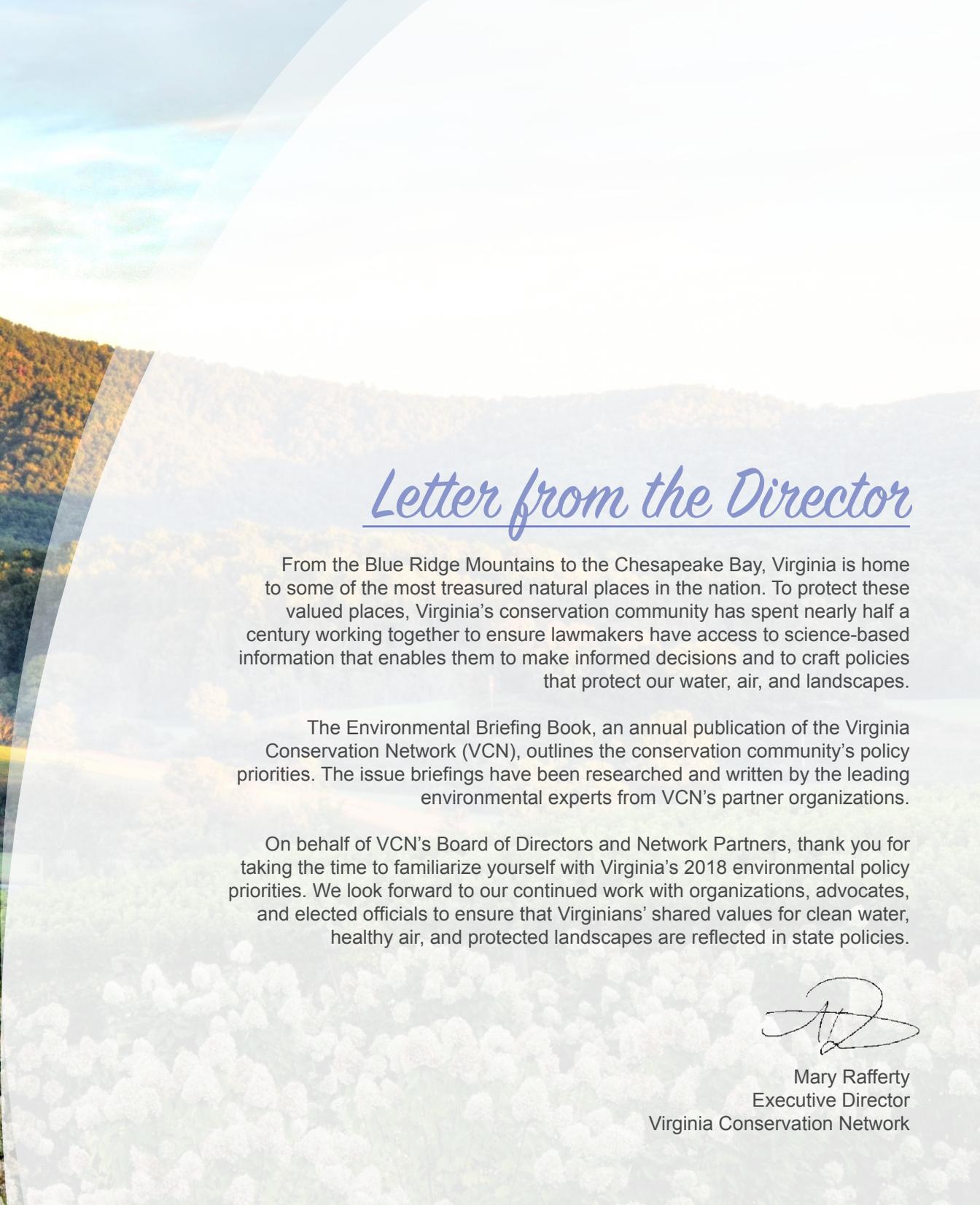


OUR COMMON AGENDA

**2018 ENVIRONMENTAL
BRIEFING BOOK**





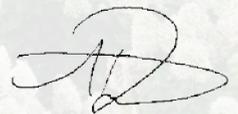


Letter from the Director

From the Blue Ridge Mountains to the Chesapeake Bay, Virginia is home to some of the most treasured natural places in the nation. To protect these valued places, Virginia's conservation community has spent nearly half a century working together to ensure lawmakers have access to science-based information that enables them to make informed decisions and to craft policies that protect our water, air, and landscapes.

The Environmental Briefing Book, an annual publication of the Virginia Conservation Network (VCN), outlines the conservation community's policy priorities. The issue briefings have been researched and written by the leading environmental experts from VCN's partner organizations.

On behalf of VCN's Board of Directors and Network Partners, thank you for taking the time to familiarize yourself with Virginia's 2018 environmental policy priorities. We look forward to our continued work with organizations, advocates, and elected officials to ensure that Virginians' shared values for clean water, healthy air, and protected landscapes are reflected in state policies.



Mary Rafferty
Executive Director
Virginia Conservation Network

Virginia Conservation Network

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 final two pages 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 today and for tomorrow.

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 Partners, VCN organizes its programs into three main categories: Healthy Rivers, Clean Energy, and Green Communities.



HEALTHY
RIVERS



CLEAN
ENERGY



GREEN
COMMUNITIES

Virginia Conservation Network (VCN) is governed by a Board of Directors, each elected by Network Partners.

VCN's 2017 Board of Directors

Cale Jaffe, President

Karen Forget, Vice President

Daryl Downing, Secretary

John Hutchinson, Treasurer

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Each year, VCN hosts three events for Network Partners across the Commonwealth:

Virginia Environmental Assembly | September 22–23, 2017 | Fredericksburg, VA

Bringing together conservation leaders from across Virginia, the Environmental Assembly provides a forum for discussion on key environmental issues and an opportunity to strategize with like-minded individuals about the best ways to tackle threats to our land, water, and natural resources.

General Assembly Preview | December 2, 2017 | Richmond, VA

In preparation for the 2018 Virginia General Assembly session, VCN and its Network Partners convene for a day long preview of what's in store for conservation. Volunteers, board members, and the staff of our Network Partners discuss priority conservation topics and our approach to advancing policy in the legislative session.

Conservation Lobby Day | January 22, 2018 | Richmond, VA

VCN organizes Conservation Lobby Day to ensure a strong conservation voice is heard early in the legislative session. Volunteer advocates are invited to join the staff of our Network Partners as we meet with state legislators and encourage them to support environmental policy advancements.

VCN serves as the Virginia Affiliate of the National Wildlife Federation (NWF). NWF and its affiliates are committed to increasing America's fish and wildlife populations and enhancing their capacity to thrive in a rapidly changing world. Learn more at nwf.org.

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Healthy Rivers



Virginia's waterways and the Chesapeake Bay are critically important for a thriving Commonwealth. Healthy rivers and streams provide safe drinking water and allow residents and visitors to enjoy Virginia's abundance of outdoor recreation opportunities. Clean water is not only critical for our wildlife and ecosystems, but also for Virginia's major industries, including agriculture, tourism, and fisheries. Virginia Conservation Network is committed to supporting sound policies and increasing the state and federal funding necessary to restore and protect our rivers and streams.



In this chapter, hear from Virginia's experts about:

- Storing Coal Ash
- Addressing Impacts of High-Volume Fracking
- Funding Agricultural Best Management Practices
- Managing Polluted Runoff
- Protecting the Menhaden Fisheries
- Restoring Oyster Populations
- Mitigating Sea-Level Rise

Coal Ash and Our Commonwealth's Water Supplies

Introduction

Coal ash — the waste product generated when coal is burned for energy — is the second largest industrial waste stream in the United States. Coal ash 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 take the cheapest — but riskiest — path forward when it came to coal ash storage. As a result, impoundments across the country now pose a danger to our health, drinking water, and environment.

In Virginia, as in most places, operators of coal-fired power plants have typically disposed of coal ash on-site, at the power plant where it was produced. Since most coal-fired power generation requires large quantities of water, these coal ash disposal sites are almost always located in close proximity to rivers, creeks, and streams, often in low-lying marshy areas.

Additionally, because many of these plants predate both modern state and federal solid waste disposal safeguards, a large number of the coal ash waste sites are unlined and, in some cases, remain in contact with groundwater. This polluted groundwater then flows directly into rivers and streams, often used by anglers, boaters, and other recreationists.

Many utilities in neighboring states have decided to do the right thing or are being required to do so. In North Carolina, South Carolina, and Georgia, 75 million tons of coal ash are being excavated and placed into modern, lined landfills or recycled for use

in concrete, and a federal judge recently ordered a utility to excavate coal ash at a site in Tennessee — about 16 million tons — due to Clean Water Act violations. Getting the ash out of the ground solves the problem permanently, allowing citizens to enjoy rivers and streams without perpetual fear of coal ash pollution. Utilities in Virginia, however, have rejected this approach. Despite documented pollution at sites across Virginia, the utilities' preferred approach here is to simply leave the source of pollution in place, installing only a thin cap on top.

Coal Ash in Virginia

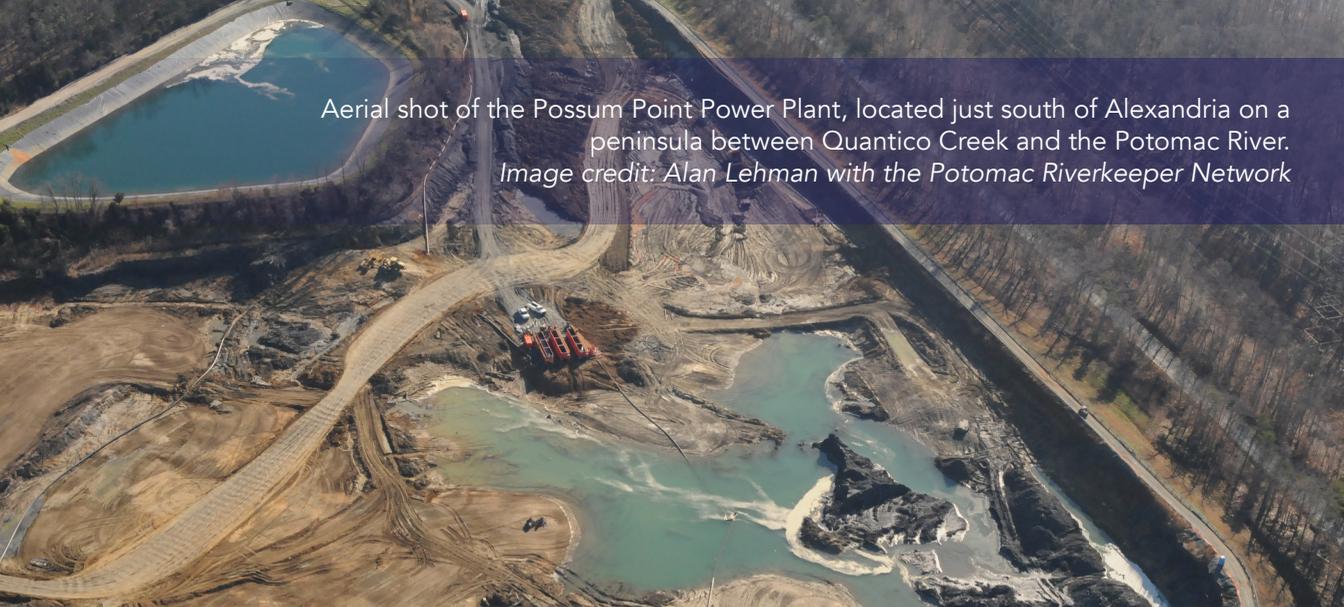
Utilities in Virginia must receive two key permits in order to close their coal ash ponds: A Clean

Water Act permit (called a Virginia Pollution Discharge Elimination System Permit or VPDES permit) and a solid waste permit. The VPDES permit in large part is required to dewater the ponds, i.e., discharge the water that has collected

in the coal ash ponds in preparation for closure. The solid waste permit is required to convert these ponds from wet storage into dry storage in accordance with federal and state laws.

The Virginia Department of Environmental Quality (DEQ) has nearly completed issuing the VPDES permits required for the dewatering stage. On the solid waste permitting side, a bill passed in 2017 to pause the closure process for coal ash sites while more information is gathered about the sites and closure options.¹ The new law requires utilities to perform a number of assessments on its coal ash in the Commonwealth, requiring for example, a hard look at excavation and recycling options, a plan to address any existing coal ash pollution at its sites, and a demonstration of how each closure plan

“Having a long-term plan to clean up and store coal ash is important to ensure clean drinking water, clean rivers and streams for our children to swim in, and healthy fish populations for generations to enjoy.”



Aerial shot of the Possum Point Power Plant, located just south of Alexandria on a peninsula between Quantico Creek and the Potomac River. Image credit: Alan Lehman with the Potomac Riverkeeper Network

will keep the ash safe from long-term risks, such as flooding and hurricanes. These assessments must be released no later than December 1, 2017. Importantly, the law prevents DEQ from issuing any permits governing closure of these sites until May 2018 at the earliest to give time for DEQ, legislators, and the public to review the assessments.

Conclusion

Having a long-term plan to clean up and store coal ash is important to ensure clean drinking water, clean rivers and streams for our children to swim in, and healthy fish populations for generations to enjoy. Virginia has the opportunity to become a leader on coal ash cleanup.



Authors:

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Recommendations

Building upon progress made in 2017, the Virginia General Assembly must continue to strengthen state protections related to coal ash. Such strengthening is even more important with federal protections currently under attack.

With possible federal rollbacks, Virginia must ensure coal ash sites remain subject to strict permitting and siting requirements through state-level laws and regulations. For example, consistent with existing rules, utilities must be required to demonstrate that a proposed closure plan for a given coal ash site complies with the applicable performance standards prior to issuance of a draft permit. Similarly, Virginia should make clear that — consistent with the CCR Rule — coal ash may not be capped in place where groundwater is in contact with a portion of the ash.

After Dominion Energy has completed its assessments in accordance with the new coal ash law, Virginia officials should take a hard look at whether the removal of particular coal ash impoundments to modern dry storage facilities — with synthetic liners and leachate collection and treatment systems, away from our rivers and drinking water supplies — is appropriate or even required. Likewise, the appropriateness of recycling the ash should be considered, which could bring in local jobs and tax revenue, while significantly reducing the costs associated with excavation.

Protect Communities from the Harmful Impacts of Industrial Gas Development and High-Volume Fracking

Introduction

Virginia is facing a new era of industrial gas development. In addition to the possibility of drilling for shale gas in new areas of the state, drillers now seek to use high-volume hydraulic fracturing (fracking) with horizontal drilling, a combination not historically used in Virginia. In recent years, there has been interest in expanding these practices into both the Shenandoah Valley and Tidewater regions. Both of these regions, as well as other parts of the state, have unique geology and sensitive water resources that merit protection from the risks associated with fracking. This includes karst topography and headwaters in the Valley and the Potomac Aquifer — which provide fresh drinking groundwater to approximately 2.5 million Virginians — as well as the Chesapeake Bay in the Tidewater region.

Before the Commonwealth starts down this path, the Virginia General Assembly should ensure that:

- No legislation weakens or undermines any aspect of the Virginia Department of Mines, Minerals, and Energy (DMME) regulations, which were updated in December 2016 after years of active involvement by citizens, industry, and other stakeholders;
- Stronger commonsense protections are in place statewide to protect the people, environment, and natural resources of Virginia; and
- Local communities continue to have the right to decide whether or how modern fracking could be compatible with their community's vision.

Background

High-volume hydraulic fracturing is a drilling technique in which millions of gallons of water, sand, and/or chemicals are forced underground at high pressure to break up rock and release the oil or gas within. Horizontal drilling allows a drill to turn 90

degrees underground so that it runs parallel to the surface, allowing greater horizontal access to rock. By combining high-volume hydraulic fracturing with horizontal drilling, we are presented with today's modern fracking boom. This is different from the type of drilling historically done in the coalfields of Southwestern Virginia.

Modern fracking is an intense industrial activity that has drastic impacts on local communities. In the Marcellus Shale region in Pennsylvania, an average well uses 4.2 million gallons of water each

time it is fracked. That water is often delivered by the truckload, resulting in thousands of truck trips along rural roads — a single heavy truck delivering water causes the same

amount of road damage as 9,000 cars. Once the water from the fracking process returns to the surface, it is a waste byproduct held in open pits nearby. It is eventually trucked offsite, adding more wear and tear to local roads.

Contamination of groundwater and surface water is a significant concern for local residents, businesses, localities, and others. As an increasing body of research confirms, industrial gas development with fracking can — and does — contaminate water:

- A comprehensive report from the Environmental Protection Agency (EPA) documents that fracking activities can lead to water contamination, sometimes rendering drinking water sources totally unusable (2016);
- A Stanford University study, led by a former EPA scientist, links fracking waste to contaminated drinking water wells in Wyoming and suggests that fracking chemicals contaminated an entire groundwater resource in a natural gas basin (2016);
- U.S. Geological Survey scientists determine that wastewater storage at a West Virginia site

“An increasing body of research confirms, industrial gas development with fracking can — and does — contaminate water.”

- contributed to contamination of downstream water and sediment (2016);
- A study by U.S. Geological Survey, Duke University, and University of Missouri confirms higher levels of endocrine-disrupting chemicals downstream of a West Virginia fracking wastewater storage site (2016);
- A Duke University study indicates fracking wastewater spills in North Dakota have caused widespread water and soil contamination (2016);
- A report indicates that 90 of the 615 oil and chemical spills reported in Colorado in 2015 contaminated groundwater (2016);
- Pennsylvania reveals that 243 private drinking wells were contaminated by oil and gas activity (2014); and
- Texas floods cause oil and fracking chemicals to flush into nearby rivers (2016).

Solid waste from fracking operations is also a concern. Drilling muds and cuttings can contain naturally-occurring radioactive materials and heavy metals that can leach into groundwater and contaminate soils. In late 2015, 866 tons of radioactive drilling waste from West Virginia were illegally dumped into a Kentucky landfill.

Noise and light pollution also pose serious concerns for residents living in communities near fracking sites and compressor stations. These loud industrial operations run 24 hours per day, seven days per week. In addition, the miles of gathering and transmission pipelines cut across properties, visually dissecting rural communities.

Maryland and New York have determined that the risks to their states from fracking are just too great. Maryland banned fracking in 2017, and New York banned the activity in 2015. If this practice is to be allowed in Virginia, the Virginia General Assembly should begin to address the documented risks posed by modern fracking on local communities and Virginians by instituting commonsense protections including the following:

- Eliminate the use of waste pits;
- Require safe management and disposal of contaminated wastewater and solid waste from fracking sites;
- Ensure adequate statewide siting restrictions that protect waterbodies and other public resources;

Recommendations

Water quality and safety protections currently in Virginia law must not be eroded. Any attempt to weaken current environmental, health, and safety laws and regulations is unacceptable.

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

Stronger commonsense protections should be put in place statewide to protect the people, environment, and natural resources of Virginia.

- Enforce erosion and sediment control standards; and
- Require DMME to consult with state agencies (including the Virginia Department of Environmental Quality and Department of Health) prior to issuing oil and gas permits.

Conclusion

Virginians are engaged deeply on the issue of modern fracking in the Commonwealth and are concerned about the documented risks it poses to local citizens, communities, and the environment. During the 2018 session, the Virginia General Assembly should reject any bills that would weaken or undermine any of the current protections in DMME oil and gas regulations, which Virginia citizens have helped shape through years of public discourse and involvement. In particular, the Virginia General Assembly should reject any loopholes which would erode mandatory public disclosure of fracking chemicals — this includes Freedom of Information Act (FOIA) exemptions for certain fracking chemicals. Such FOIA exemption proposals were rejected in 2016 and defeated in 2017 with bipartisan opposition. The Virginia General Assembly should also strongly protect localities' authority over oil and gas development, as well as other land uses.



Author:

Emily Francis | *on behalf of Southern Environmental Law Center and Friends of the Rappahannock*

Provide Sufficient Funding for Cost Effective Agricultural Best Management Practices

Introduction

Agriculture is Virginia's largest industry, covering more land area than any other industry in the Commonwealth — approximately 46,000 farms cover 8.2 million acres (32%) of Virginia. Not surprisingly, agriculture is also the largest source of nutrient and sediment pollution reaching local streams and the Chesapeake Bay, even though numerous well-operated farms employ sound conservation practices that protect water quality. Many more farmers would like to put effective conservation practices on the ground; however, constrained by a lack of technical and financial resources, they are unable to do so without assistance. The result is pollution — excess nutrients, sediment, bacteria, and toxins — flowing to local waterways and the Chesapeake Bay.

Background

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 that 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. Bacterial pollution impacts our ability to safely use waterways and can lead to beach and shellfish harvesting closures.

These pollutants cause a large proportion of water quality impairments as described by the Virginia Department of Environmental Quality. The Chesapeake Bay is impaired for nutrients

and sediments, and monitoring shows that nearly half of Virginia's rivers and streams have bacterial impairments. Virginia's Chesapeake Bay Watershed Implementation Plan lays out the Commonwealth's plan to make large pollution reductions from agriculture in order to reduce these water quality problems. To fulfil these needs, Virginia lawmakers should fully fund the Virginia Agricultural Cost-Share Program (VACS).

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 that work with local farms to implement practices that restore and improve water

“VACS has assisted thousands of farmers in implementing more than 50 best management practices to reduce pollution from reaching Virginia's waterways.”

quality by addressing non-point source (NPS) pollution.

VACS has assisted thousands of farmers in implementing more than 50 different types of best management practices (BMPs) to reduce pollution from reaching Virginia 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.

Investments in agricultural BMPs help water quality, while also creating jobs and yielding economic benefits. Livestock exclusion from streams can help 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. It is clear that the implementation of agricultural BMPs enhance Virginia's agricultural economy while also driving much needed improvements in water quality.

Funding Agricultural Best Management Practices

Historically, Virginia's funding for agricultural BMPs and associated technical assistance has fluctuated significantly from year to year. The uncertainty associated with funding levels creates substantial challenges and inefficiencies. In 2017, the Virginia General Assembly established a stakeholder group to address these issues. That stakeholder group — which is comprised of several legislators, conservation groups, and agriculture representatives — will develop recommendations to submit to the Virginia General Assembly in 2018.

What amount of funding is needed to achieve the water quality and economic benefits of agricultural BMPs? Every other year, the Virginia Department of Conservation and Recreation (DCR) — along with farmers, the Soil and Water Conservation Districts, and other stakeholders — answers this question by compiling a needs assessment that details the cost of necessary BMP implementation across the Commonwealth. Relying in part on the most recent needs assessment, state legislators and Governor McAuliffe worked closely together on this issue in the Virginia General Assembly, appropriating \$78 million in support of agricultural BMPs in the last two years — this includes \$62 million for FY17 and an additional \$16 million for FY18. While this represents a record amount of funding, a substantial gap remains between appropriated funding and the identified needs to improve water quality and soil health across the Commonwealth.



Authors:

Matt Kowalski and Joe Wood | *Chesapeake Bay Foundation*

Recommendations

Virginia invested nearly a billion dollars in wastewater treatment plant upgrades over the past decade, which have resulted in substantial improvements in water quality. Our waterways are already responding to these improvements. If the state provides a similar level of investment to agriculture (the most cost-effective means of reducing polluted runoff) and devises an effective plan to stabilize both cost share and technical assistance dollars, it can likewise achieve the necessary pollutant reductions across the Commonwealth.

The FY19 need to meet water quality goals for the Chesapeake Bay and Southern Rivers watersheds is over \$100 million, and the total need through 2025 is nearly \$900 million (not including the share expected to be met from producers or the federal government). To ensure Virginia does not fall behind on water quality goals — and to obtain the economic benefits of restored waterways — it is essential that our elected officials fund agricultural BMPs at this level.



Farmer planting cover crops.
Image credit: Natural Resources Conservation Service

Protecting the Water We Drink, the Food We Eat, and the Rivers Where We Play from Polluted Runoff

Introduction

Virginians rely on the Commonwealth's waterways in a variety of ways, including clean drinking water, seafood production (Virginia is the largest seafood producer on the East Coast and the third largest in the United States), and recreational tourism (the James River Park System generates over \$33 million in income per year for the Richmond region).^{1,2,3}

Counter to these uses, polluted runoff — the muddy stew of stormwater, dirt, bacteria, and toxins that runs off streets, roofs, sidewalks, and other hard surfaces — is a growing issue in our 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 risk failing to meet the Commonwealth's goal to restore our local streams and the Chesapeake Bay by 2025.

“Over its lifespan, the Stormwater Local Assistance Fund has provided grants to 51 localities for 175 projects across Virginia.”

Background

While we have made a lot of progress addressing pollution from sewage treatment plants and industry, pollution from runoff presents a more complex problem as it involves us all and stems from a wide variety of sources. Everyone's actions impact runoff — from our yards to our pets to our vehicles to our places of employment — and we all have a role to play in addressing it.

Given its complex nature, controlling polluted runoff (sometimes referred to as stormwater) is not simple. Every site is unique and requires its own strategy. For example, suburban development does not require the same practices to address runoff as a rural area would. The urban site might use a green roof to control stormwater, while the rural site may use a stormwater pond. While it is a complex issue, through the efforts of local and state officials — as

well as Virginia citizens — the state has developed a strong and successful program for controlling runoff in new development. We must continue this program implementation for new development while also implementing programs for existing development and stream restoration.

While such implementation programs may be expensive, they are necessary to comply with existing regulations. Fortunately, we already have a tool in place to make this happen: The Stormwater Local Assistance Fund. It is a state and local matching grant program that will help us protect the water we drink, the food we eat, and the rivers where we play. Over its lifespan, the Stormwater Local Assistance Fund has provided grants to 51 localities

for 175 projects across Virginia. Unfortunately, the 2017 Virginia General Assembly session provided no funding for this program, despite the fact that requirements for

stormwater compliance are ramping up. We must help local governments restore their waterways.

Local Case Studies

Each locality in Virginia has waterways that are in need of restoration. Many localities, as a part of their stormwater permits, have started taking steps to address the needs of their local streams.

The City of Lynchburg recently completed a bioretention project at Sheffield Elementary School, which drains to Rock Castle Creek. This project was partially funded by Virginia's Stormwater Local Assistance Fund. The project was carefully designed to not only provide the maximum water quality benefits, but to also hopefully provide the opportunity for students to have a meaningful watershed experience at their school, while promoting environmental literacy in an educational setting.

Lynchburg has it right — the city knows there are multiple community benefits to clean water.

In the City of Virginia Beach, Mill Dam Creek was a highly polluted urban stream. It was restored in 2016 using Stormwater Local Assistance Fund dollars, which were matched by the City of Virginia Beach. Sediments that had accumulated for decades were dredged, wetland benches were built on both sides, and a buffer was designed and planted along the shoreline. These improvements have reduced sediments and nutrients flowing into Broad Bay and the Chesapeake Bay and have increased the ability of the creek to handle high flood waters, thereby better protecting nearby properties.

These two examples of projects funded by the Stormwater Local Assistance Fund show how stormwater solutions not only provide pollution reductions to local waterways, but can also provide additional benefits to their communities — beautifying public properties, educating the public, and helping protect everyone from flooding.



Authors:

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Karen Forget | *Lynnhaven River NOW*
Monica Billger | *Audubon Naturalist Society*

Recommendations

Each of us has a role to play in ensuring that we reverse the tide on polluted runoff going into our streams. After all, this is the water we drink and rely on daily. Localities have a role to play in restoring their local streams by developing and implementing programs and projects that will protect their waterways for generations to come.

Virginia’s legislators also have a starring role to play by providing reliable funding (at appropriate levels and times that match the increasing need) and by ensuring that existing stormwater programs remain strong. Virginia has goals to meet, and the Stormwater Local Assistance Fund is what will help us get there.

According to *VIRGINIAforever*, \$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.



This bioswale — installed by the Chesapeake Bay Foundation as part of a National Fish and Wildlife-funded project at Bellemeade-Oak Grove Elementary School in Southside Richmond — helps filter polluted runoff coming from the school’s basketball court, while also preventing flooding and beautifying the schoolyard.

Image credit: Chesapeake Bay Foundation



Atlantic Menhaden

Introduction

The Atlantic States Marine Fisheries Commission (ASMFC) manages Atlantic menhaden (*Brevoortia tyrannus*) along with numerous other coastal migratory species through the Interstate Fisheries Management Program. States are obligated to adopt fisheries management measures consistent with those imposed by ASMFC. In November 2017, ASMFC is expected to adopt Amendment 3 to the fishery management plan (FMP) which will result in significant changes for the management of menhaden in Virginia.

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, operates an industrial-scale fishery that reduces menhaden 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, which means it is an important food source for larger fish, marine mammals, and avian predators in marine and estuarine ecosystems.

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.”¹

On December 14, 2012 — after much consideration and tremendous public comment supporting more conservation-minded menhaden management — ASMFC adopted Amendment 2, which included significant revisions to the FMP for menhaden. These changes were adopted primarily to reduce harvest pressure and thus increase the menhaden population.

“Since colonial times, Atlantic menhaden have supported one of the largest commercial fisheries on the Atlantic coast.”

Since the adoption of Amendment 2, ASMFC has continued to make modifications to the FMP. In 2016, ASMFC supported the concept of cooperative fishing

by allowing certain sectors of the fishery to land 12,000 pounds of menhaden per day under a by-catch provision. In the fall of 2016, the total allowable catch was raised to 200,000 metric tons — an increase of 6.45% over the previous year.

During the 2017 legislative session, the Virginia General Assembly passed legislation to bring Virginia into compliance with the coast-wide management plan. The main objective of this legislation was to implement a new quota for the 2017 menhaden industry.

Currently, Amendment 3 to the Atlantic Menhaden FMP is being developed to support the adoption of ecological reference points (ERPs) for management and inconsideration of revising allocation methods within the coast-wide fishery. ERPs are intended to account for the many unique roles menhaden play in

the marine ecosystem. Final action on Amendment 3 by ASMFC will take place in November 2017 in order to allow for adoption of necessary state legislation to implement changes during the 2018 Virginia General Assembly session.



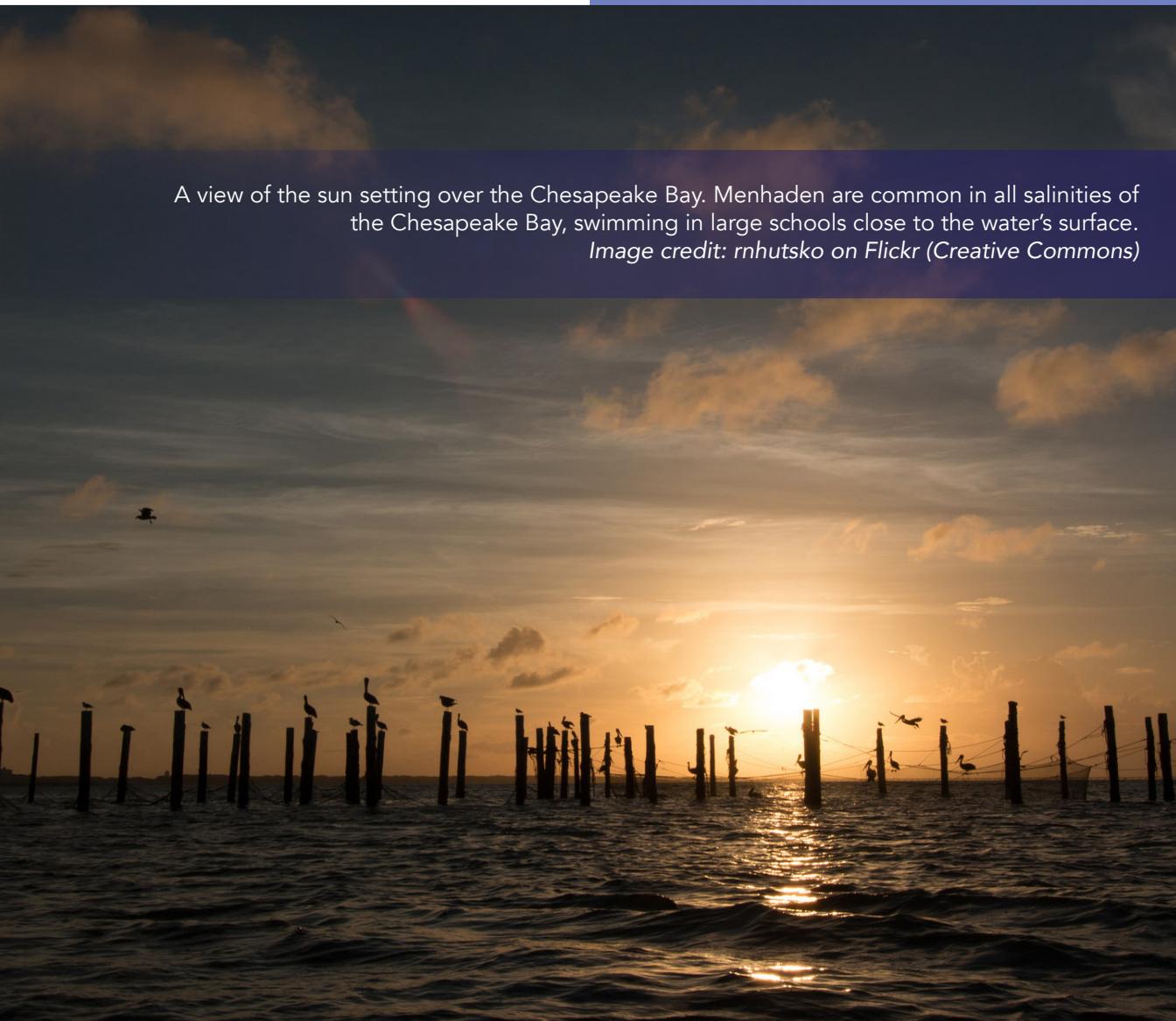
Authors:

Chris Moore | *Chesapeake Bay Foundation*
Missy Neff | *The Nature Conservancy*

Recommendations

It is necessary for the Virginia General Assembly to pass legislation during the 2018 legislative session to ensure compliance with all new provisions of the coast-wide management plan included in Amendment 3 and maintain compliance with the Atlantic States Marine Fisheries Commission's coast-wide fishery management plan for menhaden. Virginia's coastal fisheries and the regional and local economies that depend on them are in turn dependent upon a healthy menhaden population.

A view of the sun setting over the Chesapeake Bay. Menhaden are common in all salinities of the Chesapeake Bay, swimming in large schools close to the water's surface.
Image credit: nhutsko on Flickr (Creative Commons)





Eastern Oyster

Introduction

The native oyster (*crassostrea virginica*) is one of the Chesapeake Bay's keystone species and holds great ecological, economic, and historic importance in the Commonwealth. Despite the oyster's increasing prominence, Virginia invests minimal resources in the state's fishery and makes no monetary investment in ecological restoration, which supports a wide array of ecosystem services. Unfortunately, this lack of investment has resulted in the state missing opportunities to further oyster restoration efforts with federal partners — such as the U.S. Army Corps of Engineers — as well as chances to further improve water quality and support revitalization of other fisheries.

Background

The Chesapeake Bay (meaning *great shellfish bay* in Algonquin) once had historical reefs so expansive, they posed navigation hazards to explorers and watermen.

There was a time when the oyster population in the Chesapeake Bay was so vast, the entire 19 trillion gallons of water could be filtered in less than a week. The current oyster population would take a whole year to filter the Bay. As recently as the 1980s, the oyster fishery was the most valuable fishery in the Bay and landings peaked at upwards of 17 million bushels annually in the 1880s. Unfortunately, the Chesapeake Bay and its tributaries have lost approximately 98% of their historic oyster population through a combination of overharvest, disease, and water quality degradation.

Oysters are a keystone species that builds three-dimensional reefs that 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 spillover into nearby harvest bars and create disease-resistant stocks. It is estimated that such restored, sanctuary oyster reefs provide 34% higher economic value over a 50-year period than traditionally harvested reefs because of the important ecosystem services they provide.

Fortunately, targeted, successful restoration efforts are being implemented by a host of federal, state, and nongovernmental organizations to increase the

oyster population and meet the oyster goal for the Chesapeake Bay Watershed Agreement. Not only is this resource important economically, but each adult oyster can filter up to 50 gallons of water daily, removing pollution and increasing

water quality in the Bay and its tributaries. Without state funding for ecological restoration, Virginia forgoes the opportunity to partner with federal partners like the National Oceanic and Atmospheric Administration and the Army Corps of Engineers to further increase the Bay's oyster population. Partnerships like these are critical to continue to improve the industry and health of the Bay.

Conclusion

The Chesapeake Bay is one of the last remaining wild harvest oyster fisheries in the world. Oyster replenishment efforts can help provide the necessary substrate for these oysters and the businesses they support to thrive and become self-sustaining once again. These replenishment

“There was a time when the oyster population in the Chesapeake Bay was so vast, the entire 19 trillion gallons of water could be filtered in less than a week. The current oyster population would take a whole year to filter the Bay.”

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. The Commonwealth should also begin to make a significant investment in ecological restoration in order to increase the pace of restoration and be better positioned to take advantage of federal partnership opportunities.



Authors:

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Missy Neff | *The Nature Conservancy*

Recommendations

Rebuilding the Chesapeake Bay's oyster population provides multiple economic and ecological benefits including 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 biennial budget should include \$3.5 million for wild oyster replenishment and \$0.5 million for ecological restoration.

A close-up photograph showing three large, dark brown oysters with white edges, held in blue nitrile gloves. The oysters are arranged in a row, with the middle one slightly behind the other two. The background is dark and out of focus.

Oysters are a keystone species that builds three-dimensional reefs that provide critical nursery habitat for many commercially important species, such as blue crab and striped bass.
Image credit: Tom Pelton, Courtesy of Chesapeake Bay Foundation



Addressing Sea-Level Rise

Introduction

Virginia is facing many challenges as a result of climate change. In the coming decades, Virginia will become warmer, floods and droughts will become more severe, and sea levels will rise. Our changing climate is likely to increase damages from floods, reduce crop yields, harm fisheries, increase the number of unpleasantly hot days, and increase the risk of heat stroke and other heat-related illnesses.

Background

Carbon dioxide levels have increased by more than 40% since the late 1700s due to the burning of fossil fuels.

Other heat-trapping gases are also increasing.

These gases have warmed the surface and lower atmosphere approximately one degree fahrenheit during the last 50 years. As the atmosphere

warms, evaporation increases, leading to an increase in humidity, average rainfall, and the frequency of heavy rainstorms in many places (while some locations will see more drought).

Greenhouse gases are also changing the world's oceans and ice cover. Carbon dioxide reacts with water to form carbonic acid, causing the oceans, rivers, and estuaries like the Chesapeake Bay to become more acidic. As a result, coral reefs, oysters, and other marine organisms that utilize calcium carbonate in their shells and skeletons are becoming more impaired. The surface of the ocean has warmed by one degree fahrenheit during the last 80 years. Warming is causing snow to melt earlier in the spring, summers to get longer, mountain glaciers to retreat, and ice sheets on Greenland and Antarctica to shrink. This — compounded with thermal expansion of the ocean

— is leading to sea-level rise at an increasing rate.

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 (more than 14 inches since 1930 per Old Dominion University's Center for Sea-Level Rise). The Hampton Roads region is particularly at risk, because, in addition to rising seas, the land is also sinking. Many areas find their stormwater drains underwater at higher tides. This leads to tidal flooding, as well as rain-induced flooding, since the water washing off roads

and buildings has nowhere to go. With annual average rainfall of approximately 48 inches during 100 days of measurable precipitation, this translates into significant runoff events throughout the year.

“Hampton Roads has seen a 325% increase in nuisance flooding since 1960, which is defined as flooding that leads to public inconveniences, such as road closures and business disruption.”

Hampton Roads has seen a 325% increase in nuisance flooding since 1960, which is defined as flooding that leads to public inconveniences, such as road closures and business disruption. Scientists project sea-level rise to continue to accelerate by another three to seven feet by 2100 in Hampton Roads. As a result, flooding will become more severe, causing significant impacts throughout the region. Some of the most significant impacts include:

- Threats to coastal communities: Severe weather events, associated storm surge, ecological damage to coastal and marine ecosystems due to temperature increase, and loss of wetlands habitat is already occurring and likely to increase over the next century.
- Threats to military assets and readiness: Department of Defense military facilities are vital to the Hampton Roads region, accounting

for more than 40% of the region's economy. Recurrent flooding from rising seas places the military infrastructure at significant risk.

- Threats to tourism assets: Tourism and travel in Virginia Beach alone was valued at \$1.3 billion and supported 12,000 in 2012. Rising seas and stronger coastal storms threaten to inundate key tourist destinations.
- Threats to Virginia fisheries: The federal Chesapeake Bay Watershed Blue Ribbon Finance Panel observed that the economic value of the Chesapeake Bay may exceed \$1 trillion annually. Climate change is widely anticipated to exacerbate the transformation of the Bay, resulting in simpler, less diverse ecosystems.
- Rising insurance premiums: Weather risks associated with climate change are increasing faster in North America than anywhere else in the world. The risk of severe weather is intensified, resulting in even greater costs from catastrophic weather events, which are reflected in higher insurance premiums.

Solutions are needed now to address mitigation and adaptation to current and anticipated flooding.



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Recommendations

Mitigation:

- Regulate greenhouse gases;
- Enact a mandatory energy efficiency resource standard;
- Enact a mandatory clean electricity standard with a cap on old facilities;
- Encourage significant development of solar power; and
- Encourage significant development of offshore wind.

Adaptation:

- Provide dedicated state funding for adaptation efforts in Virginia's Tidewater region;
- Form an integrated task force focused on protecting military assets;
- Improve emergency planning in Hampton Roads for climate-related disasters;
- Protect communities through "living shoreline" adaptation measures; and
- Develop local accommodation strategies along with state and local partnerships to evaluate "strategic retreat" from vulnerable areas.



In 2016, Hurricane Matthew presented major flooding in coastal Virginia, leaving many parts of the region under water.
Image credit: Chesapeake Climate Action Network



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Clean Energy



How Virginia powers its businesses and homes has a significant impact on public health and the environment. We must transition away from outdated fossil fuel sources and build the new Virginia economy with clean technologies, including wind, solar, and energy efficiency. We can cut carbon and other pollutants, lower electricity bills for customers, and generate good paying jobs by building Virginia's clean energy future. The technology is available and neighboring states are seizing the opportunities — Virginia must as well.



In this chapter, hear from Virginia's experts about:

- Moving Forward with the Clean Energy Virginia Initiative
- Incentivizing Energy Planning and Energy Efficiency
- Prioritizing Solar Energy in Virginia
- Proposed Natural Gas Pipelines
- Fighting Offshore Oil and Gas Development
- Encouraging Offshore Wind Energy Development





Clean Energy Virginia Initiative

Introduction

Despite being on the front lines of climate change impacts, Virginia is missing out on the clean energy economy booming elsewhere in the region and nation. One of the biggest drivers of climate change is carbon pollution from fossil fuel fired coal, gas, and oil-fired power plants. These are outdated forms of power generation that can be replaced by job-creating renewable energy (solar and wind) and the savings from energy efficiency that reduces our energy usage and energy bills.

In May 2017, Governor McAuliffe issued Executive Directive 11 (ED 11), which directs the Virginia Department of Environmental Quality (DEQ) to draft proposed regulations to reduce carbon pollution from stationary sources.

ED 11 instructs DEQ to use a time-tested, market-based approach of cap-and-trade, in which an emissions limit (or cap) is set, and electricity generators meet that limit by acquiring, selling, or trading a finite number of allowances to emit carbon. This is the same approach already in use in 10 other states that have successfully reduced their carbon pollution, and it's the same mechanism that has successfully eliminated acid rain in the United States. Importantly, ED 11 and its resulting regulation will clear the way for clean energy growth in Virginia.

Background

By setting a limit on carbon pollution, Governor McAuliffe made Virginia the first southern state to directly address climate change. Over the course of 2017, DEQ is drafting the proposed regulations and will present them to the State Air Pollution Control Board (Air Board) for review and approval. The Air Board has clear administrative authority to regulate carbon as an air pollutant, given its scientifically-proven health, property, and economic

risks. To be legally binding, DEQ must formally follow the regulatory process required by Virginia's Administrative Procedure Act, including notifying the public and providing the opportunity to comment within the rulemaking process. DEQ is required to conduct a transparent process of setting a science, health, and economics-based limit. This is a good thing, because the health impacts of climate change are both known and unacceptable, and the solution — clean energy — is now an economically viable means of reducing emissions. For instance, in a filing at the State Corporation Commission in May 2017, Dominion Energy observed that solar power prices had dropped 24% in one year. Not only is this rigorous, public process required by law, it is also essential to ensure the regulation withstands

legal and legislative attacks.

ED 11 requires DEQ's program to be trade ready, an important criterion that ensures Virginia will be prepared to join existing,

“Importantly, Executive Directive 11 and its resulting regulation will clear the way for clean energy growth in Virginia.”

successful carbon markets in other states. The most notable of these is the coalition of northeastern states known as the Regional Greenhouse Gas Initiative (RGGI). In order to link to the RGGI market, Virginia will need to set a statewide tonnage limit on carbon, including pollution from power plants that have yet to be built.

Next Steps

For significant regulations such as this, it typically takes DEQ and the Air Board at least 18 months to complete the process. ED 11 requires DEQ to submit the draft regulation by the end of 2017, which means that a final regulation on carbon could go into effect throughout Virginia before the end of 2018. This process will include at least two public comment periods and a Regulatory Advisory Panel of affected stakeholders. This panel typically makes non-binding recommendations. Several key subjects will be

addressed, including:

- Program design that ensures Virginia's program is trade ready with other states, including perhaps RGGI and California;
- Selection of a baseline year (i.e., to set the initial carbon limit); and
- Allowance allocation.



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The signing of Executive Directive 11 — the Clean Energy Virginia Initiative — on May 17, 2017.

Recommendations

The implementation of Executive Directive 11 should be defended from all legislative and budgetary attacks. Moving forward with carbon reduction will protect Virginia's land, water, and communities, while making the Commonwealth an economic leader in renewable energy.

State and local elected officials should urge the Virginia Department of Environmental Quality to ensure that:

- The rulemaking process is fully defensible from legal and legislative attack. It should include a wealth of economic, health, and technical information that shows reducing carbon pollution is not costly and has significant net benefits.
- Based on the rigorous analysis, the baseline and subsequent reduction percentages are the maximum achievable — of at least 3% annual reductions per year — from a 2015 baseline.
- The program includes all carbon emissions in Virginia's energy-generating fleet, including those from all biomass plants.
- The Virginia Department of Environmental Quality allocates the allowances in a way that maximizes consumer benefits; reduces any unnecessary costs; rewards wind, solar, and energy efficiency for their low-cost emissions reductions; and does not result in windfall profits for fossil fuel generators or electric utilities.
- The cap and trade program assures that bad actors do not game the program by shifting emissions out of state.
- The Virginia Department of Environmental Quality engages directly with the State Corporation Commission in both writing the regulation and in administering the program.



Energy Planning and the Role of Energy Efficiency

Introduction

Investing in energy efficiency improvements can save money for consumers and taxpayers and reduce pollution of our air, land, and water. Efficiency enables consumers to use less energy to accomplish the same results — heating, cooling, or lighting buildings, highways, and other areas, as well as operating appliances or machinery. Efficiency programs can reduce consumers' energy bills and the need for costly utility facilities. The cheapest and cleanest energy is the energy not consumed.

Energy Efficiency in Virginia

Energy efficiency is an under-utilized tool in Virginia. Virginia electric utilities have achieved roughly one-tenth of the Virginia General Assembly's goal to reduce energy demand by 10% by 2022 and expect to only reach one-quarter of the target.¹ Facing only voluntary efficiency goals, Virginia's utilities have more interest in building profitable new facilities that will pay decades of virtually guaranteed returns. But, with non-binding efficiency targets, utilities have often struggled to obtain complete approval from the state for even the efficiency proposals they have made.² One result is above average monthly bills for Virginia's residential customers.³

Repeated independent reports show that Virginia's utilities rank at or near the bottom for energy efficiency investments and programs. In a June 2017 report on efficiency efforts by the 51 largest utilities, the American Council for an Energy Efficient Economy ranks Dominion Energy next to last.⁴ A separate independent survey of the 30 largest investor-owned utility companies ranked Virginia's largest utility last for energy efficiency (using two

measures).⁵ Bloomberg New Energy Finance reports that nearby states' utility companies spend up to 3.9% of their revenues to improve efficiency, but Virginia's utilities spend 0.01%. Since Virginia is ranked low nationally, and the U.S. is near the bottom of major advanced economies,⁶ Virginia is holding back its citizens in a highly competitive world.

Since buildings are likely to be used for 40 years or more and appliances may last over 10 years, maximizing efficiency at the outset is critical to avoiding decades of waste and costly future retrofits. Greater energy efficiency will also enhance Virginia's economy by leaving more money for individuals and businesses to save, invest, or spend. In other

sectors, however, consumers — including government entities — often lack the capital and information needed to implement efficiency improvements.

Moving Forward

To maximize this underutilized

resource, Virginia should set enforceable efficiency goals and prioritize energy efficiency investments over building and operating more expensive generation and transmission. Further, the State Corporation Commission approval process for efficiency programs needs to be streamlined to focus on the total resource costs and benefits of potential energy efficiency programs. Alternatively, the utilities should be required to fund an independent, nonprofit agency dedicated to improving energy efficiency throughout the Commonwealth.

Requiring utilities to offer on-bill financing of customers' energy efficiency improvements would offset consumers' problems with initial costs, while assuring reimbursement to utilities at a profit.

“Since buildings are likely to be used for 40 years or more and appliances may last over 10 years, maximizing efficiency at the outset is critical to avoiding decades of waste and costly future retrofits.”



Producing 83% more energy than it uses, the Brock Environmental Center is one of the world's greenest buildings. Image credit: Chesapeake Bay Foundation

Beyond this, Virginia should do more to reduce energy usage. The Commonwealth should act to improve its energy efficiency and should help local governments and schools with no-interest loans or grants to do the same.

Similarly, Virginia should do more to incentivize or require greater energy efficiency in the private sector. Virginia's home building codes have not kept pace with national standards. Building codes should have strong efficiency requirements that reflect the long-term potential savings. Multifamily building requirements should do the same, since builders and landlords lack incentives for adequate efficiency investments. Tax credits should also be used as a tool to incentivize efficiency.

Local governments should be authorized to support efficiency improvements in their jurisdictions through methods like tax incentives and stricter efficiency building codes.



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Recommendations

Virginia should prioritize energy efficiency programs and investments over building and operating energy generation and transmission, in order to reduce total costs, including the costs of new facilities, energy purchases, fuel, and environmental harms resulting from generating and delivering energy.

Reducing utility loads through efficiency should be a required — not a voluntary — goal of utilities. On-bill financing of efficiency measures should be implemented for residential customers.

Virginia should explore and adopt new methods for improving energy efficiency. For example, as in many states, utilities could be required to fund an independent, nonprofit agency charged with maximizing energy efficiency improvements in Virginia. This would offset utilities' incentive to maximize, not reduce, their investments and sales.

The Commonwealth should require local governments and schools to improve their energy efficiency and offer no-interest loans or grants to help them to do so. It should also take steps or empower local governments to improve energy efficiency in homes, including multifamily homes, and in commercial and industrial spaces through stronger building code and other measures.



Solar Power in Virginia

Introduction

Across the South, people are increasingly turning to homegrown, affordable solar power to meet their energy needs. Everyone should have access to this abundant resource, which will help create stronger, cleaner, and healthier communities. But here in Virginia, the right to go solar is under attack, as some utilities feel threatened by solar's emergence as a viable, competitive choice for their customers.

Background

In 2015, the Virginia General Assembly passed legislation declaring it in the public interest for our utilities to build up to 500 megawatts (MW) of solar generation by 2020, enough to power at least 82,000 homes. Dominion Energy announced plans to build 400 MW of solar over the next five years. Dominion Energy's 2017 Integrated Resources Plan recognizes solar as "currently cost-competitive with other more traditional forms of generation, such as combined-cycle natural gas" and proposes to continue building solar at a pace of 240 MW per year. These are necessary first steps, but Virginia still lags far behind our neighbors like North Carolina, which has already installed over 3,000 MW of solar — six times Virginia's pledge.

Opening the solar market to private sector competition and larger amounts of customer-owned generation is a cost-effective approach to accelerate solar development in a way that builds on Virginians' preference for competitive, market-based solutions. Solar energy can keep power bills low both for homeowners and businesses who install solar systems and for customers who don't. Private investments in solar benefits all of us by reducing strain on the distribution and transmission grids and avoiding or delaying the need for costly new power

plants. All Virginians should be able to benefit from clean energy, regardless of their income, where they live, or whether they own their home.

The Virginia General Assembly should defend solar rights by:

1. Protecting the right to control energy use: Each person should have the right to choose how much energy to purchase from his or her utility, how much to self-produce using solar, and how much to save using measures that reduce consumption on the grid. Virginia law *Va. Code § 56-594 B* explicitly allows customers interested in solar to enter into a Power Purchase Agreement (PPA) with a third-party company that would own and operate the solar generating facility for the customer. But Dominion Energy and Appalachian Power have both tried various measures to block these independent, private contracts. Virginia's leaders need to stop these anti-competitive tactics and open the solar market to more private-sector competition.
2. Protecting the right to fair rate treatment: We don't punish people who reduce their consumption by buying more efficient appliances, turning lights off when they leave the room, or upgrading their home insulation. We shouldn't punish them for investing in solar technology that achieves the same result. Each person has the right to be protected from unfair charges when they go solar. Utilities should not be allowed to penalize customers for choosing to buy less power and instead deciding to invest in solar and energy-saving technologies. And yet, both Dominion Energy and Appalachian Power have pushed punitive standby charges

"Virginia still lags far behind our neighbors like North Carolina, which has already installed over 3,000 MW of solar — **six times** Virginia's pledge."

on solar customers. These charges are anti-competitive and fail to credit solar-generating customers with the benefits they provide to the grid.

3. Protecting the right to fair compensation: When a solar system produces more power than the customer can consume on-site, utilities should fully compensate that customer for the solar generation that the customer sends to the grid. Virginia law limits net metering to solar systems small enough not to “exceed the expected annual energy consumption” of the customer-generator. This language threatens to punish solar customers who generate more electricity than they use. Dominion Energy and Appalachian Power already re-sell that solar power to other, non-solar customers at full retail rates. But Virginia’s law does not require them to credit solar generators for 100% of that value, ignoring the full benefits that solar provides to the grid.

In spite of the public benefits of solar power, Virginia utilities have opposed private investments in solar and even imposed new barriers. This trend is not unique to Virginia, but it is based on misplaced assumptions about the effect of distributed solar generation on other ratepayers. Studies analyzing the value of solar show that when residents and businesses take advantage of solar energy options, all customers save money. This is due to benefits that include:

1. The transmission line loss savings that come from producing power closer to where it will be used;
2. The ability of customer-built solar systems to offset some of a utility’s wholesale energy purchase needs at times of the day that are typically higher-cost; and
3. The fuel price savings due to the zero cost of fuel for solar generation.

While utilities seek to limit customer-owned solar to protect their state-regulated monopolies, ratepayers and the general public are best served by an open market that encourages solar investment.



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Recommendations

The Virginia General Assembly should support measures that clear the way for innovative solar companies to compete fairly and lower the cost of electricity for all Virginians. These measures include:

- Stopping power companies from blocking private, third-party financing of electricity generated by solar or wind energy through Power Purchase Agreements or solar leases;
- Eliminating standby charges, project size caps, and other barriers to customer-sited generation;
- Permitting customers to share the benefits of solar energy through community solar projects; and
- Protecting 1:1 net metering credits, so solar customers receive fair value for all of the solar energy they provide to their power company.



A residential solar installation.
Image credit: Sigora Solar



Proposed Natural Gas Pipelines

Introduction

Natural gas pipelines are poised to have the largest environmental impact in Virginia since the construction of interstate highways during the 1960s. Crossing steep, high mountains, national forests, streams and rivers, fertile farm fields, unstable karst geology, and public water supplies, gas pipelines have the potential to severely impact our communities, natural and historic resources, and more than double greenhouse gas emissions in the Commonwealth. Serious questions about the proposed routes, the environmental impacts and the need for the pipelines remain unanswered.

Two major, interstate high pressure gas pipelines are in the permitting process in Virginia:

Atlantic Coast Pipeline (ACP) — A joint venture between Dominion Energy, Duke Energy, and partner companies, this 600-mile pipeline would originate in West Virginia, run south through Virginia into southeastern North Carolina, transporting 1.5 billion cubic feet of natural gas daily. Several compressor stations are planned along the route and a 20-inch diameter pipeline extension is also planned to deliver natural gas to Hampton Roads.¹

Mountain Valley Pipeline (MVP) — Proposed by Mountain Valley Pipeline LLC, this pipeline would span approximately 300 miles extending from northwestern West Virginia, south to Pittsylvania County in Virginia, transporting 2 billion cubic feet of natural gas daily. Four compressor stations are proposed for this pipeline.¹

Impacts to Waterways and Landscapes

These enormous infrastructure projects would cross hundreds of sensitive waterways, including waterways in some of the steepest terrain in the eastern United States. Threats to Virginia's water

quality and aquatic environments include: The recharge area of Gardner Spring, which supplies five million gallons of water a day to the citizens of Staunton and Augusta County; tributaries of Warwick Run that provide essential habitat to vulnerable populations of native brook trout; the Jackson River, a pristine river described by the Department of Game and Inland Fisheries as an excellent trout fishery; and Bottom Creek, one of only 30 Tier III Exceptional State Waters in Virginia. Virginians rely on these waters for recreation, fish habitat, and the health of our watersheds.

“Pipeline developers’ justification for these two projects has consistently eroded since they were announced in 2014.”

Sensitive public and private lands, including the George Washington and Jefferson National Forests in Virginia and the Monongahela National Forest in

West Virginia; historic resources; and landscapes placed under conservation easement will also be impacted.

Local governments, community leaders, and citizens have raised broad and serious concerns about the likely impacts of these projects, including the potential for explosions and spills; risks to public water supplies; and impacts to tourism, agriculture, and outdoor recreation-based economies. Landowners, whose property may be forcibly taken by eminent domain, raise questions about fairness, pipeline safety, and property values.

Infrastructure Not Needed to Meet Energy Demand

Pipeline developers’ justification for these two projects has consistently eroded since they were announced in 2014. At the time, the major rationale for the pipelines was to carry fracked natural gas from Marcellus and Utica shale formations in West Virginia to planned gas-fired power plants in the southeast. However, recent studies and forecasts

indicate that new infrastructure is not needed to meet current or future demand for natural gas in Virginia or the region.

Energy studies confirm that planned upgrades to existing pipelines — such as the Transco Pipeline and the Columbia WB Xpress project — will provide more than sufficient pipeline capacity to meet energy demand. This is true even in a worst-case scenario, in which demand for electricity rapidly increases and renewables lag. PJM, the regional grid operator, issued electricity demand forecasts that are well below pipeline developers' forecasts, casting further doubt on any public benefit from these pipelines.

Permitting

At the federal level, the Federal Energy Regulatory Commission (FERC) has the primary responsibility for permitting gas pipelines under the federal Natural Gas Act. Leaders at every level, from city council members to state legislators to U.S. Senators, have raised concerns that FERC's process falls far short of adequately assessing serious risks from the project and weighing them against alleged public benefits.

The U.S. Forest Service also has permitting authority over the pipelines' crossing of the George Washington and Jefferson National Forests and the Monongahela National Forest, including multiple crossings of the Appalachian Trail and Blue Ridge Parkway. The U.S. Fish and Wildlife Service has permitting authority over the several federally protected species that are threatened by pipeline construction.

At the state level, the Virginia State Water Control Board must determine — based on a recommendation from the Virginia Department of Environmental Quality (DEQ) — whether the projects will meet state water quality standards, under its permitting authority for the Section 401 Clean Water Act water quality certification.

The pipelines cannot proceed with construction until DEQ issues the Section 401 water quality certification. DEQ is currently proceeding with the water quality review with a stated goal of reaching a decision on the MVP and ACP permits by the end of 2017. In response, a bi-partisan group of state legislators and affected localities are calling on

DEQ to slow down and correct the flawed permitting process it has created. If Virginia opts to use its broad authority under the Clean Water Act, the Commonwealth could play a critically important role in the permitting process, thereby ensuring the protection of streams, rivers, wetlands, and drinking water supplies for Virginians.



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Recommendations

For these and future projects, the Virginia Department of Environmental Quality should exercise its full authority to protect Virginia's waterways, rather than deferring its powers back to the federal government and relying on the Army Corps' blanket Nationwide Permit 12, which is often cursory, overly broad, and not site-specific.

State and local elected officials should insist upon reform of the outdated federal permitting process for interstate pipeline projects. Currently, the Federal Energy Regulatory Commission's process does not adequately assess impacts nor does it assess the actual need for duplicative, competing gas pipeline proposals.

Virginia should repeal § 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.





Drilling Off Virginia's Coast: Not Worth the Risk

Federal plans to initiate exploration and drilling in the Atlantic Ocean for oil and gas is a major shift in national policy. To date, no producing oil or gas wells have ever been drilled off our coast. And with good reason — seismic airgun blasting and drilling is not worth the risk to our coastal communities, our military preparedness, and our local and state economies.

The Obama administration considered opening the Atlantic to drilling a few years ago, but changed course in the face of overwhelming opposition from business owners and coastal communities, as well as significant concerns from the Department of Defense. Despite these serious risks, the Trump administration is now moving forward to open our shores to offshore drilling.

The Threat to our Communities

More than 120 communities have passed anti-drilling resolutions up and down the Atlantic coast, including major coastal cities like Charleston, Myrtle Beach, Savannah, and Wilmington. In Virginia, Virginia Beach and Norfolk passed resolutions in the summer of 2017 to oppose seismic testing and offshore drilling. Both Accomack County and Northampton County on the Eastern Shore, with their many miles of Atlantic shoreline, have opposed offshore drilling as well.

Onshore infrastructure and activities that accompany the offshore oil and gas industry like oil refineries, storage facilities, pipelines, traffic, and routine spills and accidents pose environmental and health-related challenges for coastal communities and would irreparably alter the character of those communities.

The Threat to our Nation's Military

The Department of Defense (DoD) has expressed concerns about drilling off Virginia's coast. Naval Station Norfolk is the world's largest navy base, and the open waters off the coast provide critical space for training. 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 three-quarters of the area off Virginia's coast should be off limits to oil and gas exploration because of interference with military operations.

NASA has also expressed concern that drilling structures would have a "significant detrimental effect" on their aerospace testing and launching operations at Wallops Flight Facility.

"More than 120 communities have passed anti-drilling resolutions up and down the Atlantic coast. In Virginia, Virginia Beach and Norfolk passed resolutions in the summer of 2017 to oppose seismic testing and offshore drilling."

The Threat to our Local Economies

Tourism is a booming industry in Virginia — in 2016, tourism revenue reached \$24 billion and supported 230,000 jobs. In Virginia's Coastal Region in 2015, tourism generated \$4.7 billion in revenue and \$345 million in state and local taxes. Additionally over 45,000 jobs and nearly \$1 billion in salary rely on tourism along the 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 to oppose offshore drilling.

Virginia is the largest seafood producer on the East Coast and the third largest in the U.S. Our working

watermen landed 388 million pounds of seafood in 2014 with sales over \$1.2 billion. Virginia's 50 commercial fishery species — including scallops, crabs, clams, flounder and striped bass — and 17,000 jobs would be at risk from oil spills and ongoing drilling pollution impacts.

The negative economic impacts of the 2010 BP oil spill are severe: A 2012 study found that the potential overall impact on commercial and recreational fisheries and mariculture in Gulf of Mexico waters is approximately \$8.7 billion by 2020 with a projected loss of more than 22,000 jobs in fisheries-related sectors.

Tourism, commercial fisheries, aquaculture, and other local industries are put at risk when oil rigs appear off coastlines. We should be supporting these industries instead of threatening them.

Federal Actions

The federal administration is currently working to open the Atlantic to seismic airgun blasting and oil and gas drilling. President Trump issued his America-First Offshore Energy Strategy in April 2017 to expedite seismic airgun permits, roll back drilling safety regulations, and initiate a new Outer Continental Shelf Oil & Gas Program with an emphasis on the Mid and South Atlantic.

In August 2017, Governor McAuliffe, Lieutenant Governor Northam, and Attorney General Herring urged the federal administration to remove Virginia from their next drilling Program. The development for this new Program is expected to take the Department of Interior and the Bureau of Ocean Energy Management at least two years to complete and would commence in 2019 and last through 2024.



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Recommendations

The Virginia General Assembly should formally oppose seismic exploration and offshore drilling. The risks to the Commonwealth's coastal economies and communities, as well as our nation's military readiness, is just not worth it.

Federal, state, and local representatives will have the opportunity to stand up for the Commonwealth at specific points in the process. Elected officials should actively participate in this process to express their opposition and concerns. Specifically, the Governor and state legislators should formally request the federal Bureau of Ocean Energy Management remove Virginia from its offshore leasing plan.

The Virginia General Assembly should request and fund a comprehensive study from the Virginia Institute of Marine Science on the local risks associated with offshore drilling on Virginia's fisheries, marine life, coastal habitats, wetlands, and other marine and coastal resources.



To date, over 120 communities along the Atlantic coast have passed resolutions against offshore drilling and seismic testing.

Image credit: Southern Environmental Law Center



Wind Energy Off Virginia's Coast: Right Here, Right Now

Introduction

Offshore wind can provide clean energy at the scale needed to help curb the climate crisis. The wind resource off the Atlantic coast is four times greater than the United States' entire electric power demand today. Several other East Coast states are moving forward with offshore wind farms — Rhode Island already has one in operation. Developing this clean energy resource would allow Virginia to meet its carbon emission reduction goals, while also creating new jobs and business opportunities.

Background

After years of stakeholder meetings, Virginia's federally-designated offshore Wind Energy Area (WEA) has been cleared of conflicts. The military, shipping and fishing industries, and environmental scientists studying the area all agree that this area is appropriate for development with proper safeguards for wildlife.

In September 2013, the federal Bureau of Ocean Energy Management (BOEM) leased the development rights for Virginia's WEA to Dominion Energy. This 112,799-acre lease area, located about 23.5 miles off the coast of Virginia Beach, is capable of generating at least 2,000 megawatts (MW) of power — enough electricity to power about 700,000 homes.

Unfortunately, the process has been slow. BOEM requires leaseholders to meet certain milestones in the development process. Dominion Energy submitted a Site Assessment Plan (SAP) as the first step in 2014, but BOEM only deemed the plan complete this year, three years later. Assuming it is approved soon, Dominion Energy will have another 4.5 years to submit a Construction and Operations

Plan (COP), which also requires BOEM's approval. A poor or incomplete plan would delay the process further. Thus, Dominion Energy may not have to break ground on the first phase of wind turbine construction until perhaps 2025 — twelve years after winning the lease.

In Dominion Energy's Integrated Resource Plan (IRP) — a plan that outlines future electricity generation for the next 15 years — there is only 12 MW of offshore wind from a two-turbine pilot project (originally slated to come online this year,

now delayed until at least 2021). It does not include any generation from its commercial lease area.

Dominion Energy's most recent IRP also calls for increasing its natural gas electricity generation. This

plan would put millions of dollars into power plants that will last for 25 years, use fracked gas for power, crowd out renewable energy, and expose treasured and vulnerable Virginia landscapes to dangerous pipelines and high-voltage power lines. In addition, gas prices are highly volatile, while the fuel for wind turbines (wind) is free. Also ignored is the fact that gas is still a carbon-emitting fuel.

Jobs

Each wind turbine is made with over 8,000 parts, many of which can be manufactured in Virginia. With its deep-water port, world-class shipbuilding and maritime industries, and ready workforce, Virginia could become a major East Coast hub for the offshore wind industry. Researchers concluded that with full build-out of this industry, almost 10,000 jobs could be created in Virginia. These are local, high-paying, career-length jobs that can't be exported overseas.

“This 112,799-acre lease area, located about 23.5 miles off the coast of Virginia Beach, is capable of generating at least 2,000 megawatts of power — enough electricity to power about 700,000 homes.”

Impacts to Wildlife

Installing the turbines 25 miles off the coast minimizes conflict with birds, as most migrate closer to the coast. The bigger threat to birds is climate change, according to every major U.S. environmental group. That's why the Sierra Club, National Wildlife Federation, Oceana, Southern Environmental Law Center, and many other conservation groups support offshore wind energy when properly sited. Because the endangered North Atlantic right whale transits the Virginia lease area, Virginia must work with BOEM and the National Marine Fisheries Service to ensure that right whales and other marine mammals are protected during offshore wind development and operation.

Cost

Numerous factors lend to competitive pricing for offshore wind:

- Offshore wind generates power close to the coastal cities where demand is highest, saving billions of dollars on the costs of transmission and grid congestion.
- Offshore wind is often load-following, blowing most strongly in the late afternoon when electricity demand peaks; this makes it an excellent complement to midday-peaking solar energy.
- With the crisis of climate change, the United States will inevitably institute a price on carbon emissions. When that happens, clean wind energy will gain an economic advantage.
- The cost of offshore wind energy has fallen dramatically over its more than 20-year history in Europe, where it now competes with conventional sources. Continuing advancements in technology brings new cost declines every year.
- A domino effect will occur as states up and down the Atlantic build wind turbines off their coasts. Development currently underway off the coasts of Massachusetts, New York, Rhode Island, Delaware, and Maryland will launch manufacturing supply chain industries, leading to sharp cost declines as experienced in Europe.

The Virginia Offshore Wind Technology Advancement Project

The Commonwealth of Virginia holds a small research lease area adjacent to the Virginia WEA. Dominion Energy is the lead developer of a test turbine project to be located there called the Virginia Offshore Wind Technology Advancement Project (VOWTAP). This involves two 6 MW turbines designed by Richmond-based Alstom (now GE). This project was originally scheduled to break ground in 2017, but higher than expected cost projections caused Dominion Energy to postpone the development indefinitely. This delay coupled with Dominion Energy's inability to guarantee operation by 2020 caused the U.S. Department of Energy to withdraw its remaining grant support of approximately \$40 million in 2016. In July 2017, Dominion Energy announced it would partner with Denmark-based DONG Energy to complete the project (now renamed the Coastal Virginia Offshore Wind project). Dominion Energy's IRP includes a 2021 in-service date for the two turbines. Dominion Energy has also indicated that DONG Energy may participate in development of the commercial WEA.



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Recommendations

Virginia's Governor and other elected officials should support legislative measures that prompt Dominion Energy and any partners to proceed with the development of the larger commercial lease area and the launch of an offshore wind industry in Virginia. This includes adopting a specific megawatt target by a date certain (e.g. 2022) as other states have done (Massachusetts law requires 1600 megawatts, and the New York Governor has called for 2400 megawatts).

The Governor's administration should avail itself of every opportunity to market Virginia as a hub for offshore wind supply chain manufacturing.



Clean Energy Points of Contact

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Green Communities



Virginia's amazing landscape defines the Commonwealth. Therefore, it is imperative that we preserve the rolling hills of the Piedmont, the sandy banks of the coastal plain, the fertile soils of the Valley, the dense forests of the Southwest, and the many other beautiful regions across the state. Supporting policies that encourage the development of communities that respect and preserve these landscapes is an important component of VCN's work. Through common sense growth practices, we can both build for tomorrow and protect the historic and scenic beauty of Virginia.



In this chapter, hear from Virginia's experts about:

- Conserving Virginia's Land
- Incentivizing Smart Growth
- Reforming Transportation in Virginia
- Reforming the Public-Private Transportation Act
- Investing in Intercity Passenger Rail

Land Conservation

Introduction

Successful land conservation requires action at all levels to protect the Commonwealth's diverse landscapes. Land conservation is 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 Virginia's present and future generations. 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 are willing to invest in the protection of open space. This support for land conservation

funding was evident during the 2017 Virginia General Assembly session, where HB1470 — a bill that proposed cuts to Virginia's Land Preservation Tax Credit (LPTC) — was soundly defeated after strong citizen opposition to the bill.

It is important to recognize, however, that not all projects can be accomplished through the LPTC. As such, the 2013 Virginia 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.

Land Preservation Tax Credit

Directly responsible for conserving more than

786,000 acres in Virginia since 2000, the Land Preservation Tax Credit is Virginia's most successful, dependable land conservation funding program and 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.

“Directly responsible for conserving more than 786,000 acres in Virginia since 2000, the Land Preservation Tax Credit is Virginia's most successful, dependable land conservation funding program and is one of the best land conservation tax incentive programs in the nation.”

Conservation Grant Programs

Meeting Virginia's land conservation goals is made possible by three main grant programs. The Office of Farmland Preservation, the Virginia Land Conservation Foundation, and the Virginia Battlefield Preservation Fund

have protected thousands of acres by providing matching grants, ensuring these significant sites and landscapes are available for future generations to use and enjoy.

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 program requires counties to match dollar for dollar the amount that is granted to them by the Commonwealth. In FY17, localities pledged \$16.5 million in matching funds, over 32 times the \$500,000 budgeted by Virginia. Unfortunately, this grant program received yet another hit in the most recent legislative session, receiving 25% of the promised funding from the 2016 budget.

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. VLCF leverages local and federal investment for conservation by paying no more than 50% of the cost of worthy projects. VLCF grant applications consistently exceed available funds. Since 2000, over \$82 million of VLCF grants have been requested while only \$28 million have been available. This represents a lost opportunity for the Commonwealth to capture more than \$50 million in federal, local, and private matching dollars for land conservation. Additional cuts made in 2017 have only compounded this problem.

The third grant program is the Virginia Battlefields Preservation Fund. 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.

Agency Funding

The Virginia Outdoors Foundation (VOF) and other easement-holding agencies, such as the Department of Forestry and Department of Conservation, are tasked with acquiring, holding, and stewarding conservation easements for the Commonwealth. With 800,000 acres of easements held by VOF alone, stewardship is essential in providing assurance that the conservation values protected by the easement are intact in perpetuity. A lack of funding commensurate with the growing acreage has continued to erode our agencies' ability to keep up with the demand for new easements.



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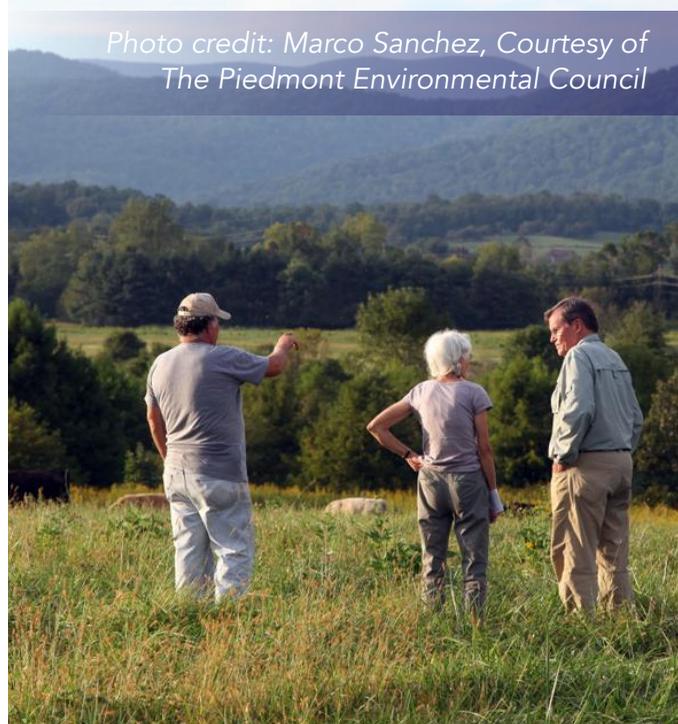
Recommendations

After last session's demonstrated support for the Land Preservation Tax Credit program, the Virginia General Assembly should make no more changes that would reduce the impact and availability of this important land conservation tool. The cap should not go below \$75 million and the annual use limit should go back to \$50,000 per individual in 2018 and beyond.

Virginia should provide full support for its successful grant programs, as called for in HB1398. Funding for FY17 was less than one-third of which was promised under the legislation. The amount should have been \$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.

The Virginia General Assembly should support measures that provide full funding for our easement-holding agencies in order to ensure they are able to accept, hold, and provide adequate stewardship of conservation easements.

*Photo credit: Marco Sanchez, Courtesy of
The Piedmont Environmental Council*



Smart Growth

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; and a loss of historic, cultural, and scenic resources. 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.

Background

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 location-efficient development — a public policy imperative. 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. 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 families — are

leading to greater demand for vibrant and walkable cities, towns, and suburbs that are built more like traditional towns and neighborhoods. The high quality of life of these communities, combined with greater protection of our scenic landscapes and natural resources, enhances economic competitiveness by helping to attract and retain businesses and workers. Further, a 40-year summary of fiscal impact studies showed that smart growth — compact and traditional cities, towns, and neighborhoods — typically consumes less land and

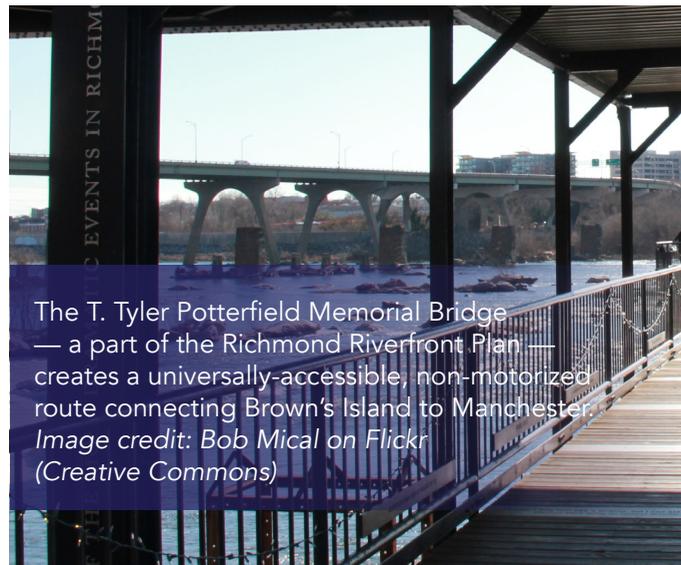
costs much less for roads, utilities, and housing than does sprawling development.²

A 40-year summary of fiscal impact studies showed that smart growth typically consumes less land and costs much less for roads, utilities, and housing than does sprawling development.



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The T. Tyler Potterfield Memorial Bridge — a part of the Richmond Riverfront Plan — creates a universally-accessible, non-motorized route connecting Brown's Island to Manchester. Image credit: Bob Mical on Flickr (Creative Commons)

Recommendations

Target 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 Commonwealth needs a system that covers these costs and creates incentives to develop within designated growth areas.

Oppose actions that would weaken local community planning. The Virginia General Assembly should reject efforts to weaken local planning tools, including comprehensive plans and zoning ordinances. Existing local land use authority should not be eroded further. 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 guide growth. Good planning is as important to our local communities as it is to successful businesses.

Strengthen the use of designated growth areas and service districts through cooperation with nearby towns and cities, supporting 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 Transferrable Development Rights, Purchase of Development Rights, conservation easements, and other tools.

Improve data collection on land development and infrastructure costs.

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 redevelopment scenario.

Ensure that the state and localities 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 to care for infrastructure already paid for by taxpayers.



Transportation Reform

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, a massive transit funding shortfall is looming, 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.

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 a 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, the McAuliffe Administration has provided some increased funding for alternatives to driving, and the new Six-Year Improvement Program includes money for additional passenger rail service, extending Virginia Railroad Express' successful Fredericksburg line, and helping launch Richmond's first bus rapid transit line. However, the new plan decreased the overall amount of rail and transit funding, and the proportion of funding for these modes declined as well.

The McAuliffe administration also has conducted reviews of destructive projects it inherited, resulting

in the shifting of funds from the proposed Route 29 Bypass of Charlottesville to a package of more effective improvements in the existing 29 corridor and the cancellation of the proposed 55-mile new Route 460 boondoggle. Additionally, the new funding prioritization process is being implemented to help reduce 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.

The bottom line is that Virginia's transportation spending is still too asphalt-centered, with over

The bottom line is that Virginia's transportation spending is still too asphalt-centered.

80% of the \$18.1 billion new draft 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 meeting transportation needs that are central to our economy and quality of life.



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Recommendations

Support funding for cleaner transportation alternatives.

- Among the changes needed:
- Provide increased funding for transit, bicycle, and pedestrian projects.
 - Address the projected major shortfall in transit funding statewide — which has been conservatively estimated as an average revenue gap of \$130 million annually over the next 10 years — and significant additional, dedicated funding for the capital needs of Metro.
 - 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.
 - Allow regional tax revenues in Hampton Roads to be used for projects other than construction on new or existing roads, bridges, and tunnels.
 - Support a dedicated regional revenue source for expanding and operating transit in the Richmond region, which lags behind most mid-size regions in the extent of its transit system. If the Richmond region seeks a regional funding structure similar to that of Northern Virginia and Hampton Roads, it must include adequate provisions for governance, integrating transportation and land use, and funding for public transit, passenger and freight rail, and bicycle and pedestrian improvements.

Support improved performance standards and priorities for transportation funding.

- Expand requirements for the development of performance standards and require the Virginia Department of Transportation (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

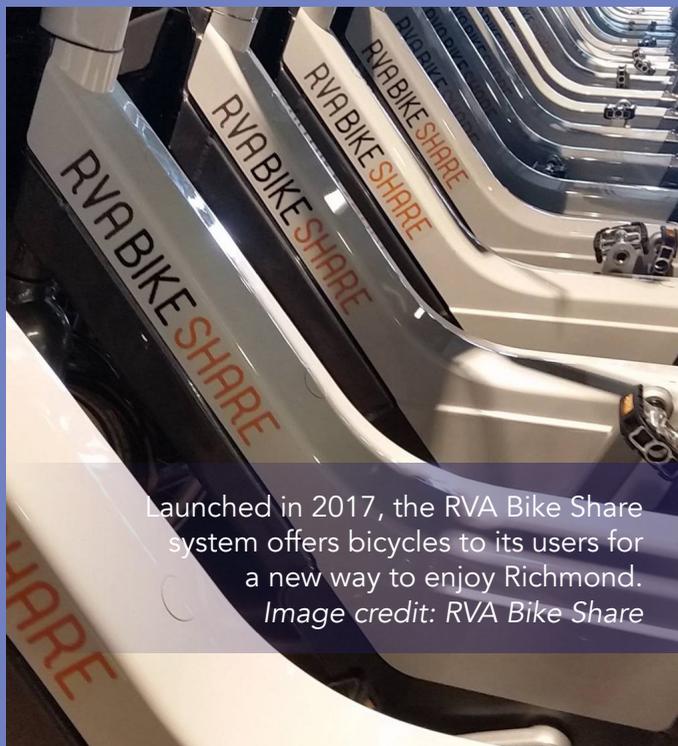
eliminate environmental quality measures in project scoring.

- Oppose any effort to exempt a 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 seriously reform VDOT 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:

- Target transportation spending to existing communities and congested areas.
- Fund and improve access management and street connectivity.
- Provide technical assistance to localities to promote transit-oriented development.
- Repeal recent requirements that local land use plans conform to state transportation plans.



Launched in 2017, the RVA Bike Share system offers bicycles to its users for a new way to enjoy Richmond.
Image credit: RVA Bike Share

Public-Private Transportation Act Reform

Introduction

Virginia's Public-Private Transportation Act of 1995 (PPTA) has become a primary vehicle for constructing large transportation projects, expanding beyond its original purpose and shifting power to Virginia's Governor and the private sector. The PPTA allows private entities to enter into agreements with the state to construct, improve, maintain, and operate transportation facilities. Yet, experience with PPTA projects and proposals indicates that, even with recent improvements, the statute is flawed and can subvert the public interest to private profit motives.

Background

The PPTA is designed to facilitate private investment

in transportation facilities. It allows both solicited and unsolicited proposals, and is viewed by its supporters as a way to make needed improvements and additions to the transportation system sooner, more cheaply, and more efficiently than with public funds alone. Projects undertaken under the PPTA or its predecessor include the I-95 and I-495 High Occupancy Toll (HOT) Lanes and Dulles Greenway in Northern Virginia; the Pocahontas Parkway (Route 895) and Route 288 in Richmond; and the Downtown/Midtown Tunnel in Hampton Roads.

A number of other projects are currently being considered or are on the horizon, including I-66 improvements and HOT lanes outside the Beltway, Hampton Roads Crossings, and Route 460/58 Connector.

The inconsistent track record of PPTA projects raises serious questions. The recently executed contract for the I-66 HOT lanes project demonstrates that significant cost savings can be achieved when — among other things — the public financing option remains on the table and true competition

is woven into the procurement process. However, other projects exemplify how PPTA deals can also backfire on the public in many ways, such as when potential costs and liabilities to taxpayers are underestimated or not provided to the public. The proposal to build a new Route 460 would have poured \$1.5 billion of state funds into this project, which was originally projected to cost taxpayers little or nothing. Roughly \$300 million was spent on this project without obtaining the necessary permits —

and it was ultimately cancelled. Under the Midtown/Downtown Tunnel deal, tolls will escalate by 3.5% or more each year through 2070, Virginia's taxpayers must compensate the builder for lost revenue if the state

builds a competing project, and the developer can earn a hefty 13.5% profit margin.

Although the PPTA could be an innovative tool for getting transportation projects funded and built, there are many problems with the Act and its implementation:

- It undermines sound transportation planning by allowing unsolicited proposals that are not contained in any plan to be advanced and prioritized for funding.
- There has often been a lack of information about potential costs to taxpayers and potential risk to the state's bond rating, despite amendments to the state code aimed at addressing this.
- Opportunities for public input into the PPTA process have frequently been limited, and localities have not been given timely notice of key terms or an opportunity for meaningful input.
- Environmental review of proposals is circumvented or undermined, among other things due to prioritizing and advancing proposals before alternatives have been evaluated.

“Although the PPTA could be an innovative tool for getting transportation projects funded and built, there are many problems with the Act and its implementation.”

- It creates incentives for sprawl and driving. Most PPTA projects and proposals have been for highway construction projects that would subsidize sprawl and increase motor vehicle dependence, destroying open space and increasing air and water pollution.

In response to these concerns, legislation was passed in the 2015 and 2017 Virginia General Assembly sessions that improves the Act and addresses some of these issues. Among other improvements, a “Finding of Public Interest” must be made prior to initiating procurement and then certified prior to executing a comprehensive agreement. In addition, the Office of Transportation Public-Private Partnerships has been revising PPTA guidelines to address some of these issues and enhance risk identification. Numerous problems remain, however, and some of the positive changes that have been made by the McAuliffe administration could be undone or ignored by a subsequent administration.



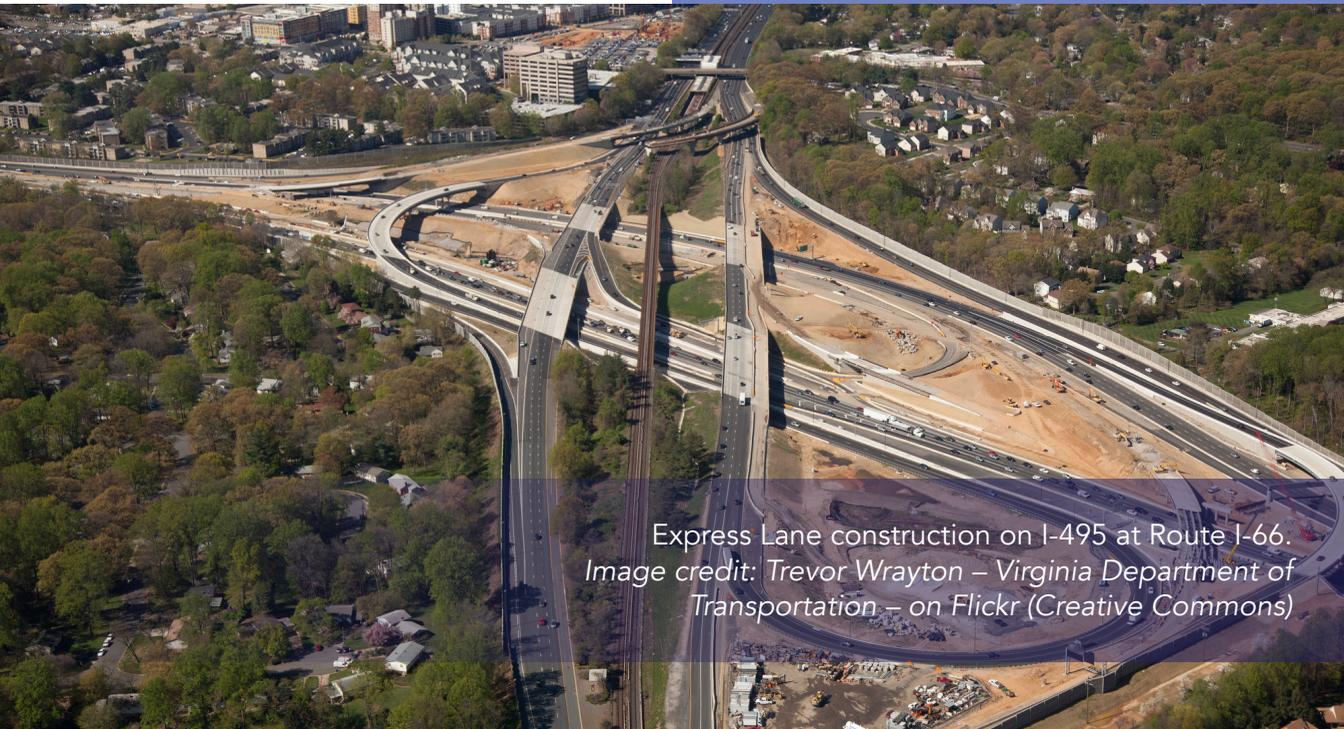
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Recommendations

Support Virginia’s Public-Private Transportation Act (PPTA) reform. Further legislation to improve the PPTA is needed. Potential measures include:

- Limiting proposals under the PPTA to projects contained in state transportation plans and to projects with complete, independent environmental studies.
- Requiring greater public and local government input into proposals (such as public disclosure of a cost-benefit/value for money analysis prior to procurement and public hearings at an early stage of review and at least 30 days before a comprehensive agreement is signed).
- Requiring approval by the Commonwealth Transportation Board prior to signing a comprehensive agreement.
- Regulating the allowable rate of return.
- Requiring evaluation of the impacts of proposed projects on land development patterns.
- Prohibiting or severely restricting the use of “non-compete” clauses in comprehensive agreements.



Express Lane construction on I-495 at Route I-66.
Image credit: Trevor Wrayton – Virginia Department of Transportation – on Flickr (Creative Commons)

Intercity Passenger Rail

Introduction

Passenger rail is essential to reducing congestion, giving people greater transportation choices, increasing energy efficiency, curbing pollution, and improving Virginia's economic competitiveness. Rail ridership is at record levels. The Virginia General Assembly created the Intercity Passenger Rail Operating and Capital (IPROC) Fund in 2011, and the transportation funding package approved in 2013 provided a dedicated source of revenue for this fund. It is crucial to build upon this funding — 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 metropolitan regions, giving people needed alternatives to driving. The Commonwealth's regional train corridors — the Piedmont and Urban Crescent — serve areas that are home to over 77% of our population. Further, the areas served by these corridors contain 46 higher educational institutions,

74% of Virginia's college students, and nearly 10% of the nation's active military personnel. They also represent 82% of Virginia's economy.

More importantly, these corridors are home to some of the most congested roadways in the Commonwealth. The Piedmont and Urban Crescent corridors have 61% of Virginia's highways, but represent 94% of every highway mile driven in the state. Additionally, Texas A&M's Transportation Institute reports that roadway congestion on the Washington, Richmond, and Hampton Roads corridor has increased 23% since 2009. These and other trends have 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 2015, Amtrak removed an estimated 177 million passenger miles

“In 2015, Amtrak removed an estimated 177 million passenger miles from our roads, which reduced fuel consumption by 8.2 million gallons and eliminated the release of 161 million pounds of carbon emissions.”

from our roads, which reduced fuel consumption by 8.2 million gallons and eliminated the release of 161 million pounds of carbon emissions. On the commuter rail side, Virginia Railway Express saw its ridership reach 4.3 million riders in 2016.

The good news is that long-term, sustainable funding became a reality in 2013 due to 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 \$467 million worth of passenger rail projects over the last four years and allocate another \$777 million to projects in the current six-year improvement plan.

That funding will be used to sustain and improve existing regional trains, extend a regional train from Lynchburg to Roanoke, add more trains to Norfolk, study rail service to Bedford and the New River Valley, and add capacity as part of the Newport News new multi-modal station.

Additionally, Virginia has programmed state funds to help complete the Washington D.C. to Richmond Southeast High Speed Rail project, the Atlantic Gateway multi-modal project, and fund a second train between Lynchburg and Alexandria.

However, Virginia lacks a long-term vision for the continued investment and expansion of intercity passenger rail. Recent attempts at the federal level to eliminate Amtrak's national trains — which would reduce the Commonwealth's rail service by 48% — heighten the need for Virginia to take steps to protect and improve its regional train services and to ensure that taxpayers' resources are invested wisely.



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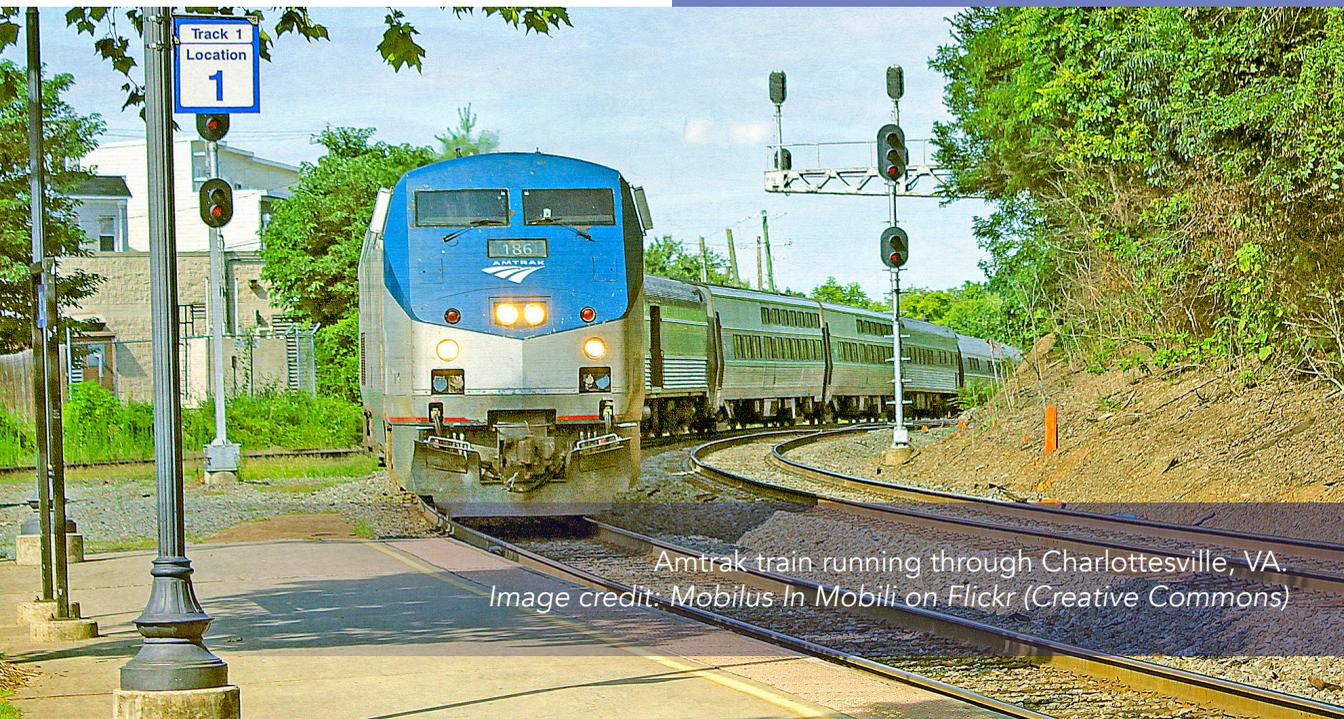
Recommendations

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 recently 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.



Amtrak train running through Charlottesville, VA.
Image credit: Mobilus In Mobili on Flickr (Creative Commons)

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ENDNOTES

Coal Ash and Our Commonwealth's Water Supplies

- ¹ The new Virginia law, described below, only applies to coal ash sites in the Chesapeake Bay watershed. None of Appalachian Power's coal ash sites are in this watershed.

Protecting the Water We Drink, the Food We Eat, and the Rivers Where We Play from Polluted Runoff

- ¹ Virginia Water Resources Plan. Virginia Department of Environmental Quality. October 2015.
- ² Virginia Tourism Corporation.
- ³ Economic Impact of the James River Park System. Virginia Commonwealth University. April 2017.

Atlantic Menhaden

- ¹ ASMFC website.

EPA's Proposed Clean Power Plan: A Win for Virginia

- ¹ Solar, wind, and energy efficiency are creating thousands of jobs across the country, while they lag badly in Virginia. According to Natural Resources Defense Council modeling, for example, limits on carbon pollution to comply with the Clean Power Plan could create more than 5,600 new jobs in Virginia in 2020 alone.

Proposed Natural Gas Pipelines

- ¹ For maps of proposed pipeline routes, visit PipelineUpdate.org.

Energy Planning and the Role of Energy Efficiency

- ¹ See DMME's April 22, 2016 presentation to the Governor's Executive Committee on Energy Efficiency. This goal is equivalent to 10.7 million MWh of savings in 2020, but utility's presentations (Dominion Energy's 2016 IRP - 856,293 MWh in 2020; APCo's 2016 IRP -116,800 MWh in 2020) show them to be far behind.
- ² For instance, in a 2017 efficiency proceeding, Dominion proposed two new programs. See PUE-2016-00111. The SCC completely rejected one program and approved the other at a fraction of the requested budget. The SCC needs stronger legislative direction to promote cost-effective energy efficiency.
- ³ According to EIA data for 2014, Virginia has the 9th highest average monthly electric bills for residential customers in the contiguous 48 States, even though its average residential electric rates are below average. Efficiency improvements would lower average bills, as well as future rates.
- ⁴ See ACEEE, 2017 Utility Energy Efficiency Scorecard (June 13, 2017)(ranking Dominion next to last among the nation's 51 largest utilities);
- ⁵ Ceres, Benchmarking Utility Clean Energy Deployment: 2016 – Ranking 30 of the Largest Investor-Owned Electric Utilities on Renewable Energy & Energy Efficiency (2016) ("Ceres Report").
- ⁶ ACEEE, The 2014 International Energy Efficiency Scorecard (July 2014)(ranking the U.S. 13th out of 16 major advanced economies); ACEEE, The 2016 State Energy Efficiency Scorecard (Nov. 2016) (ranking Virginia's overall programs 33rd out of 50 states plus the District of Columbia while giving Virginia a negative score for utility efficiency programs).

Smart Growth

- ¹ See, for example, Joe Cortright, CEOs for Cities, "Driven to the Brink," http://www.ceosforcities.org/work/driven_to_the_brink.
- ² See Transportation Cooperative Research Report 39, "Costs of Sprawl," http://www.trb.org/Publications/Blurbs/Costs_of_Sprawl_2000_160966.aspx and TCRP Report 74, "Costs of Sprawl—Revisited," <http://pubsindex.trb.org/view.aspx?id=540975>.

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 MEMBERS



**CHESAPEAKE BAY
FOUNDATION**

Saving a National Treasure

Southeast Rural Community Assistance Project, Inc.



Water Is Life



**SIERRA
CLUB**

VIRGINIA CHAPTER



**GARDEN CLUB
OF VIRGINIA**



**Southern
Environmental
Law Center**



**Piedmont
Environmental
Council**



**VIRGINIA LEAGUE OF
CONSERVATION VOTERS**



**VIRGINIA LEAGUE OF
CONSERVATION VOTERS**

EDUCATION FUND

CARDINAL MEMBERS

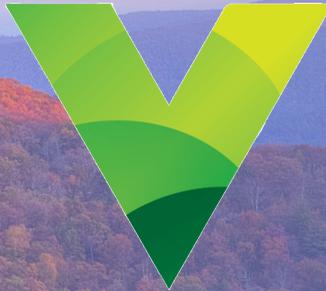
Appalachian Citizens' Law Center
Environment Virginia
James River Association
Lynnhaven River NOW
Natural Resources Defense Council
Shenandoah Valley Battlefields Foundation
The Nature Conservancy in Virginia

TIGER SWALLOWTAIL BUTTERFLY MEMBERS

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

DOGWOOD MEMBERS

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
Civil War Trust
Climate Action Alliance of the Valley
Conservation Park of Virginia, Inc.
Drive Electric RVA
Friends of Accotink Creek
Friends of Dyke Marsh
Garden Club of Norfolk
Garden Club of the Middle Peninsula
Garden Club of the Northern Neck
Goose Creek Association
Highlanders for Responsible Development
Hunting Creek Garden Club
Martinsville Garden Club
Mattaponi & Pamunkey Rivers Association
Mill Mountain Garden Club
Nansemond River Preservation Alliance
Nelson County Garden Club
Northern Neck Audubon Society
Partnership for Smarter Growth
Potomac Conservancy
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
Shenandoah Valley Network
Three Chopt Garden Club
Urban Sustainability and Equity Center
Virginia Audubon Council
Virginia Bicycling Federation
Virginia Chapter of the Wildlife Society
Virginia Council of Trout Unlimited
Virginia Green Travel Alliance
Virginia Society of Ornithology
Virginia Wilderness Committee
Wild Virginia
Williamsburg Garden Club
Winchester Clarke Garden Club



Virginia Conservation Network combines the voices of environmental organizations across Virginia to conserve our Commonwealth's natural resources and ensure its future prosperity.

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