
Virginia
OUR
COMMON AGENDA
2017
ENVIRONMENTAL
BRIEFING BOOK



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 120 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 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

VCN is governed by a Board of Directors, each elected by Network Partners.

VCN's 2016 Board of Directors

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

Virginia Environmental Assembly | September 9–10, 2016 | Charlottesville, 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 natural environment.

General Assembly Preview | December 3, 2016 | Richmond, VA
In preparation for the 2017 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 Network Partners discuss priority conservation topics and our approach to advancing policy in the legislative session.

Conservation Lobby Day | January 23, 2017 | Richmond, VA
Bills move fast in the Virginia General Assembly! VCN organizes Conservation Lobby Day to ensure a strong conservation voice is heard early in the legislative session. Volunteer advocates are invited to join professional staff of our Network Partners as we meet with state legislators and encourage them to support environmental policy advancements. Mark your calendars now.

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. Find out more at *nwf.org*.

Get Involved

The 2017 Environmental Briefing Book is an annual publication of Virginia Conservation Network. The issue briefings you'll find on the following pages have been researched and written by Virginia's environmental experts and the Network Partners of VCN. Learn about the pressing issues affecting the Commonwealth's environment and then make your voice heard by contacting your elected leaders.

Contact Your Legislators

- Attend public meetings and events hosted by your state Delegate and Senator
- Send personal letters, emails, and calls to your legislators to share your opinions
- Schedule individual meetings to talk with your legislators directly
- Comment in traditional media by writing a letter to the editor or calling into local radio shows
- Use social media to express your support for environmental protections

For more information on your legislators and the Virginia General Assembly, visit *VirginiaGeneralAssembly.gov*.

Join the Conversation

Join Virginia Conservation Network on social media to:

- Keep up to date on important General Assembly happenings
- Discuss Virginia's hottest environmental issues through statewide conversations
- Show your support for sound policies that promote a clean, healthy, and more sustainable Virginia

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TABLE OF CONTENTS

The Virginia General Assembly.....5

Healthy Rivers.....6

- Coal Ash and Our Commonwealth's Water Supplies.....7
- Protect Communities from the Harmful Impacts of Industrial Gas Development and High-Volume Fracking.....9
- Continue Funding for Agricultural Best Management Practices at the Local Level.....11
- Managing Polluted Runoff to Protect Virginia's Waterways.....13

Healthy Rivers Points of Contact.....15

Clean Energy.....16

- EPA's Proposed Clean Power Plan: A Win for Virginia.....17
- Energy Planning and the Role of Energy Efficiency.....19
- Solar Power in Virginia: Know Your Rights.....21
- Community Net Metering.....23
- Proposed Natural Gas Pipelines.....25
- Offshore Seismic Airgun Blasting: Unnecessary and Harmful.....27

Clean Energy Points of Contact.....29

Green Communities.....30

- Land Conservation.....31
- Smart Growth.....33
- Transportation Reform.....35
- Public-Private Transportation Act Reform.....37
- Intercity Passenger Rail.....39

Green Communities Points of Contact.....41

Endnotes.....42

Our Partners.....Back Cover



THE VIRGINIA GENERAL ASSEMBLY

The Virginia General Assembly is the oldest lawmaking body in the United States. Each January, our elected legislators convene in the Capitol to introduce, debate, and vote on potential policy change. In 2017, the Virginia General Assembly will meet for 45 days beginning January 11.

The Chambers

The Virginia General Assembly is composed of two chambers: the State Senate and House of Delegates. Forty senators serve four-year terms, while one hundred delegates are re-elected every two years. Each chamber uses committees to review the many bills presented each year. Energy bills are typically presented before the Commerce and Labor Committees. Bills on rail, roads, and similar issues go before the Transportation Committees. Most other conservation issues stand before the Agriculture and Natural Resource Committees.

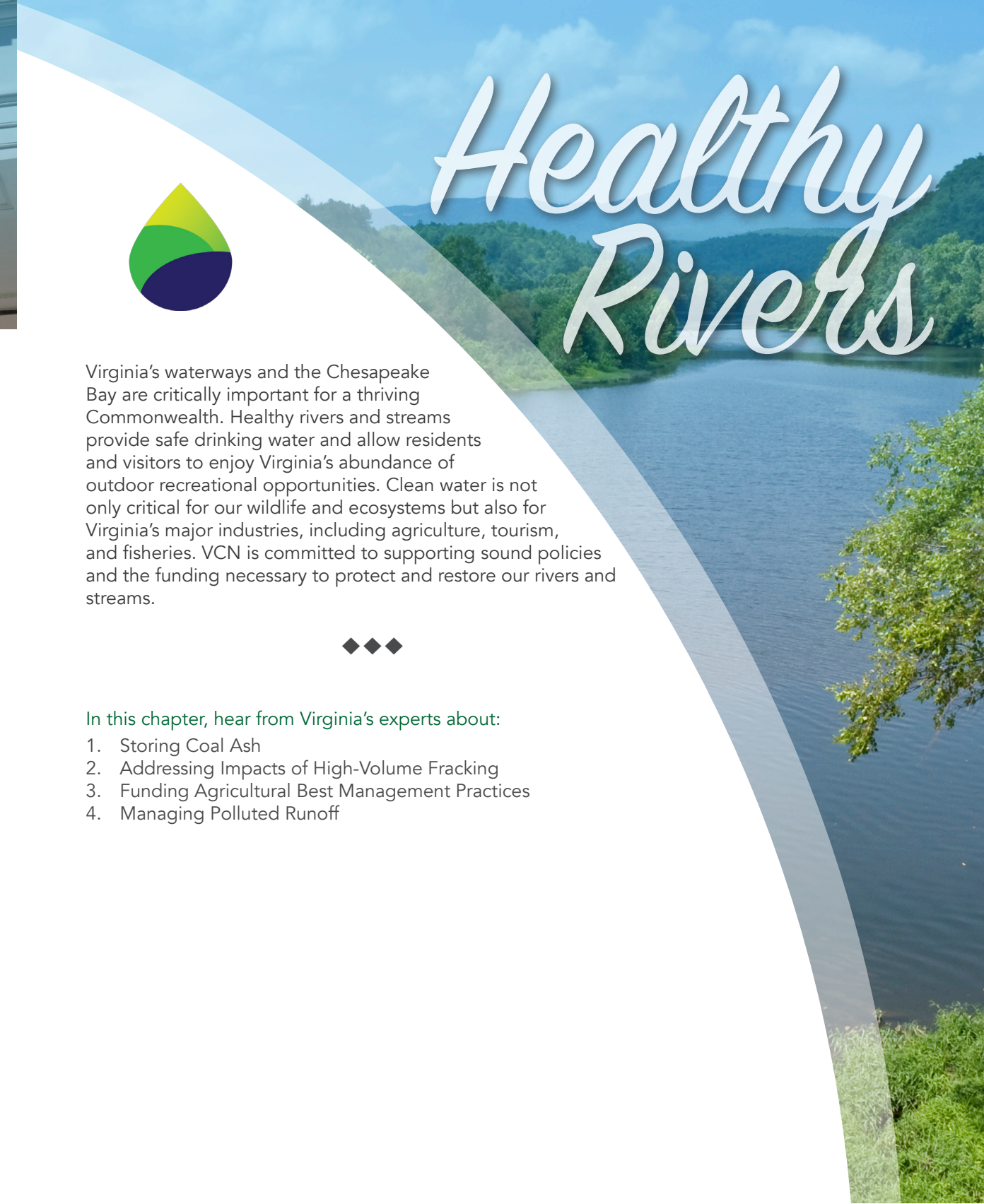
The Passing of a Bill

A bill must pass through a committee before being considered by the full chamber in a floor vote. It then crosses over into the other chamber to go through the same process. Once passed by both chambers, the bill goes to the Governor for signing. The Governor can amend or veto legislation. The Virginia General Assembly reconvenes each April for a veto session to accept or override the Governor's actions.

Learn More

Citizens will find a wide array of legislative information on the Legislative Information Services website: *lis.virginia.gov*. Included is general information about the legislative process, as well as full text, summaries, status history, resolutions, and schedules of activity related to specific bills. You can also visit *vcnva.org* for up-to-date bill tracking and committee activity during session.

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 recreational opportunities. Clean water is not only critical for our wildlife and ecosystems but also for Virginia's major industries, including agriculture, tourism, and fisheries. VCN is committed to supporting sound policies and the funding necessary to protect and restore our rivers and streams.

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

1. Storing Coal Ash
2. Addressing Impacts of High-Volume Fracking
3. Funding Agricultural Best Management Practices
4. Managing Polluted Runoff



Coal Ash and Our Commonwealth's Water Supplies

Introduction

Coal ash—the waste product generated when coal is burned for energy—poses a danger to Virginians' health, drinking water, and environment. Coal ash contains a long list of harmful heavy metals, including arsenic, mercury, nickel, lead, cadmium, and selenium. Exposure to these metals, even at low levels, has been linked in scientific studies to cancer, respiratory problems, neurological difficulties, and gastrointestinal diseases.

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. Because 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. 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 not lined, and industry plans to cap these sites will simply leave the source of pollution in place.

> "As long as coal ash remains along the banks of our waterways, it will continue to leak dangerous pollutants into state waters."

The Virginia General Assembly should reject any legislation seeking to shield industrial polluters from the obligation to clean up these toxic sites.

Background

Despite the dangers associated with coal ash, it remains both ever-present and under-regulated. Coal ash is the second largest industrial waste stream in the United States.

Vast quantities of poorly-contained ash sit in numerous impoundments along many of the Commonwealth's most prized rivers, including the James, the Clinch, and the Potomac Rivers. In many cases, coal ash disposal sites are located upstream from popular fishing, kayaking, and hunting destinations.

The storage of toxic metals along the banks of some of our most treasured waterways is—simply put—a disaster no longer waiting to happen. In February 2014, a broken drainage pipe running underneath a coal ash storage pond at the Dan River Power Station in Eden, NC brought the dangers of this toxic industrial waste stream home to Virginia. Duke Energy estimates that 35 million gallons of toxin-laden waste spilled into the Dan River, coating 70 miles of the river's surface with a sludge of concentrated chemicals. Virginia communities downstream from the spill were forced to take immediate action to protect drinking water supplies, and state and federal agencies continue to monitor the long-term impacts of the spill on the health of the river.

The Dan River spill was a dramatic reminder of the dangers of coal ash; however, it is far from the only instance of coal ash pollution in Virginia. As a result of poor disposal practices at coal ash facilities across the Commonwealth, pollutants are escaping from many coal ash impoundments, either through breaches in containing berms or by leaching into groundwater and contaminating shallow aquifers.

- In August 2014, the Virginian-Pilot documented the presence of arsenic in groundwater at a Chesapeake, VA coal ash site at up to forty times the state's safety standards. Public documents show that high levels of arsenic contamination exceeding state standards continue to persist.
- Public documents show that a Chesterfield, VA coal ash site, located next to a popular

recreation area, has a history of spills and leaks. Water monitoring shows that coal ash has discharged into groundwater beneath the site, which exceeds drinking water standards for a number of contaminants (including arsenic, cadmium, iron, manganese, and molybdenum), and that the surrounding surface waters have also been contaminated.

- At Dominion's Possum Point Power Station, groundwater monitoring documented almost thirty years of groundwater contamination from its coal ash ponds. Dominion has now excavated four of the Possum Point ponds and placed their waste ash in a fifth pond at the site. That pond, which was constructed in the 1980s next to Quantico Creek without a synthetic liner, is not a permanent solution to the site's chronic pollution problem. Recent well testing of nearby residences has identified hexavalent chromium, an industrial pollutant, in at least one well and prompted calls for additional testing.

The Virginia Department of Environmental Quality has begun issuing water permits authorizing the "dewatering" of coal ash impoundments around the state. So far, those permits have not required the use of the best available technology to treat this wastewater before discharging it, and instead authorize discharge of high concentrations of pollutants. Only through private settlements with Dominion, obtained by parties opposed to the lax permit limits, were effective treatment systems installed at the Bremo and Possum Point facilities.

Conclusion

Even after some of the oldest and dirtiest coal-fired power plants in the Commonwealth are retired, coal ash will remain in the ground for decades—perhaps centuries—to come. Indeed, water testing at the Possum Point Power Plant shows that metals like arsenic, zinc, and manganese continue to leak from ash ponds nearly fifty years after the last deposit of new waste in some of those ponds. Additionally, contamination of groundwater at the Chesapeake site has persisted for decades. The plant is located on a narrow peninsula, and the contaminated groundwater flows into the surrounding water bodies. As long as coal ash remains along the banks of our waterways, it will continue to leak dangerous pollutants into state waters.

Dominion Virginia Power plans to close its coal ash impoundments by capping them in place, pursuant to the Department of Environmental Quality's draft permits for closure. Permanently storing coal ash next to our rivers in old unlined ponds—many of which will continue indefinitely to leak toxic contaminants into groundwater and nearby surface waters—is not the solution to Virginia's coal ash pollution problem.

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Authors:
Greg Buppert, Deborah Murray, Brad McLane, Nate Benforado, and Jonathan Gendzier | *Southern Environmental Law Center*

Recommendations

The Virginia General Assembly must not allow any further weakening of existing state protections related to coal ash. Instead, Virginia needs stronger state protections and expanded enforcement. The new federal rule on coal ash disposal imposes requirements on sites currently disposing of coal ash, but it leaves most regulation of "legacy" sites to the states.

- All coal ash impoundments should be subject to strict permitting and siting requirements.
- Additionally, the state should require the removal of all coal ash to modern dry storage facilities, with synthetic liners and leachate collection and treatment systems, away from our rivers and drinking water supplies. We know that excavation and removal is a viable option for remedying coal ash pollution. It is already underway or proposed for coal ash ponds in North Carolina, South Carolina, and Georgia. Over 53 million tons of coal ash is being excavated and moved to modern storage facilities in the Carolinas alone.
- Finally, nearby drinking water wells must be tested for hexavalent chromium and other coal ash constituents that may be affecting public health.



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 with horizontal drilling, a combination not historically used in Virginia. Before the Commonwealth starts down this path, the Virginia General Assembly should ensure that:

1. No legislation weakens or undermines any aspect of the Virginia Department of Mines, Minerals, and Energy (DMME)'s proposed regulations that were developed with active involvement by citizens, industry, and other stakeholders since 2013;
2. Strong statewide protections are in place to protect the people, environment, and natural resources of Virginia; and
3. 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 access to rock horizontally. By combining high-volume hydraulic fracturing with horizontal drilling, we are presented with today's modern fracking boom.

Modern fracking is an intense industrial activity that has drastic impacts on the 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—and 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 until it is trucked offsite, adding more wear and tear to local roads.

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

- Stanford study, led by former Environmental Protection Agency (EPA) scientist, links fracking waste to contaminated drinking water wells in Wyoming and suggests that fracking chemicals contaminated entire groundwater resource in natural gas basin (2016).
- US Geological Survey scientists determine that wastewater storage at a West Virginia site contributed to contamination of downstream water and sediment (2016).
- Texas floods cause oil and fracking chemicals to flush into nearby rivers (2016).
- Study by US Geological Survey, Duke, and University of Missouri confirms higher levels of endocrine-disrupting chemicals downstream of a West Virginia fracking wastewater storage site (2016).
- Duke study indicates fracking wastewater spills in North Dakota have caused widespread water and soil contamination (2016).
- Report indicates that 90 of the 615 oil and chemical spills reported in Colorado in 2015 contaminated groundwater (2016).
- Pennsylvania revealed that 243 private drinking

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

wells were contaminated by oil and gas activity (2014).

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 was illegally dumped in 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 twenty-four hours per day, seven days per week. In addition, the miles of gathering and transmission pipelines cut across properties and visually dissect rural communities.

The Virginia General Assembly can address some of the potential risks posed by modern fracking on local communities and Virginians, including:

- Eliminating the use of waste pits.
- Requiring safe management and disposal of contaminated wastewater and solid waste from fracking sites.
- Ensuring adequate statewide siting restrictions that protect waterbodies and other public resources.
- Enforcing erosion and sediment control standards.
- Requiring consultation with multiple state agencies (DEQ, VDH, DGIF, MRC, DCR, DOT) 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 and communities, the environment, and Virginia's natural resources. During the 2017 session, the Virginia General Assembly should reject any bills that would weaken or undermine any of the important protections in DMME's amended 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 that would erode mandatory public disclosure of fracking chemicals. The Virginia General Assembly should also strongly protect localities' authority over oil and gas development, as well as other land uses.

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

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.

The Virginia General Assembly should initiate a comprehensive, inter-agency study to investigate the impacts that this modern drilling technology has on public health, local economies, and the environment.

Local land use authority must be maintained with respect to oil and gas development. Any attempt to replace a locality's land use authority with a one-size-fits-all approach is unacceptable.



Hydraulic fracturing underway in the Lewis Wetzel Wildlife Management Area in Wetzel County, WV. *Image credit: SkyTruth on Flickr (Creative Commons)*



Continue Funding for Agricultural Best Management Practices at the Local Level

Introduction

Agriculture is Virginia's largest industry, covering the largest land area of any 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 other farmers would like to put effective conservation practices on the ground but, 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 Bay.

Background

Each of these pollutants has different negative impacts upon Virginia's local waterways. Excess nutrients cause large algal blooms. Excess algae can block light in streams or sink to the bottom of rivers and bays and rot. Rotting algae depletes oxygen from the water and can cause "dead zones," which impact important commercial fisheries. Excess nutrients also support the growth of some species of algae which produce toxic compounds. Sediment pollution buries important bottom habitats of waterways, including gravel spawning beds for trout and oyster reefs. Suspended sediment also depletes water clarity, which damages important seagrasses. Bacteria pollution impacts our ability to safely utilize waterways and can lead to beach and shellfish harvesting closures.

These pollutants cause a large proportion of water quality impairments that have been described by the Virginia Department of Environmental Quality. The Chesapeake Bay is impaired by nutrients and sediments, and Virginia's Chesapeake Bay Watershed Implementation Plan has determined that there needs to be large pollution reductions from agriculture to improve water quality. Nearly half of Virginia's rivers and streams that have been monitored have bacterial impairments. In order to address these problems, Virginia lawmakers should fully fund the Virginia Agricultural Cost-Share Program (VACS).

The Virginia Department of Conservation and Recreation administers the Cost-Share Program through Virginia's 47 Soil & Water Conservation Districts (the Districts) to address non-point source (NPS) pollution. The Cost-Share Program offers financial and technical support to the Districts to support and work with local farms to implement practices that restore and improve water quality. The Districts' technical and financial assistance funding is necessary for them to deliver these services to the agricultural community and support farmers. Reducing NPS pollution and contamination is directly tied to the budgets for the Cost-Share Program and District technical and financial assistance programs.

> "VACS has helped thousands of farmers implement more than fifty best management practices that prevent pollution from reaching waterways throughout Virginia."

Conclusion

VACS has helped thousands of farmers implement more than fifty best management practices (BMPs) that prevent pollution from reaching waterways throughout Virginia. 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 stream, lakes, rivers, and bays.



Investments in these agricultural BMPs help water quality, of course, but also create jobs and yield economic benefits. For example, studies have shown that implementing agricultural BMPs at the levels necessary to restore the Chesapeake Bay would create nearly 12,000 jobs, and that every $1.00 invested in Bay restoration will generate $4.00. Several agricultural best management practices also help improve yield from agricultural production. 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. As a result, the implementation of these agricultural BMPs will enhance Virginia's agricultural economy while also driving much needed improvements in water quality.

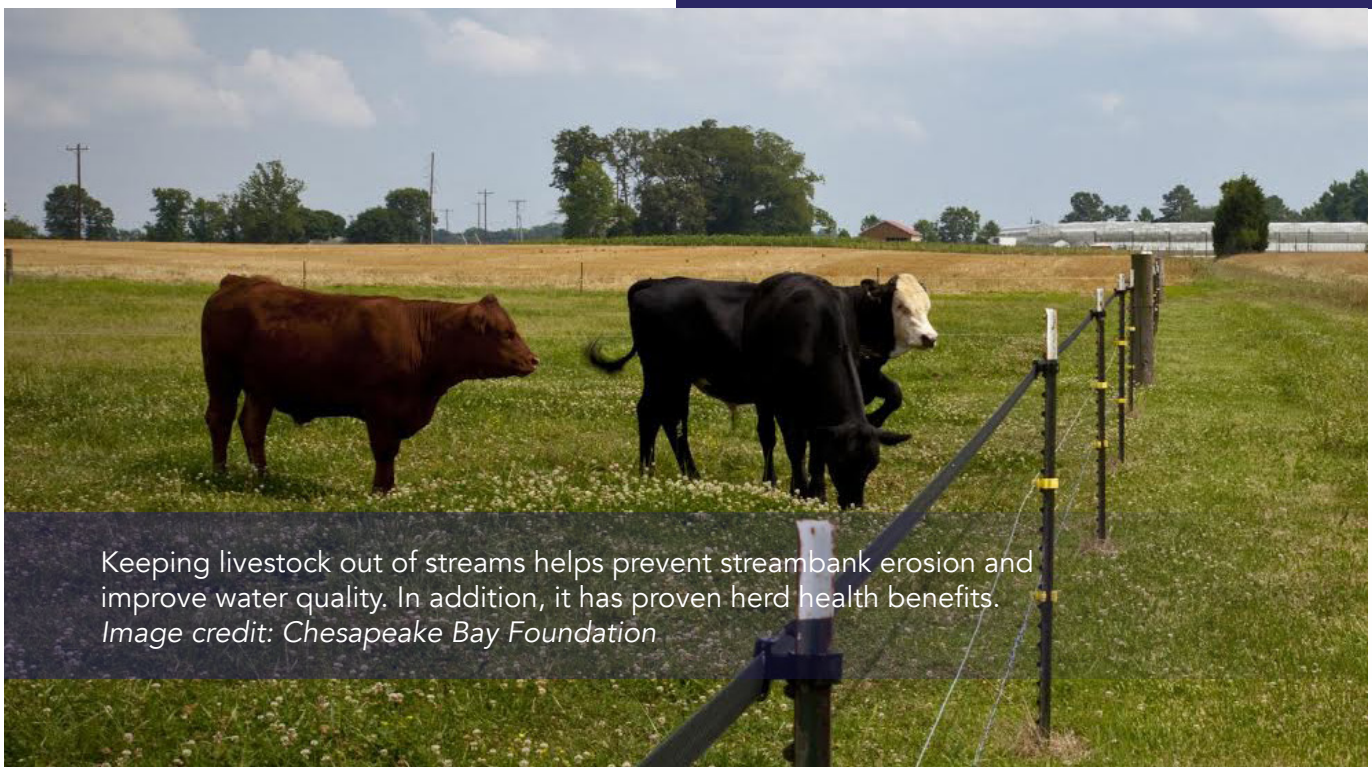
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Authors:
Matt Kowalski and Joe Wood | *Chesapeake Bay Foundation*

Recommendations

What amount of funding is needed to achieve the water quality and economic benefits of agricultural BMPs? Every 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" report 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 2016 Virginia General Assembly session. While they did not meet the full statewide need, they did appropriate almost $62 million in support of agricultural BMPs.

A similar level of effort will be required for this year, as the most recent completed needs assessment shows that Virginia farmers will need more than $100 million in FY18 to meet water quality goals for the Bay and Southern Rivers watersheds. To ensure Virginia does not fall behind on water quality—and to realize the economic benefits of restored waterways—it is essential that our elected officials fund agricultural BMPs at this level.



Keeping livestock out of streams helps prevent streambank erosion and improve water quality. In addition, it has proven herd health benefits.
Image credit: Chesapeake Bay Foundation



Managing Polluted Runoff to Protect Virginia's Waterways

Introduction

In recent years, Virginia has taken significant strides toward cleaner water. Effective, modern sewage treatment—made possible by a reliable state matching grant program—is responsible for much of this progress. There are encouraging signs, including increased submerged aquatic vegetation, rebounding blue crab populations, and burgeoning oyster industries.

However, wastewater upgrades alone cannot clean up local waterways or the Chesapeake Bay. Polluted runoff—the muddy stew of stormwater, dirt, bacteria, and toxins that runs off streets, roofs, sidewalks, and other hard surfaces—is plaguing creeks, streams, and the Bay. Virginia's controls are lagging significantly behind. The Environmental Protection Agency (EPA) recently confirmed that pollution from urban and suburban runoff is increasing; therefore, Virginia's failure to curb this source of pollution imperils the Commonwealth's goal to restore the Chesapeake Bay and tributary rivers by 2025.

> "Our legislators must tackle polluted runoff with the same determination as reflected in Virginia's wastewater treatment success story—that is, they must provide reliable funding at levels and at times that match the increasing need."

Background

What has caused Virginia's failing grade in this area? Polluted runoff control is not simple, and the solutions are not the same for every area. For example, protecting mountain streams from development-related erosion and sediment may require stricter measures than elsewhere. Working with local and state officials, Virginia citizens have long been working to build strong programs that will be successful in different localities across the state, but the process has proved slow. Major Hampton Roads cities did not receive their new rules (Clean Water Blueprint-compliant permits) until this year, six years after their Blueprint work should have begun. Delays in completing the rules and permits necessary to ensure strong protection for the Commonwealth's waterways have cut short the time for meeting Blueprint goals and imposed steep challenges on localities. It is imperative that we stay on track to meet our 2025 goals.

Concern about cost is another reason for the lagging progress. In contrast to the long-term state program that has funded modernizing sewage treatment, the Commonwealth has only recently begun to help shoulder the cost of polluted runoff control. Localities have also not uniformly adopted local fee programs ("stormwater utilities") that help cities and counties defray the costs of managing polluted runoff in our developed areas.

Conclusion

Our legislators must tackle polluted runoff with the same determination as reflected in Virginia's wastewater treatment success story—that is, they must provide reliable funding at levels and at times that match the increasing need. In the 2016 session, the Virginia General Assembly signaled its recognition of the need by appropriating $20 million to the Stormwater Local Assistance Fund (SLAF). But this amount for FY17 still falls far short of the $50 million required annually for the Commonwealth to keep up with its stormwater obligations, according to VIRGINIA*forever*.

Fixing the problem will also require careful attention to new legislation and programs that touch on polluted runoff. As localities and stakeholders across the state put in place and master the new rules, the temptation to weaken water quality protections

must be resisted. Polluted runoff programs must protect water quality as measured by the best science; encourage cost-effective, nature-based practices; where possible, address multiple challenges at once (e.g., local flooding and polluted runoff); assure public transparency and citizen participation; and most importantly, help us achieve our Clean Water Blueprint goals by 2025.

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Author:
Adrienne Kotula | *James River Association*

Recommendations

Polluted runoff programs must:

- Protect water quality as measured by the best science;
- Encourage cost-effective, nature based practices;
- Where possible, address multiple challenges at once (e.g., local flooding and polluted runoff);
- Assure public transparency and citizen participation; and
- Most importantly, help us achieve our Clean Water Blueprint goals by 2025.





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



Healthy Rivers
Points of Contact

Coal Ash and Our Commonwealth's Water Supplies
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Managing Polluted Runoff to Protect Virginia's Waterways
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Clean Energy



How Virginia powers its businesses and homes has a significant impact on our public health and 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.

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

1. Moving Forward with EPA's Clean Power Plan
2. Incentivizing Energy Planning & Energy Efficiency
3. Prioritizing Solar Energy in Virginia
4. Sharing the Benefits of Renewable Energy Using Net Metering
5. Proposed Natural Gas Pipelines
6. Opposing Offshore Seismic Airgun Blasting



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

Introduction

In August 2015, the Environmental Protection Agency (EPA) finalized its long-awaited Clean Power Plan, the first-ever standards to reduce carbon pollution from existing power plants. Under this regulation, in 2030, carbon pollution from the power sector will be 32% lower than 2005 levels. The plan sets out a flexible, achievable approach to carbon pollution reductions that will be a big win for Virginia—combatting climate change while generating more clean energy jobs, lowering electricity bills, and improving public health.

The Commonwealth is already feeling the tremendous effects of climate change on our coastlines, in our pocketbooks, and beyond. In the face of these present and growing risks, Virginians have an urgent need for real, enforceable carbon pollution reductions.

> "Acting now to clean up our energy production will boost Virginia's economy with new jobs and investments."

Background

The Clean Power Plan is an unprecedented opportunity for Virginia to reduce carbon emissions and embrace a clean energy economy—but opponents are obstructing our progress.

Although the Supreme Court granted a temporary stay of the EPA's Clean Power Plan pending judicial review, the stay does not overturn the Clean Power Plan. Nor does it prevent states from developing plans to reduce carbon dioxide (CO2) emissions in anticipation of the final rule and the greater CO2 reductions that will be needed. The Clean Power Plan has a strong legal foundation under one of our nation's bedrock laws—the Clean Air Act—and is expected ultimately to prevail in the courts. In fact, the Supreme Court has already upheld the EPA's authority to limit carbon pollution from power plants under the Clean Air Act.

Rather than continue to move forward and take advantage of the opportunity to lead on clean energy, the Virginia General Assembly added a budget amendment that prohibits the Department of Environmental Quality (DEQ) from developing Virginia's compliance plan pending the conclusion of federal legal challenges.

This amendment only delays efforts to protect our neighbors, children, and grandchildren from the dangerous climate path created by our continuing emissions of CO2. It has further suspended a process that was already well underway: DEQ has already conducted a notice and comment period, as well as convened a Stakeholder Group of entities that would be affected by air pollution regulations.

Conclusion

As even Virginia's utilities agree, carbon regulation unquestionably will impact Virginia's future energy fleet. The question is not if, but how. Fortunately, when implemented properly, the Clean Power Plan can provide net economic and environmental benefits to Virginia. Rather than investing in outdated, pollution-heavy technologies that rely on fossil fuels, Virginia's compliance plan should encourage massive expansion in our renewable energy and energy efficiency resources, which will provide the most economic value for consumers and create local jobs and investment.

Acting now to clean up our energy production will boost Virginia's economy with new jobs and investments. It will also protect Virginia's economy from short-sighted investment in fossil fuel infrastructure whose useful life will long outlast its actual utilization.[1] Clean energy will also bring tremendous health benefits to our residents. A study from Harvard University found that the Clean

Power Plan could significantly reduce premature deaths from air quality-related ailments—the same study found that Virginia ranks in the top ten states in the nation in the number of avoided premature deaths. Moreover, increased investments in energy efficiency would likely reduce the average customer's energy bill. The EPA's analysis predicts that the average electricity bill will drop by 7% after full implementation of the rule.

Given the tremendous economic and health benefits associated with reducing carbon emissions, and the broad flexibility that the EPA provided states in crafting their own compliance plans, the Clean Power Plan presents a tremendous job-creating opportunity for Virginia.

The Virginia General Assembly should support timely and effective compliance with the final Clean Power Plan and begin work to achieve greater greenhouse gas reductions. It should reject efforts to limit the autonomy of the policy experts at the Virginia Department of Environmental Quality from creating and submitting a state plan.

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Authors:
Will Cleveland | *Southern Environmental Law Center*
Walton Shepherd | *Natural Resources Defense Council*
Corrina Beall | *Virginia Chapter of the Sierra Club*

Recommendations

The Clean Power Plan and future actions to cut greenhouse gas emissions will boost Virginia's local economy and bring tremendous health benefits to the state by:

- Creating new jobs in energy efficiency and clean renewable energy;
- Significantly reducing premature deaths, asthma, and other harms from air quality-related ailments; and
- Reducing the average customer's bill through increased investments in energy efficiency.

To comply with the Clean Power Plan, Virginia should:

- Adopt a State Plan that results in net carbon pollution reductions rather than allowing carbon pollution from the power sector to increase;
- Promote the long-term health and economic well-being of all Virginians, including those in economically-disadvantaged communities;
- Adopt a mass-based approach that covers all sources and allows trading among generators and among different states;
- Place greater emphasis on energy efficiency and renewable energy (energy efficiency is a smart and cost-effective option, and these clean energy investments have been found to reduce customers' energy bills); and
- Authorize pollution allowance trading with other states, while evaluating and avoiding environmental justice impacts.



A clean energy supporter at Richmond's Earth Day festival.
Image credit: Sierra Club



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 air, land, and water for the benefit of all residents. Efficiency simply means using less energy to accomplish the same results—heating, cooling, or lighting a building, lighting highways and other outdoor areas, and operating appliances or machinery. Energy efficiency programs have tangible financial benefits. By reducing electric demand, efficiency programs can reduce the wholesale cost of electricity. Additionally, deploying sufficient efficiency programs can avoid or delay the need for costly new generating and transmission facilities and for buying and burning fuel to operate those facilities. The cheapest and cleanest energy is the energy not consumed.

> "The cheapest and cleanest energy is the energy not consumed."

Unfortunately, energy efficiency is an under-utilized tool in Virginia. A decade ago, the Virginia General Assembly set a realistic target for utilities to reduce demand by ten percent by 2022.[1] Despite modest efforts to expand their efficiency portfolios, the combined efforts of Virginia's two investor-owned utilities are less than one tenth of the way to achieving the Virginia General Assembly's goals.[2] Moreover, for those programs the utilities do propose, they have struggled to obtain complete approval from the State Corporation Commission (SCC).[3] In an independent survey of energy efficiency progress by the largest electric utility companies in the United States, our largest utility ranked last.[4]

Background

Improving energy efficiency in buildings, lighting, appliances, machinery, vehicles, etc. can save Virginians money and reduce harmful pollution. For example, given that buildings are likely to be used for 40 years or more, maximizing efficiency at the outset is critical to avoiding decades of waste and more costly future retrofits. Greater energy efficiency will also enhance Virginia's economy. However, consumers—including government entities—often lack capital and information needed to implement efficiency improvements. Independent studies have shown huge potential for reducing energy consumption with a positive payback. A panel of the National Research Council (National Academy of Sciences) reported in 2010 that the United States could reduce energy usage 30% by 2030 "while also saving money." It also found that "[t]he full deployment of cost-effective, energy-efficient technologies in buildings alone could eliminate the need to add to U.S. electricity generation capacity," and that the average cost of energy savings from energy efficiency was 2.7¢ kWh—25-28% of average residential and commercial electricity rates. The value of energy efficiency is even greater if one factors in the values of reducing health and environmental harms from energy generation and transmission, of reducing energy bill fluctuations, and of reducing the need to take landowners' property for energy projects.

Utilities have made great strides on energy efficiency in other parts of the country. Virginia lags behind. As noted above, Virginia's utilities have achieved only 10% of the Commonwealth's voluntary goal to reduce electricity generation through efficiency programs, and forecast reductions still fall far short. As a result, Virginia ratepayers do not realize the full extent of real-world savings that efficiency programs can provide. One result is that monthly bills for Virginia's residential customers are above the national average. Voluntary efficiency measures are not working in Virginia.

To maximize this underutilized resource, Virginia should prioritize energy efficiency investments over building and operating more expensive generation and transmission, taking into account avoided costs of fuel, building new generation or transmission,

and environmental harms. Further, the SCC approval process for efficiency programs needs updating to focus on the total resource costs and benefits of potential energy efficiency programs, including avoided costs of generation, transmission, energy purchases, fuel, and pollution, and to require that the legislature's 10% reduction goals actually be met. Beyond that, Virginia needs to find new ways to maximize energy efficiency as an economic resource for the Commonwealth. Other states have done far better.

Beyond utility programs, Virginia should do more to reduce energy usage in government operations, homes, and businesses. Government entities often fail to maximize efficiency in new or existing facilities, lighting, and transportation. This wastes taxpayer funds over time. The Commonwealth should help local governments and schools with no-interest loans or grants to implement energy efficiency improvements in new and existing facilities and in transportation.

Similarly, in the interest of enhancing its economy for the long-term, 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 needs of buildings which will operate for decades. Currently, residents of multifamily buildings are shortchanged by unnecessary energy costs because builders and landlords lack incentives for adequate efficiency investments. Tax credits should also be used as a tool to incentivize efficiency.

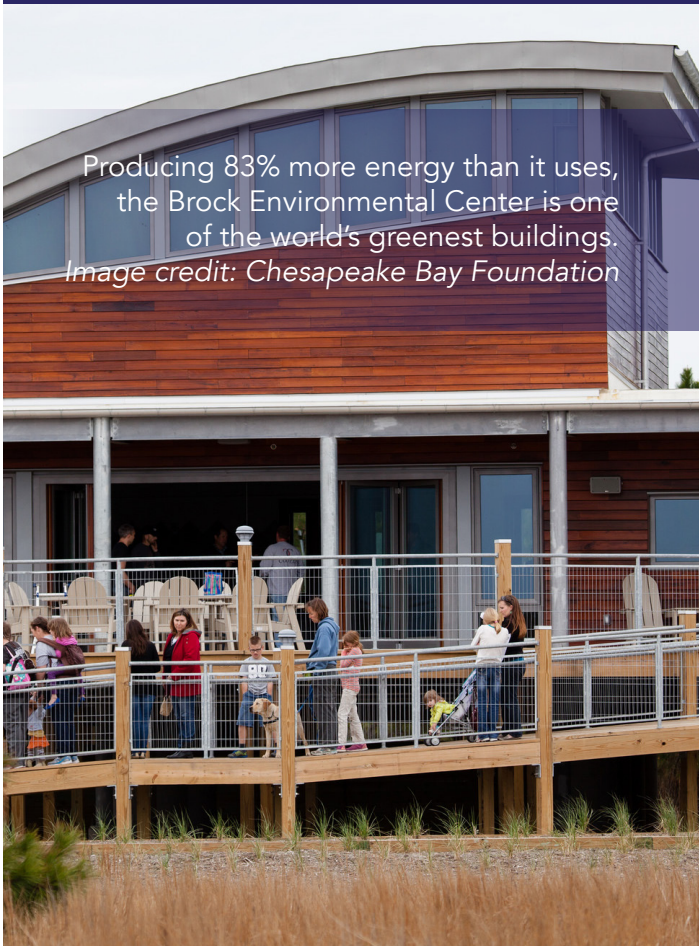
Improved efficiency can go a long way to satisfy the Clean Power Plan's requirements at a low cost. It would be in Virginia's best economic and environmental interest to accelerate investments now in efficiency measures that will reduce fossil fuel usage in the future.

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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 load through efficiency should be required, not a voluntary goal.
- Virginia should explore and adopt new methods for improving energy efficiency.
- 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 to improve energy efficiency in homes, including multifamily homes, and in commercial and industrial spaces through stronger building code and other measures.



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



Solar Power in Virginia: Know Your Rights

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 coming under attack, as some utilities feel threatened by solar's emergence as a viable, competitive choice for their customers. It is important that solar customers understand their rights.

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 Virginia Power has announced plans to build 400 MW of solar over the next five years. These are necessary first steps, but Virginia still lags far behind our neighbors like North Carolina, which has already installed over 1500 MW of solar—*three times Virginia's pledge*.

> "Virginia still lags far behind our neighbors like North Carolina, which has already installed over 1500 megawatts of solar—*three 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 investment 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 and Governor McAuliffe should defend solar rights by:

1. **Protecting your right to control your own 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 and Appalachian Power have both tried various measures to block these independent, private contracts. Virginia's leaders need to put a stop to these anti-competitive tactics from the utilities and open the solar market to more private-sector competition.

2. **Protecting your right to fair rate treatment:** 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 and Appalachian Power have pushed punitive "standby" charges on solar customers. These charges are anti-competitive and fail to credit solar-generating customers with the benefits they are providing to the grid.

3. **Protecting your right to fair compensation:** When a solar system produces more power than the customer can consume on-site, utilities should be required to 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 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.

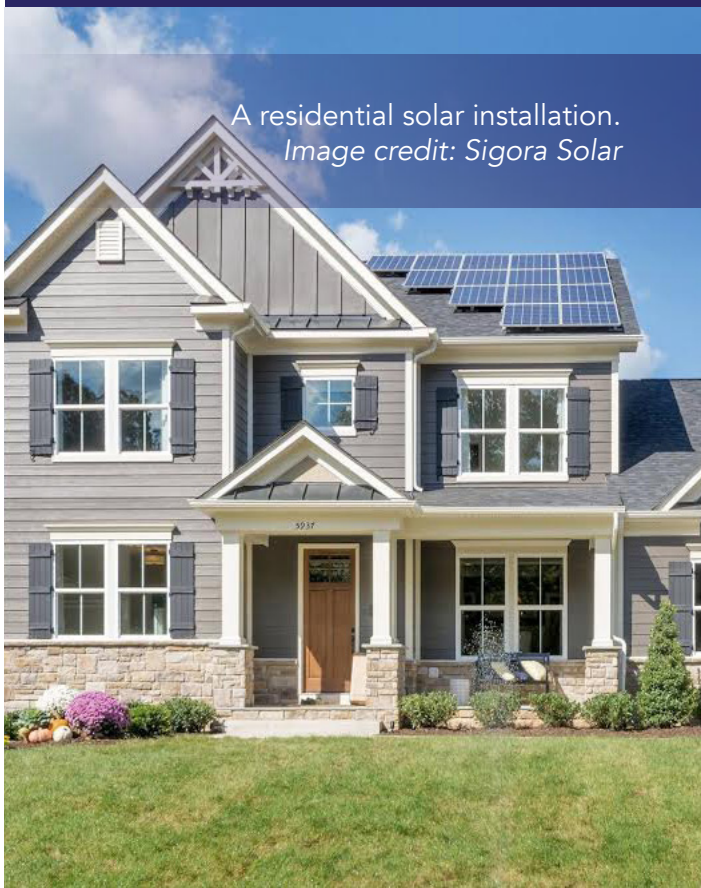
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Recommendations

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 us all. These measures include:

- Stopping power companies from attempts to block private, third-party financing of electricity generated by solar or wind energy through Power Purchase Agreements (PPAs) 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 (*see separate white paper on net metering for details*); 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



Community Net Metering

Introduction

As solar energy continues to become more affordable, many families are expressing interest in this local, clean power source, but are unable to install a solar system at their homes for various reasons (structural constraints, shading from trees, etc.). These impediments prevent a large segment of the population from taking advantage of solar energy.

A solution to this problem is Community Solar. Community Solar takes place through the development of solar energy projects that provide power to multiple community members. Community Solar systems are typically sited close to the community they will serve. These programs leverage economies of scale to reduce the price of solar for individual customers. This model can allow Virginians to access the benefits of solar energy even if they are unable to install solar systems on their own homes or businesses.

> "Community Solar can be a win-win by providing tangible economic benefits to participating customers, strengthening local communities, and delivering valuable clean energy to the grid."

Community Solar can be utility-sponsored (either a utility developing its own program or working with a solar company to offer a program), customer-owned, or third party-sponsored in states that allow competition.

Background

In addition to utility-sponsored shared solar programs, customer-owned community net metering has become popular in other states as a means for allowing utility customers to work together to install a renewable energy system that will benefit all members of the group. Where solar energy is involved, community net metering arrangements are sometimes referred to as "solar gardens" or "shared solar" projects. An example might be a solar system installed on a church, where the electricity generated is attributed to the homes of the congregants, who use it to offset their own electric bills. Virginia law currently does not allow these community net metering arrangements.

Virginia law does, however, provide for a more limited approach to sharing renewable energy known as agricultural net metering. This allows a single customer with multiple electric meters to attribute the electricity generated by one renewable energy system to all of the meters. An example would be a farm with separate meters installed in the house, barn, and stables. To qualify, the renewable generating facility must be operated as a part of an agricultural business and be on land owned or controlled by the agricultural business. However, this law does not allow a farm with an ideal location for a solar array to be connected to neighboring farms that lack access to adequate solar exposure.

Community Solar can be a win-win by providing tangible economic benefits to participating customers, strengthening local communities, and delivering valuable clean energy to the grid. It is time for Virginia to build on the success of the agricultural net metering program and expand Community Solar to all customers, opening the door for both customer-owned and utility-sponsored Community Solar projects.

Specifically for utility-sponsored programs, the following best practices will help ensure that all customers receive meaningful access to shared solar power.

1. **On Bill Crediting:** Customers who enroll in a

Community Solar program should receive a direct tangible economic benefit. Although some customers choose solar energy for its environmental attributes, most customers seek the financial benefit of clean energy. A recent survey by the Solar Foundation found that customer demand is first driven by an interest to "save money" (51.4% of respondents). On-bill crediting is a simple way for customers to see the results of their investment. In Florida, Orlando Utilities Commission's Community Solar program allows participants to lock in a rate of 13¢/kWh for 25 years for electricity generated by their Community Solar share, at no upfront cost to customers.

2. **Flexible Enrollment Options:** Many Community Solar programs use an ownership model where a customer makes an upfront purchase, giving them an ownership stake in the project. Additionally, for utility-sponsored programs, customers should have an option to make ongoing payments on their electricity bills so they can pay as they save. This can be structured either as a purchase or a long-term lease. Customers should be given the option to choose from a range of subscription sizes based on the level of participation that works best for them. Tucson Electric Power's Bright Tucson Community Solar program allows participants to purchase 150 kWh "blocks" of solar power for $3.00 apiece on monthly bills with no upfront cost.

3. **Making Enrollment Accessible to Families on a Budget:** Utilities should strive to make participation accessible to all customers, especially those who most need relief from rising utility bills. Low and moderate income families pay a greater percentage of their income on utility bills than higher-wage earners. These customers will benefit the most from affordable solar power, allowing them to use savings from solar for other important necessities. However, they may be unable to access rooftop solar, because they are renters or live in multifamily housing. Thoughtful project design can lower barriers to entry by allowing for a minimum subscription size of one panel, and/or by letting customers pay enrollment costs over time on their utility bills so they can pay as they save. The state of Colorado enacted the Community Solar Gardens Act in 2010, which requires that a certain percentage of Community Solar gardens be reserved for low income residents.

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Recommendations

Community Solar provides an exciting new opportunity to expand customers' access to local solar power. The Virginia General Assembly should remove barriers that constrain the private market for solar and limit the potential for new community solar projects. A good model would be Colorado's Community Solar Gardens Act. Virginia's law should include steps to support and increase the availability of options for customers to participate in community net metering programs.

In addition to spurring the private market for solar, the Virginia General Assembly should encourage utility investment in community or shared solar projects. Utility programs should follow best practices such as providing on-bill net metering credits for customers, allowing flexible payment options, siting projects near communities that benefit from them, and making project enrollment accessible to all interested customers.



Proposed Natural Gas Pipelines

Introduction

Four large diameter fracked gas pipelines proposed in Virginia threaten sensitive public and private lands. These projects will traverse sensitive public and private lands including national forests and historic districts, wetlands, streams, and rivers as well as headwaters, steep mountain slopes, unstable karst geology, historic resources, and publicly conserved lands. If built, fracked gas pipelines will impact the quality of life in our communities, and inflict significant damage to our lands and environment. Serious questions have been raised about the proposed routes, the cumulative environmental impact, and the need for these proposed pipelines.

Background

As a result of increased hydraulic fracturing in the Marcellus and Utica shale formations in neighboring states, natural gas producers are seeking to expand their access to both new and existing markets by building an infrastructure of buried natural gas transmission pipelines. In response to free-market factors and conditions—including falling gas prices and conversion of coal-fired electric generation plants—Dominion Power and other major utility companies propose to use more natural gas to generate electricity.

> "Localities along proposed routes are concerned about the cost and economic impact of pipelines on local economies, as well as the potential for explosions, spills, or other unforeseen catastrophes."

Since June 2014, the following four natural gas pipelines have been proposed in Virginia:

- **Atlantic Coast Pipeline** — A joint venture between Dominion, Duke Energy, Piedmont Natural Gas, and AGL Resources, this 590-mile pipeline would originate in West Virginia, run south through Virginia, and into eastern North Carolina. Three compressor stations are also planned along the route, two of them located in Virginia. A 20-inch pipeline extension is also planned to deliver natural gas to Hampton Roads.
- **Mountain Valley Pipeline** — Proposed by Mountain Valley Pipeline LLC, would span approximately 330 miles, and extend from northwestern West Virginia south to Pittsylvania County, VA. Four compressor stations are proposed for this pipeline.
- **WB Express** — Columbia Pipeline Group is proposing to construct and operate two new compressor stations, and approximately 26 miles of replacement pipeline located along existing corridors. Columbia also proposes adding approximately 2.9 miles of new pipeline system in Virginia and West Virginia.
- **Appalachian Connector** — Williams, an energy infrastructure company, is in the process of developing a pipeline project that would connect the Western Marcellus and Utica natural gas supply areas in northern West Virginia with Williams' existing Transco natural gas pipeline.

The project partners for these proposals confirm that the natural gas being transported through these pipelines is fracked gas from the Marcellus and Utica shale formations in nearby states. While the natural gas being transported through these pipelines initially will come from other states, the pipelines infrastructure could potentially become an incentive to open areas of Virginia to new natural gas drilling, using hydraulic fracturing technology.

As dictated by the federal Natural Gas Act, the Federal Energy Regulatory Commission (FERC)

Recommendations

The Commonwealth and all impacted communities must actively engage during the FERC permitting process to bring public awareness to the significant, long-term environmental and economic impacts that construction of these proposed pipelines will have upon both public and private lands. It is incumbent upon FERC and pipeline builders/owners to demonstrate verifiable, true market-driven regional need for duplicative—and likely competing—proposed gas pipelines.

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.

The abundance of proposed pipelines creates the need for a Programmatic Environmental Impact Statement (PEIS) review for all four pipelines. The FERC should prepare a single, regional EIS that incorporates all four interstate pipeline projects proposed for the Blue Ridge, Allegheny, and Appalachian Mountain regions of Virginia and West Virginia. This PEIS must be a comprehensive evaluation of the direct, indirect, and cumulative adverse environmental impact of proposed pipeline infrastructure development upon this affected region.

issues permits for natural gas pipeline interstate infrastructure. Therefore, each of the four proposed pipelines enumerated above will undergo a National Environmental Policy Act (NEPA) review. This review process will include multiple opportunities for the public to file comments on both the environmental and historic impacts of these proposed pipelines. It is imperative that the Commonwealth and local governments engage in this process at every step in order to ensure adequate and unbiased review of each proposed project.

Local residents who have received notices from pipeline companies that their property is located along one of the proposed pipeline routes are understandably concerned about their property rights, pipeline safety, and loss of property value. In Virginia, pipeline companies have the power of eminent domain and can locate a gas pipeline on private property without the consent of the landowner. As a result, state officials, localities, and affected residents have raised concerns about how these pipelines would impact their properties. Localities along proposed routes are concerned about the cost and economic impact of pipelines on local economies, as well as the potential for explosions, spills, or other unforeseen catastrophes.

Public lands are also affected. The National Forest Service, Appalachian Trail Conservancy, and the Blue Ridge Parkway Foundation have written to FERC with commentaries and formal resolutions opposing these proposed pipelines. Construction of these proposed pipelines will jeopardize the continued existence of several federally protected species, including the James River Spiny mussel and threatened species of salamanders and bats by invading their habitats.

A market-driven demand for new pipelines has not been fully established. A Programmatic Environmental Impact Statement (PEIS) should be performed as part of the NEPA process to examine whether there is a demonstrated regional need for four new pipelines.

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Offshore Seismic Airgun Blasting: Unnecessary and Harmful

Introduction

In March 2016, the federal Bureau of Ocean Energy Management (BOEM) removed the Atlantic from its 2017-2022 leasing program for offshore oil and gas. One of the reasons for this removal was the loud and widespread opposition from local communities against offshore drilling. In Virginia, those voices of opposition included the Virginia Beach Restaurant Association and Hotel Association; the Virginia Beach Resort Advisory Commission; the Garden Club of Virginia; Eastern Shore county boards of supervisors; the state level Virginia Restaurant, Lodging, and Travel Association, as well as civic organizations such as the Sandbridge Civic League.

Background

Another reason for the removal of the Atlantic was conflict with existing uses of the ocean that are central to Virginia's economy. A 2015 Department of Defense report objected that oil and gas activities in the Atlantic—and especially off Virginia—would be incompatible with military training and readiness. In addition, oil and gas activities, including the presence of ships, aircraft, or extraction platforms—fixed or moveable—are likely to conflict with operations at NASA's Wallops Flight Facility off the coast of Virginia, NASA's only rocket launch range. Finally, regional fishing organizations—such as the Mid-Atlantic Fishery Management Council, the Southeastern Fisheries Association, and the International Game Fish Association—voiced their concerns about the plan to open up the southeast coast to offshore development.

Despite the removal of the Atlantic from the current offshore drilling program, BOEM is still considering permits to allow seismic airgun blasting in an area that spans from Delaware to Florida. There are currently eight companies with permits pending review interested in exploring for oil and gas locked deep in the Atlantic Ocean—but the only reason to do seismic blasting is to drill. Concerns from the military, fishing industry, tourism, and local communities will not go away in the next five-year plan; therefore, there is no reason to continue down that path.

In addition, the immediate impact of seismic blasting off Virginia—including blasting within three miles of the Chesapeake Bay—will cause significant and unnecessary harm to fish and marine life. The noise from seismic airgun blasting is so loud that it can be heard up to 2,500 miles from the source, which is akin to the distance between Washington, D.C. and Las Vegas. A significant body of peer-reviewed science indicates that seismic airgun blasts can result in displacement of fish, cause catch rates of some commercial fish species to decline, and negatively impact other marine species of economic value, like oysters and scallops. Also of concern is the critically endangered North Atlantic right whale. Only about 400 individuals remain and the current seismic airgun blasting proposal lies directly within their only known calving grounds—federally protected as critical habitat—and the migratory pathway mothers and calves must take to get to these waters.

> "There are currently eight companies with permits pending review interested in exploring for oil and gas locked deep in the Atlantic Ocean—but the only reason to do seismic blasting is to drill."

Seismic blasting for oil and gas is extremely intense as these airgun blasts must penetrate deep beneath the ocean floor to locate deposits. It is distinct from the type of seismic exploration necessary to support offshore wind development, which employs different

technologies, is conducted in small limited areas, and needs only to penetrate a few yards deep into the seabed; thus, impacts to the environment from seismic exploration for wind turbines are extremely minimal compared to seismic airgun blasting to search for oil and gas.

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Recommendations

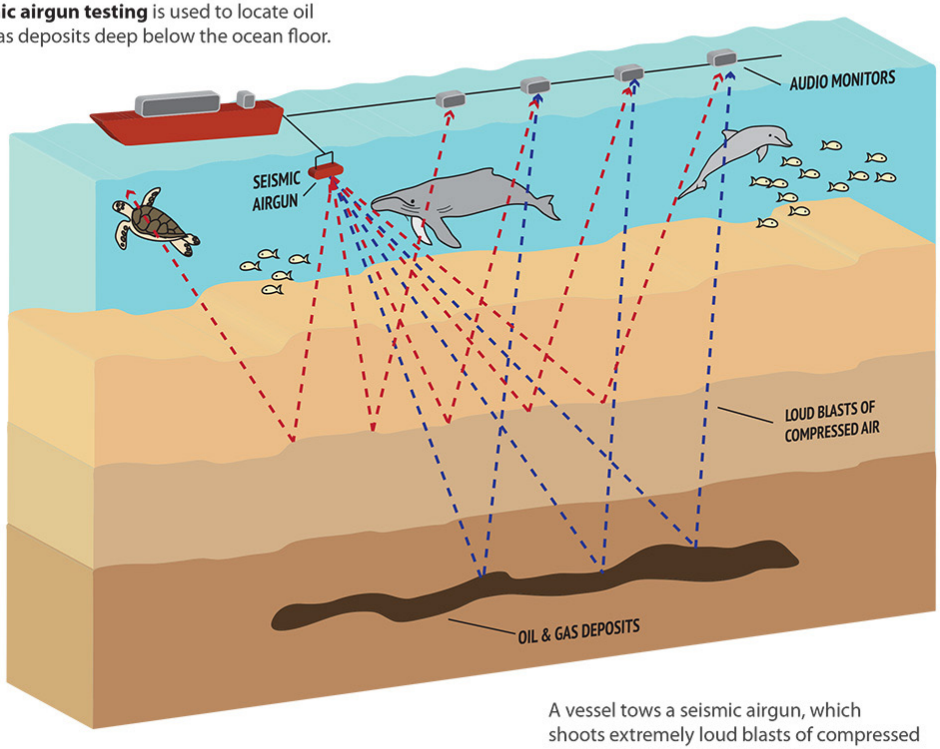
The Virginia General Assembly should formally request that the Obama administration permanently suspend all Atlantic seismic exploration in order to protect Virginia's coastal economies, communities, and important habitat.

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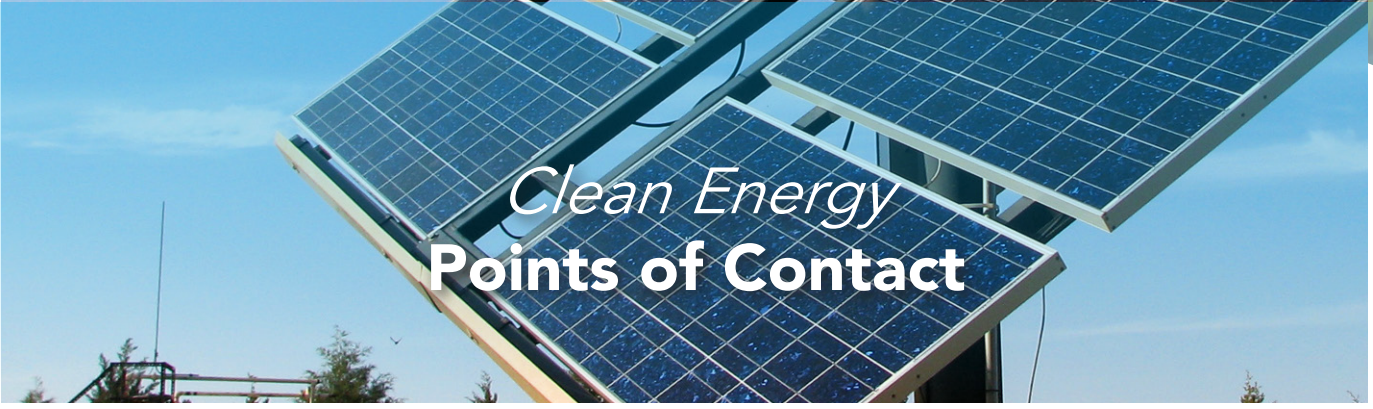
SEISMIC AIRGUN TESTING
IN THE ATLANTIC OCEAN

HOW IT WORKS

Seismic airgun testing is used to locate oil and gas deposits deep below the ocean floor.



A vessel tows a seismic airgun, which shoots extremely loud blasts of compressed air through the ocean and miles under the seafloor, **every ten seconds, 24 hours a day, for days to weeks on end**.



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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.

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

1. Conserving Virginia's Land
2. Incentivizing Smart Growth
3. Reforming Transportation in Virginia
4. Reforming the Public-Private Transportation Act
5. Investing in Intercity Passenger Rail



Land Conservation

Introduction

Successful land conservation requires action and initiative at all levels that is geared toward the protection of a diversity of lands. Land conservation is also critical in achieving substantial progress towards measurable goals on water quality, water supply, climate resiliency, and the Chesapeake Bay. State agencies, local communities, and private individuals need the right tools to protect working farms and forests, scenic landscapes, natural areas, wildlife habitat and game lands, historic resources, and parks and recreational areas for present and future generations. Virginia currently has a variety of programs and approaches that 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. In the 2013 Virginia General Assembly, HB1398 addressed this need by requiring the Governor to appropriate certain funds that would otherwise have been part of the tax credit program to three conservation grant funding programs. These grant programs assist in protecting our most important natural, cultural, and historic resources for the benefit of future generations. We are pleased that the Virginia General Assembly has appropriated $10 million for FY17 and $10 million for FY18 for the grant programs. Unfortunately, this is but half of the promised funding under HB1398.

> "Land conservation is critical in achieving substantial progress towards measurable goals on water quality, water supply, climate resiliency, and the Chesapeake Bay."

Land Preservation Tax Credit

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.

In the 2015 Virginia General Assembly session, the program was scaled back from $100 million in tax credits available each year to $75 million. In addition, the amount of credits each individual taxpayer can use in any one year has been reduced.

Local Purchase of Development Rights Programs

In 2007, Virginia made a commitment to working farms and forestland through an investment of $4.25 million for farmland preservation at the local level. Localities responded to the state investment by pledging ten times the amount in matching funds, totaling $45 million. The matching Purchase of Development Rights program requires counties to match dollar for dollar the amount that is granted to them by the Commonwealth. Virginia is receiving at least a 50% return on its investment.

Virginia Land Conservation Foundation

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.

Like the farmland preservation, this highly effective program leverages local and federal investment for natural resource conservation by paying no more

than 50% of the cost of worthy projects. Grant applications to the VLCF program have consistently far exceeded available funds. Since 2000, over $82 million of grants have been requested of the program 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.

Virginia Outdoors Foundation

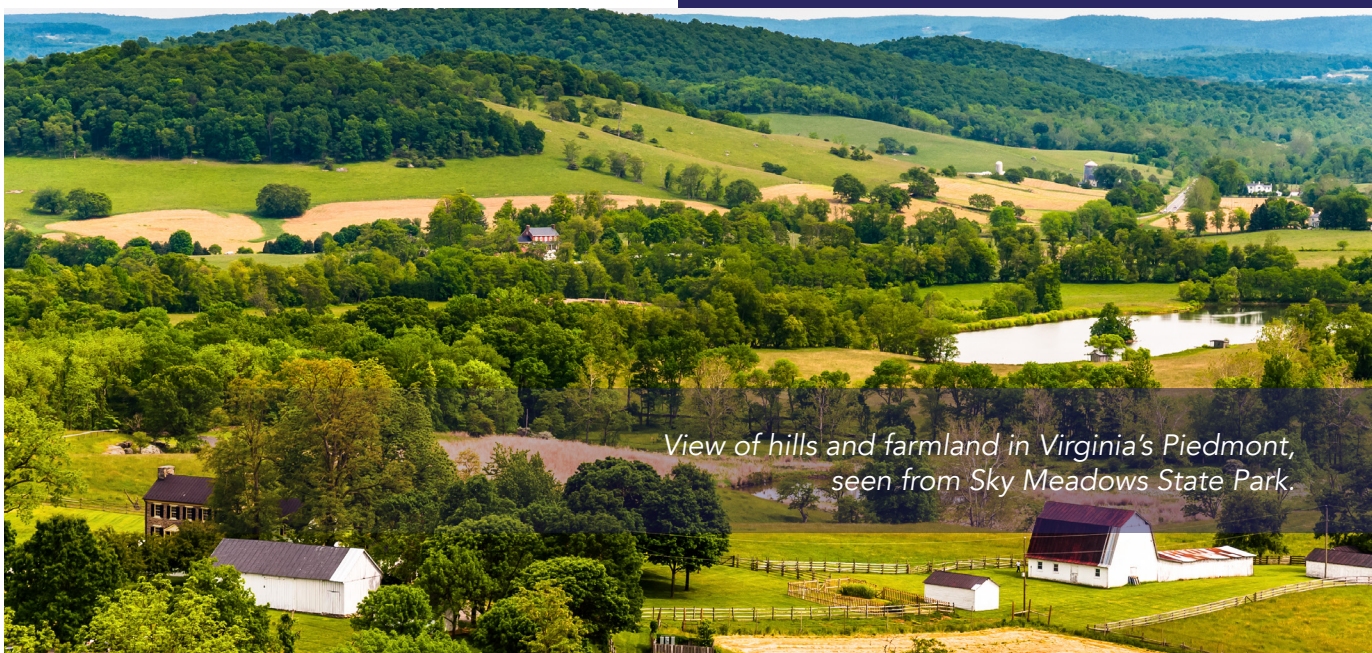
The Virginia Outdoors Foundation (VOF) is the primary agency for acquiring, holding, and stewarding conservation easements for the Commonwealth. With 780,000 acres of easements held by VOF, stewardship continues to become more essential in providing assurance that the conservation values protected by the easement are intact. A lack of funding commensurate with the growing acreage has continued to erode the agency's ability to keep up with the demand for new easements. In addition, VOF is operating with outdated technology and needs support in order to provide efficient and effective service.

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Recommendations

- After having reduced the size of the Land Preservation Tax Credit program in 2015, the Virginia General Assembly should make no more changes that would reduce the impact and availability of this important land conservation tool.
- Virginia must also support its successful grant programs, as called for in HB1398. Funding for FY17 is half what was promised under the legislation. For FY18, the amount should be $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 Civil War Sites Preservation Fund.
- The Virginia General Assembly should support measures that provide additional funding for the Virginia Outdoors Foundation in order to ensure they are able to accept, hold, and provide adequate stewardship of conservation easements.



View of hills and farmland in Virginia's Piedmont, seen from Sky Meadows State Park.



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

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

> "Smart growth offers opportunities to meet changing market demand and to link growth, quality of life, and infrastructure savings. It can also boost economic competitiveness."

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 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 summary of 40 years 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]

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Pedestrian mall in downtown Charlottesville. *Image credit: Bob Mical on Flickr (Creative Commons)*

Recommendations

The Virginia General Assembly should do the following:

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

- **Ensure new development pays its fair share.** There must be a fair balance between what the public taxpayer and the private developer each pay toward the cost of infrastructure. Costs necessitated by new development should not be borne by existing residents. Unfortunately, the 2016 session saw the legislature make sweeping changes to the proffer system. We believe 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 which 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.

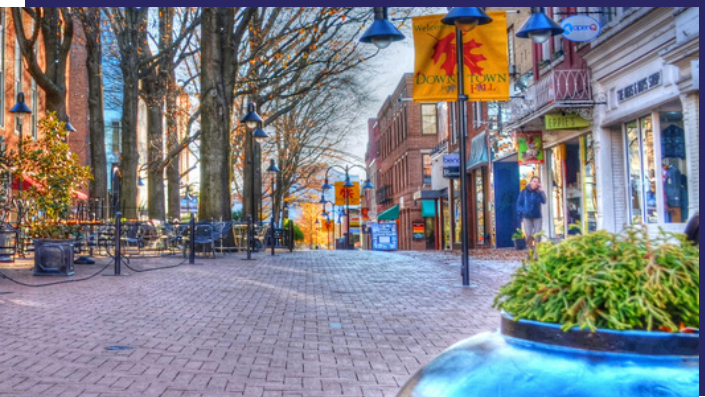
- **Ensure property rights while saving tax dollars on infrastructure costs** through Transferrable Development Rights, Purchase of Development Rights, conservation easements, and other tools.

- **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 re-development scenario.

- **The state and localities should work together** to compile and publicize estimates of the total maintenance and replacement needs of bridges, roads, water and sewer, schools, libraries, and other facilities.





Transportation Reform

Introduction

Virginia faces major transportation challenges. Many existing roads and bridges are in poor condition, congestion costs are high in many areas, a substantial 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, 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 change.

Background

A number of significant transportation reforms have been adopted in recent years, including new funding, 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 draft Six-Year Improvement Program includes money for additional passenger rail service, extending light rail to Virginia Beach, and helping launch Richmond's first bus rapid transit line. However, while the new plan increases the amount of rail and transit funding, the proportion of funding for these modes compared to highway construction decreases.

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 (although the Administration is now pursuing a destructive, though scaled down, new route). And the new funding prioritization process is being implemented to help reduce unneeded or unnecessarily massive projects and to advance more targeted solutions to our transportation problems. Nonetheless, too many wasteful and damaging highway proposals are still moving forward.

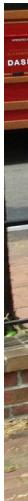
The bottom line is that Virginia's transportation spending is still too asphalt-centered, with the bulk of the $14.6 billion new draft Six-Year Improvement Program dedicated to road projects. Evidence shows that new and wider highways often fail to provide long-term congestion relief since they cause 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.

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

Conclusion

Support funding for cleaner transportation alternatives.

- Provide increased funding for transit, bicycle, and pedestrian projects, and address the projected major shortfall in transit funding coming two years from now.
- 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 governance, integrating transportation and land use; 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 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 funding priorities, and retain environmental quality as a priority.
- Oppose any effort to exempt a project from the funding prioritization process.

Support transportation process reform. Actions that will reduce the environmental damage caused by projects, 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, and repeal recent requirements that local land use plans conform to state transportation plans.

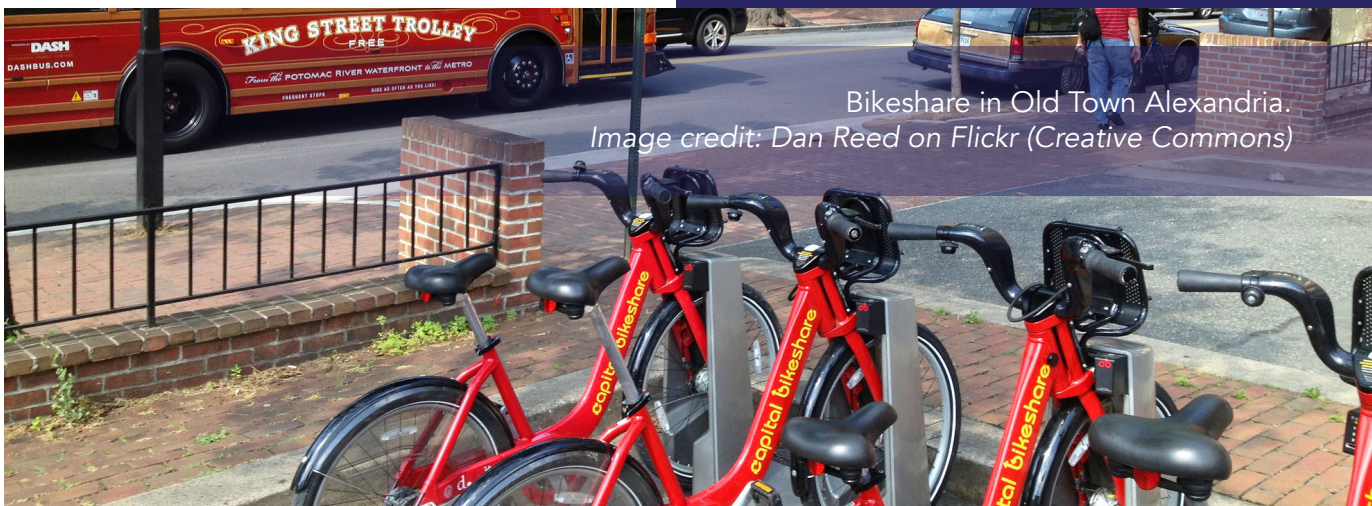
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Authors:
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Stewart Schwartz | *Coalition for Smarter Growth*

Recommendations

The Virginia General Assembly should:

- Support funding for cleaner transportation alternatives.
- Support improved performance standards and priorities for transportation funding.
- Support transportation process reform.
- Support improving the link between transportation and land use, and providing incentives for smarter growth.



Bikeshare in Old Town Alexandria.
Image credit: Dan Reed on Flickr (Creative Commons)



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 the 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 the statute is flawed and raises doubts about how well it serves the public interest.

> "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."

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 track record of PPTA projects raises serious questions. Among other things, potential costs and liabilities to taxpayers have often been 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, including concerns that:

- 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.

- 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 Virginia General Assembly session that does improve 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 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, and improving Virginia's economic competitiveness. Due to these multiple benefits, passenger rail has received strong bi-partisan support from our elected leaders. In 2011, the Virginia General Assembly created the Intercity Passenger Rail Operating and Capital (IPROC) Fund, 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 for intercity passenger rail—and to improve rail policies—in order to sustain, improve, and expand Virginia's intercity passenger rail service.

Background

Increased congestion on our roads and reduced options at our airports, 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 passenger and freight 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.

> "If the Washington D.C. to Richmond High Speed Rail had already been built, Virginians traveling by rail would have saved **712,000 hours** worth of time in 2015."

Enhanced and high-speed intercity passenger rail can link Virginia's metro 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, these corridors serve 46 institutions of higher education, 83% of Virginia's college students, nearly 10% of the nation's active military personnel, and represents 82% of Virginia's economy.

These corridors are also home to some of the most congested roadways in the Commonwealth. The Piedmont and Urban Crescent corridors are home to 57% of Virginia's highways, but 91% of every highway mile driven in the state. Additionally, Texas A&M Transportation Institute reports that due to the growing economy, roadway congestion on the Washington D.C., Richmond, and Hampton Roads corridor has increased 23% since 2009. This has led to continued public demand for intercity passenger rail.

Amtrak's ridership in Virginia exceeded a million riders for the first time in 2008 and grew 57% between 2009 and 2015. Moreover, ridership on Virginia's regional trains has grown by 119% since 2007, and today, Virginia has four of the top six best performing regional corridors in Amtrak's network. In 2015, Amtrak removed an estimated 186 million passenger miles from our roads, which reduced fuel consumption by 6.1 million gallons and eliminated the burning of 120 million pounds of carbon dioxide (CO_2). On the commuter rail side, Virginia Railway Express saw its ridership reach 4.3 million riders in FY15.

The good news is that long-term, sustainable funding became a reality in 2013 due to Governor McDonnell and a large bi-partisan coalition of legislators. The 2013 transportation package adopted by the Virginia General Assembly included provisions that are projected to provide about $758 million over the next six years for investment through the Intercity Passenger Rail Operating and

Capital Fund. 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, as well as add capacity as part of the Newport News new multi-modal station.

Additionally, Virginia has programmed state funds to extend a second train between Lynchburg and Alexandria. The Commonwealth has also secured federal funds to complete the Washington D.C. to Richmond Southeast High Speed Rail study, which if it had already been built, Virginians traveling by rail would have saved 712,000 hours worth of time in 2015.

However, Virginia lacks a long-term vision for the continued investment and expansion of intercity passenger rail. The Commonwealth must take the next steps needed to improve and increase its regional train service and to ensure that the taxpayers' resources are invested wisely.

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Recommendations

The Virginia General Assembly should:

- 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.



The Tide extends 7.4 miles from the Eastern Virginia Medical Center complex east through downtown Norfolk to Newtown Road at the border of Virginia Beach.
Image credit: Bill Dickinson on Flickr (Creative Commons)



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Endnotes

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 CPP could create more than 5,600 new jobs in Virginia in 2020 alone.

Energy Planning and the Role of Energy Efficiency

[1] This goal is equivalent to 10.7 million MWh of savings in 2020.

[2] See Dominion's 2016 IRP (856,293 MWh in 2020) and APCo's 2016 IRP (116,800 MWh in 2020).

[3] For instance, in its 2016 efficiency proceeding, Dominion proposed two new programs. See PUE-2015-00089. The State Corporation Commission (SCC) completely rejected one program and approved the other at half the amount.

[4] Ceres, "Benchmarking Utilities' Clean Energy Deployment: 2014, Ranking 32 of the Largest Investor-Owned Utilities on Renewable Energy & Energy Efficiency." (Dominion also ranked 30th out of 32 for renewable energy sales).

[5] "Real Prospects for Energy Efficiency In the United States," National Academies Press (2010) (America's Energy Future Panel on Energy Efficiency Technologies).

[6] 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.

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.

The 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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Our Partners

Bald Eagle Members
- Chesapeake Bay Foundation
- Garden Club of Virginia
- Piedmont Environmental Council
- Southern Environmental Law Center
- Virginia Chapter of Sierra Club
- Virginia League of Conservation Voters and Education Fund

Cardinal Members
- Environment Virginia
- Natural Resources Defense Council
- The Nature Conservancy

Tiger Swallowtail Members
- Appalachian Voices
- Audubon Naturalist Society
- Blue Ridge Land Conservancy
- Chesapeake Climate Action Network
- Coalition for Smarter Growth
- Dan River Basin Association
- Friends of the North Fork of the Shenandoah
- Friends of the Rappahannock
- Hillside Garden Club
- James River Association
- James River Garden Club
- Lynnhaven River Now
- National Parks Conservation Association
- Potomac Riverkeeper Network
- Preservation Virginia
- Roanoke River Basin Association
- Scenic Virginia
- Shenandoah National Park Trust
- Shenandoah Valley Battlefields Foundation
- Southeast Rural Community Assistance Project
- The Trust for Public Land
- Tuckahoe Garden Club of Westhampton
- Valley Conservation Council
- Virginia Aquarium and Marine Science Center
- Virginia Council of Trout Unlimited
- Virginia Eastern Shore Land Trust
- Virginia Living Museum
- Virginia Native Plant Society
- Wetlands Watch
- Wildlife Center of Virginia

Dogwood Members
- Albemarle Garden Club
- Arlington Coalition for Sensible Transportation
- Ashland Garden Club
- Association of Energy Conservation Professionals
- Audubon Society of Northern Virginia
- Blue Ridge Garden Club
- Blue Ridge Group of Sierra Club
- Capital Region Land Conservancy
- Chesapeake Bay Group of Sierra Club
- Citizens for a Better Eastern Shore
- Civil War Trust
- Climate Action Alliance of the Valley
- Coastal Canoeists
- Conservation Park of Virginia
- Elizabeth River Project
- Fort Monroe National Park Foundation
- Friends of Daniels Run Park
- Friends of Dyke Marsh
- Friends of Stafford Creeks
- Friends of the Rivers of Virginia
- Garden Club of the Middle Peninsula
- Garden Club of the Northern Neck
- Goose Creek Association
- Hands Across the Lake
- Highlanders for Responsible Development
- Hunting Creek Garden Club
- Izaak Walton League
- Leesburg Garden Club
- Mill Mountain Garden Club
- Mount Vernon Group of Sierra Club
- Nansemond River Preservation Alliance
- Nelson County Garden Club
- Northern Neck Audubon Society
- Northern Virginia Conservation Trust
- Partnership for Smarter Growth
- Piedmont Group of Sierra Club
- Potomac Conservancy
- Rail Solution
- Rappahannock League for Environmental Protection
- Rappahannock Valley Garden Club
- Richmond Audubon Society
- Rivanna Conservation Alliance
- Rivanna Garden Club
- Rockbridge Area Conservation Council
- Rockfish Valley Foundation
- Shenandoah Valley Network
- Shenandoah Valley Pure Water Forum
- Southern Appalachian Mountain Stewards
- The Flora of Virginia Project
- Three Chopt Garden Club
- Virginia Assoc. of Soil & Water Conservation Districts
- Virginia Audubon Council
- Virginia Beach Garden Club
- Virginia Bicycling Federation
- Virginia Chapter of the Wildlife Society
- Virginia Eastern Shorekeeper
- Virginia Society of Ornithology
- Virginia Wilderness Committee
- Wild Virginia
- Williamsburg Garden Club