

**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY**

SUMMARY OF WRITTEN PUBLIC COMMENT

**PUBLIC LISTENING SESSIONS AND COMMENT PERIOD,
FEDERAL CLEAN POWER PLAN FINAL RULE**

INTRODUCTION

On August 13, 2015, the Virginia Department of Environmental Quality (DEQ) announced a public comment period and a series of informal listening sessions on the U.S. Environmental Protection Agency (EPA) Clean Power Plan (CPP) to cut carbon emissions (greenhouse gases, GHG) from existing power plants that generate electricity from fossil fuels. DEQ sought general input from the public on the best way for the Commonwealth to implement EPA's plan.

PUBLIC PARTICIPATION PROCESS

Public listening sessions were held as follows:

- September 16, 2015: DEQ Valley Regional Office, Harrisonburg, VA.
- September 22, 2015: DEQ Blue Ridge Regional Office, Roanoke, VA.
- September 28, 2015: Fairfax County South County High School, Lorton, VA.
- September 30, 2015: Henrico County Government Center, Henrico, VA.
- October 1, 2015: Mountain Empire Community College, Big Stone Gap, VA.
- October 6, 2015: Tidewater Community College, Portsmouth, VA.

In addition, written comment was accepted from August 13 to October 13, 2015.

SUMMARY OF ORAL COMMENT

296 persons attended the listening sessions, with 174 persons offering comment. If a written copy of a statement was provided, a summary of that statement is provided below. Oral comments are summarized in a separate document.

SUMMARY OF WRITTEN COMMENT

1. **COMMENTS**: Donald H. Phillips, Yorktown, VA

TEXT: The sea level rise that Virginia will experience as a result of greenhouse gases that are already in the atmosphere will be devastating. It is essential that we do everything possible to reduce future green house emissions in order to limit even more damaging climate change effects. We should plan on fully meeting and exceeding federal CPP requirements. Apparently, we are already on track to meet the requirements. We need to accelerate the transition to renewable energy sources, a process that will create more jobs in Virginia.

2. **COMMENTER:** Eleanor Maeder, Virgilina, VA

TEXT: I live in Virginia and feel strongly that a renewable form of energy should be made available to all residents as soon as possible. It should be a priority for our leaders to aggressively reduce carbon emissions. Human life on the planet depends on it.

3. **COMMENTER:** 9 emails (see Attachment A)

TEXT: The federal CPP is a tremendous opportunity for the Commonwealth to not only reduce carbon pollution that contributes to climate change but to also improve public health, generate new clean energy jobs and reduce consumers' electricity bills. As you develop a specific plan for Virginia to comply with the CPP, I urge you to include the following components:

- The cheapest and easiest way to reduce carbon pollution is through energy efficiency. Virginia should prioritize significant increases in energy efficiency. As stated in your 2014 Energy Plan, we can realize 38,000 new jobs from energy efficiency by 2030.
- We need a comprehensive transition plan that acknowledges the need for electric baseload and looks at the Life Cycle Analysis of all sources. Biomass generated energy, and the more effective use of combined cycle and thermal energy generation need to be included in any plans. Given the state's renewable resources and already vibrant agricultural sector, the inclusion of biomass sources is both important and critically needed. This method has been proven to be effective in other regions of the US and in Europe, and is particularly well suited to thermal energy requirements. Also, the potential for many additional rural jobs exists with biomass-based energy generation. Please see the work done by the objective environmental think tank Dovetail Partners; there are numerous reports posted on their website to address the intelligent science-based evaluation of a path forward.
- The next best way to reduce carbon pollution is with zero-emission renewable energy (i.e., wind, solar). In 2014 we only had 12 megawatts (MW) of solar power in Virginia compared to 954 MW in North Carolina and 215 MW in Maryland. Virginia has a lot of unrealized potential for renewable energy. Again, this needs to be done in a well planned and considered way, which includes Life Cycle Analysis and investment in storage technologies (which are an excellent R&D topic for our Land Grant Universities.)

- Virginia's plan must result in an actual, true reduction in carbon pollution from the state's energy use. This means a mass-based standard that includes new and existing power plants.
- Virginia's plan must promote the long-term health and economic well-being of all Virginians.
- Ideally, Virginia's Plan should:
 - Count all carbon pollution emissions from new and existing sources of electricity. Cap that amount and then reduce the total pollution emissions.
 - Develop a voluntary mechanism for the trading of these carbon allowances either within the state or across state lines.
 - Ensure that the value of these allowances benefits the people of Virginia by reducing energy bills and re-investing in projects that further reduce the impacts of climate change (i.e., adaptation, mitigation, energy efficiency, etc.). The value of these allowances should not be given to the utilities as profit margin.
- Should the legislature approve a bill making rooftop solar any more difficult to afford than it must be for homeowners, please veto it and propose means like California offers to encourage solar on homes and businesses.
- Reduce energy consumption through behavior change (e.g., fines for vehicles idling more than three minutes except at traffic stops) and conservation measures such as insulation. These cost less and reduce greenhouse gas emissions very effectively. It also can create Virginia jobs.

4. **COMMENTER**: Bill Dougherty, La Crosse, VA

TEXT: My comment regarding the CPP and our existing power plants is simple. Coal power is a very important part of our states economic and social well-being. It is relatively clean and produces affordable energy which is very important to our citizens when the monthly bills come in. I understand the importance of caring for our environment but making coal energy obsolete by regulation will have minimal benefit for global warming concerns and will cause unnecessary financial hardships to citizen consumers. I obviously do not support the CPP when it threatens our state and national economic stability. I read an factual article which sums things up very well and include it for consideration: <http://www.nationalreview.com/article/421992/obamas-latest-executive-action-spend-hundreds-billions-not-help-environment-jillian>.

5. **COMMENTER**: 717 emails plus 307 signatures (see Attachment B)

TEXT: I strongly support Virginia's adoption of a state CPP, and hope you will take full advantage of this opportunity to reduce carbon pollution from coal and gas power plants. The Commonwealth is behind the curve on renewable energy and energy efficiency, and I want to see our state on top. I believe the best way to create clean power and the associated jobs that Virginia lacks, is to:

- Create energy efficiency and solar financing options for homes and businesses;
- Jump-start renewable energy projects by adopting aggressive state targets and

removing policy barriers that are holding the market back; and

- Address carbon pollution emissions from both new and existing power plants.

Please use this clean power planning process as the framework to create win-win solutions for all Virginians that reduce pollution and ensure consumers receive the economic benefits. With a commitment to energy efficiency and renewable power, Virginia families and businesses will waste less energy and keep our electricity affordable and reliable, while ensuring our children have clean air to breathe.

6. **COMMENTER**: Rosealie Lynch, Harrisonburg, VA

TEXT: For Virginia, the choice should be a simple one: to join the Regional Greenhouse Gas Initiative (RGGI). RGGI is a cooperative effort including 9 east coast states from Maine to Maryland that caps carbon emissions from power plants, requiring utilities to purchase carbon allowances for the pollution they emit. By joining RGGI, Virginia would enter a system with a track record of successfully reducing greenhouse gas emissions while at the same time reducing electricity rates. It's a win-win situation that also provides a significant source of income for the state; the sale of pollution allowances will generate an estimated \$200 million a year by 2020. Each year, nearly \$60 million of this money would be allocated to improving energy efficiency across Virginia, helping to lower bills by reducing our demand for electricity. Funds would also be available for investments in climate-related flooding mitigation, renewable energy, and economic and workforce development in southwest Virginia. Major newspapers across the state have editorialized in favor of Virginia joining RGGI: The Richmond Times-Dispatch, the Virginian Pilot, and the Washington Post. And, just recently, the city of Charlottesville passed a resolution in its favor. Joining RGGI would be a great way for Virginia to strive toward climate justice and proactively prepare for the coming effects of climate change.

7. **COMMENTER**: Erica Mitrano Bardwell, Arlington, VA

TEXT: I was heartened to learn that DEQ is soliciting comments about the CPP, and wanted to express my most earnest hope that the Commonwealth will aggressively implement measures to safeguard the local public health while helping stave off, or at least ameliorate, the wider catastrophe of global climate change. It is imperative that we finally take full advantage of this opportunity to reduce carbon pollution from fossil fuels. Powerful corporate constituents like Dominion Energy are likely to push back on attempts to reduce their contamination, but I urge DEQ to stand firm for the good of the citizens it serves. Power companies may say they can't afford to be cleaner, but the rest of us can't afford for them not to.

8. **COMMENTER**: Patrick Chase Milner, Virginia Industrial Hemp Coalition, Harrisonburg, VA

TEXT: Todd Haymore, Virginia Secretary of Agriculture and Forestry stated in this

month's Daily News Record, "We believe in the McAuliffe administration that industrial hemp will be the crop of the future for people to grow it and buy it and add value to it." As I lift up my eyes to our mountains--that have ravaged for years by our coal industry – I often wonder where our energy will come from next. In Kentucky, my home state, hope is growing legally right now atop reclaimed mine sites from the oilseed of one of humanity's oldest and most valuable crops--hemp.

Let me explain why this is critically important to the Virginia CPP. There is a solid body of evidence supporting the use of industrial hemp as a feedstock for energy production. Hemp is the world's champion photosynthesizer, spending its growing season providing oxygen and removing carbon dioxide our atmosphere, converting the sun's energy into biomass with at least four times the output than other conventional bio-fuel crops. The hydrocarbons in hemp can be processed into a wide range of biomass energy sources from fuel pellets to liquid fuels and gas. According to the U.S. Department of Energy, hemp as a biomass fuel producer requires the least specialized growing and processing procedures of all known manufactured hemp products. Studies at the Argonne Laboratories in Chicago estimate utilizing cellulosic ethanol made from plant fibers including hemp has the potential to reduce greenhouse gas emissions by a whopping 85%. Hemp yields approximately 10 tons per acre in 4 months, is drought resistant and produces a heating value of 5000-8000 Btu/per pound.

Environmental benefits also arise in the housing sector using hemp as insulation and as "hempcrete" which has been proven in the United Kingdom to be a "carbon negative" product, thereby additionally reducing fossil fuel use currently used by in our homes, stores, and offices. Hemp "bio-charcoal" has the same heating value as coal, with virtually no sulfur to pollute the atmosphere. Acid rain has devastated the composition of our mountains, rivers, and oceans for decades as a result of burning coal based fossil fuels. A 50% blend of dry hemp hurds mixed with coal will reduce the sulfur emissions of a conventional coal powered plant to 1.56 pounds of sulfur per million BTUs--a reduction of 40% carbon and sulfur emissions.

The Virginia CPP must employ hemp as a feedstock if it really cares about reaching its 30% reduction goals using today's available scrubbing technology. Thanks to the grassroots advocacy efforts this past year of the Virginia Industrial Hemp Coalition, our General Assembly overwhelmingly supported and passed the VA Industrial Hemp Research Act of 2015 (HB1277/SB955), which Governor McAuliffe signed into law this July. Efforts have immediately gotten underway at some of Virginia's leading universities, including here at James Madison University, where researchers are teaming up with private farmers to grow hemp for bio-fuel purposes as soon as DEA permits and seed can safely arrive. At Virginia Tech, students in the Department of Sustainable Biomaterials are beginning to explore the potential for hemp biomass as a "Forest Product Extender" to help meet the demands of our current domestic and international export wood pellet energy resources in southwest Virginia.

With the help of EPA, the private sector, DEQ, DACS, and our Commonwealth's universities, our existing power plants can serve as hubs for integration of agriculture, energy transition into a new, 21st Century Virginia economy that benefits from hemp biomass conversion. Currently the U.S. government is spending billions of dollars subsidizing the corn, soy and fossil fuel industries to produce more crops to turn into fuel. We need a CPP that is bio-regionally focused and allows for subsidies to include industrial hemp as a feedstock for future biomass. The energy sector must continuously adapt and use viable technologies that are best for Virginia.

To stimulate the hemp economy, I recommend that the Virginia CPP take the following actions immediately:

- Prioritize and promote, as a matter of urgency, applied research and development in the form of integrated hemp biomass energy demonstration projects across the Commonwealth's public universities, and develop expertise in new energy production and manufacturing processes
- Provide economic incentives and new specialty crop grant resources specifically for hemp that will help attract new businesses to the region for biomass production, production of fuels, chemicals, and materials from industrial hemp
- Accelerate the re-development of hemp farming across the Old Dominion through creating Cooperative Ag-Tech Extension services for the translation of science and engineering to practice.
- Support the formation of a regional private-public consortium to create a Roadmap for Hemp-Based Manufacturing and Energy Production in Rural Virginia and Central Appalachia, to serve as a clear path for federal policy makers and funding agencies such as the Departments of Energy (DOE) and Agriculture (USDA) to follow.
- Congress must hear support for the federal Industrial Hemp Farming Act of 2015 (HR525/SB134) so that all U.S. farms can take part in the free market hemp industry.

When we fully legalize industrial hemp, our air would be cleaner, the oceans would be less acidic, acid rain would be reduced, and hemp plants grown for the production of the fuel would remove tons of global warming gasses from the atmosphere, emit oxygen, while improving the soils as well.

9. **COMMENTER**: Christine DeMars, Mount Crawford, VA

TEXT: I hope that the Virginia plan will include requirements for power companies to produce growing percentages of power from renewable sources each year, with a market for renewable energy credits (following the example of states such as Pennsylvania). On a related note, I was surprised/disappointed to get a notice from Dominion Power that future solar purchasers (grid-tied systems) would be limited to projected production equal to the prior 12-month consumption. Given that the energy credits expire after one year, I am not sure what the energy company gains by this. If the previous winter was unusually mild, it seems reasonable to purchase a system predicted to generate about 20-30% more to allow for a harsh winter. Or if the previous

winter was fairly average, an additional 10% might be desired for future harsh winters. Also, this means that if a homeowner's needs expand, he or she will have to wait a full year before expanding the system (or if someone with a larger household buys the home, the system will likely not meet the new household's needs). I have already installed my solar system, so this regulation does not impact me, but I would like to get it changed for the sake of others.

10. **COMMENTS**: Chris Meadows, Covington, VA

TEXT: I am concerned at the exorbitant cost involved in going green. I have an idea, rather than legislate change, why not come up with a really good product that makes economic sense. Have a contest for individuals to submit plans for advancing innovation in green energy? Most innovation has come from private individuals in the past. Thomas Edison was a great inventor and successful, not because his products received government incentives, but because he had great products. The idea of green energy is good, but the products just don't match expectation.

11. **COMMENTS**: Doug Hendren, Harrisonburg, VA

TEXT: What do fossil fuels really cost Virginians? Climate change is indisputable, brutal and urgent. It is now common to hear that each month or year is "the hottest on record." Historically unprecedented storms, drought, floods and wildfires from climate disruption already cost American taxpayers in the \$100-200 billion range every year. Sea level rise threatens Hampton Roads, and protecting this vital and historical area will be very costly to Virginians in particular.

What other hidden costs are we now paying because of our reliance on fossil fuels? Hidden health care costs: A Harvard Medical School study has determined that burning coal costs American taxpayers \$500 billion annually, primarily due to cardiopulmonary disease from air pollution. That's \$1,667 per American per year. Richmond has been named the "Asthma Capital of the United States". Clearly, Virginia will greatly benefit from clean power. Fossil fuel subsidies: The International Monetary fund recently calculated global subsidies for the fossil fuel industry at \$5.3 trillion annually, or \$10 million per minute. In 2015, this amount was 6.5% of the global GDP. The U.S. share is about \$650 billion per year, or \$2,167 per American annually. Environmental costs: Thomas Jefferson considered his native Virginia the most beautiful place in the world. He might not think so today. In recent years, we have suffered oil train spills, coal ash river pollution and gas pipeline explosions. Three additional gas pipelines are proposed; these will further desecrate national forests and impose further risks on the populace. The hidden costs are fossil fuels are difficult to calculate, but exceedingly high.

What does Virginia stand to gain from clean power?

- Restoration and preservation of Virginia's natural beauty, which is priceless.
- Improved health and reduced healthcare costs.

- A more resilient and vigorous economy, including: lean energy initiatives based on solar, wind, and gains in efficiency. Labor-intensive, clean energy providing good jobs in abundance. Clean energy jobs cannot be outsourced, but remain in Virginia. Displaced coal industry workers should be given preference for clean-industry jobs.

What can Virginia do today?

- Vigorously embrace the CPP as a starting point.
- Join RGGI.
- Adopt solar-friendly legislation immediately, including unlimited net metering and support for solar co-ops throughout Virginia.
- Break the stranglehold that Dominion Virginia Power has over "green" legislation in the Virginia assembly. In particular, if Dominion fails to develop its offshore wind leases, reassign those leases to companies that will develop.

How do we know clean power initiatives work? Look at North Carolina's record. With joint public-private input, since 2007 NC has crafted solar-friendly legislation to bring tens of thousands of jobs and billions of dollars of investment into the state. Virginia can do the same. Green initiatives have NOT raised electrical rates in North Carolina, where retail electricity cost is nearly identical to that in Virginia.

We have heard false warnings that clean energy is expensive and unreliable. On the contrary, the lowest prices for electricity are now coming from solar and wind sources. An Austin, Texas utility recently received bids to provide electricity at 5, 7, 10 and 13 cents per kWh from wind, gas, coal and nuclear, respectively. Commercial solar is as cheap as gas in Colorado, which has the lowest gas prices in the U.S. According to the U.S. Department of Energy, the cheapest electricity in the United States is currently wind energy, at 2.5 cents per kWh. And reliability? Europe has discovered that renewable energy actually improves grid reliability.

It is time for Virginians to embrace the future: for our families, our health, and our economy. Currently we lag behind other states and the rest of the industrial world, largely due to the unwarranted influence of fossil fuel interests in the Virginia legislature. It is time for bold, visionary leadership that embraces the CPP and moves us far beyond that toward independence from fossil fuels.

12. **COMMENTER**: 25 emails (see Attachment C)

TEXT: I support EPA's CPP and urge Virginia's officials to write, adopt, and implement the strongest state implementation plan possible. Carbon pollution is a threat to the health of all Virginians. Carbon emissions from power plants and other sources fuel climate change, and hotter temperatures mean a higher risk of experiencing unhealthy levels of ozone and particle pollution in the air that we breathe. Unsafe levels of these pollutants are dangerous for anyone who enjoys outdoor activity, but especially to the health of those already vulnerable: Virginia's 1.8 million young children, 1.1 million older

adults, and individuals with chronic illnesses such as asthma, COPD, or cardiovascular disease. That's why I'm calling on you to ensure that Virginia has a strong state plan that protects their health. By cutting our carbon emissions Virginia will be doing its part to prevent 3,600 premature deaths, 1,700 heart attacks, 90,000 asthma attacks, and 300,000 missed days of school and work nationwide each year as estimated by EPA. Some of those saved lives will be those of our friends, loved ones, and neighbors and we owe it to them to take action on carbon pollution and climate change now.

13. **COMMENTS**: Rebecca Esch

TEXT: What we do know is that climate change is the single most significant issue of our time and that it affects every person, every country, and every aspect of our lives. Thus, it is imperative that each of us - individual, state, industry, country, etc. - act immediately to address this issue. With respect to the CPP, we must act swiftly and effectively to cut carbon emissions at all existing power plants in Virginia that generate electricity from fossil fuels. The most effective way to do this would be to use carbon pricing as a means to cut our emissions. Climate scientists and economists agree that carbon fee and dividend is the best way to take a serious and effective first step in reducing the possibility of catastrophic climate change. Please follow this link to read more about this proposal: <http://citizensclimatelobby.org/remi-report/>. I do hope Virginia will take the lead in acting to cut carbon emissions quickly and significantly - and that we will be able to preserve our planet for our children and grandchildren.

14. **COMMENTS**: Mark E. Hanson, Fincastle, VA

TEXT: I'm president of the Renewable Energy and Electric Vehicle Association (www.REEVAdiy.org), a community service club that installs for free solar panels (mostly) and wind turbines for folks who buy the equipment. I have a Net Zero solar home (Jimmy Carter's solar home plans) 9.9kw of grid tie and a Bergey XL-1 wind turbine with a Geothermal Water Furnace and charge my electric car www.evalbum.com/4346 with the solar panels. With our club I have run into solar opposition from the power companies while they cleverly try to throw monkey wrenches into grid tie solar, recently PUE-2015-00057 requiring a solar system sized for 12 months of prior electric usage which screws new home owners and others that may use more like adding an EV to charge. Also there's a bill PUE-2015-00040 for larger customers requiring that they don't own their panels but go through a different buy-sell rate in favor of AEP. We really need a mandatory RPS (Renewable Portfolio Standard) that would stop most of this nonsense and get Virginia on a path to progressive solar and wind installations. I could go on but in a nutshell doing this one act would be the most effective in getting utilities on board with RE and bringing SREC's to Virginia as surrounding states have (see www.sretrade.com) like stock shares with willing buyers/sellers promoting residential etc. solar and wind use.

I take exception to an anti-wind speaker who wanted to change the utility scale wind

ordinance in favor of killing wind power in Virginia using junk science. He said that the sound limit should be 38dBa which is the background level for 20mph wind through the trees. We chose 60dBa since this is the current noise levels used (Roanoke County etc.) for all noise producing devices and similar to national wind ordinances that are accepted. He went on about being allergic to infrasound. I went to Beach Ridge W-VA during the utility scale wind ordinance development for Roanoke County and measured infrasound 5-20 hertz. In a report (similar to NREL and DOE data) there's more low frequency sound (about 60dBa from tire rotation) in our 2010 quiet Prius driving up there than was measured (just background) at the 1200' typical wind turbine set-back requirements. Also at the beach 50' from the ocean waves it's about 80dBa so if folks are allergic to infrasound they can't drive in cars or go to the beach. NIMBYs who don't like the looks of them make up stuff (or grab anti-wind myths from the net) and present at public hearings, like birds/bats when cats kill 900 million per year and wind is a fraction at .003% of manmade/feline deaths per DOE data. The wind pushback is less if surrounding neighbors feel like they're getting something out of it, basically money/reduced rates, then they're more inclined to buy into it. We also need a permit by right for utility scale wind since >2300' and 10-12 mph average wind speed is along the ridgetops in Virginia. The popularity contest method (public hearings) has resulted in most counties ignoring the DEQ utility scale wind ordinance and putting in 40' tower height restrictions aimed at wind. Other pro-wind states like Colorado, California, Iowa and Texas have a more streamlined process. As a Roanoke Count BOS said, "if you have a public hearing on a flower bed they'll be folks who stand and say it's bad for this or that." So a different mechanism (permit by right) should be implemented just like when any building or structure is built, just meet the required permitting process. Also wind produces 27% more jobs per kWh than coal – without pollutants and black lung disease (at comparable 6c per kWh) and 60% more than natural gas per DOE data.

Please implement a mandatory RPS, i.e.; 20% by 2020 of renewable energy. Nearby Maryland with Solar City and Standard Solar etc. has brought in 1000s of jobs with their mandatory RPS.

15. **COMMENTER:** Mark Laity-Snyder

TEXT: I support the CPP as we as a country and as a state cannot transition to energy efficiency and renewable energy fast enough. Transitioning to methane is also a poor choice as methane is 84 times more potent than CO₂ when released into the atmosphere. We need to start by cutting back on the energy we use. The state can incentivize energy efficiency and save the 30% energy required by the CPP just by doing energy efficiency alone. In my work as a building commissioning professional, I have seen instances where a building is simultaneously heating and cooling often. A hot water valve gets stuck open and the chilled water valve opens and a unit is suddenly working twice as hard. Another easy way to save energy is to adjust schedules so buildings are not heating and cooling in the dead of night when no one is around. Buildings can be made much more energy efficient through insulation and

sealing the building envelope to the point where there is very little energy used - as little as 10% of a similar building. My sister is building a zero energy house in Michigan, a state that gets much less solar energy than we do. I was helping her in December and it was 10-20° outside and she had the strip heaters set to 55° and during the day it was 70° and she didn't even have sealed doors on the structure.

The way to create jobs is not through methane production through fracking but to insulate and seal our buildings and make them smarter through energy efficiency efforts. Virginia should first prioritize significant increases in energy efficiency. We can then reduce carbon pollution by prioritizing zero-emission renewable energy (i.e., wind, solar). Solar will soon become cheaper than natural gas and it will also produce more jobs than natural gas. In 2014, Virginia had only 12 MW of solar power – we rank 30th among states. Our neighbors are doing much better: North Carolina ranked fourth in 2014 with 954 MW of solar power, and Maryland ranked 14th with 215 MW. We have an opportunity to become a clean energy leader.

Virginia's plan must promote the long-term health and economic well-being of all Virginians as well as those in West Virginia where the methane is fracked from the ground. This involves a moratorium on fracking and new oil and gas infrastructure such as the Mountain Valley Pipeline.

16. **COMMENTER**: Jeff Marion, Blacksburg, VA

TEXT: I urge you to adopt a strong CPP for Virginia that includes an emphasis on financing to greatly improve energy efficiency in the workplace and the home. It should also create financing options that substantially expand the use of renewable energy and cut the use of coal and oil in existing and new plants.

17. **COMMENTER**: Katherine Hoffman, Charlottesville, VA

TEXT: Virginia needs to adopt a state CPP now so Virginians' future will have clean air and water. Now is the time to take the opportunity to reduce carbon pollution from coal and gas power plants. Virginia needs to do and catch up on energy efficiency and renewable energy, not later, to protect our economy and our health. We will create jobs and build business reaching for these goals and implementing a clean energy plan. We will clean up policy, create incentives, cut new and old power plants and pollution, and the result will be clean power for all Virginians. I support making the commitment to energy efficiency and renewable power and clean up in the state's new energy plan for our better future.

18. **COMMENTER**: Thomas Crockett, Gloucester, VA

TEXT: I strongly support Virginia's adoption of a state CPP, and hope you will take full advantage of this opportunity to reduce carbon pollution from coal and gas power

plants. The Commonwealth is lagging badly on renewable energy in comparison with most other states in the region, and this is having a negative impact not only on the environment, but also on job creation and economic competitiveness. In particular, Virginia's current regulatory scheme is rather hostile to rooftop solar in residential settings, although many of our citizens would like to deploy solar on their own homes. The new "100% of prior annual usage" limit on system sizes for net metered solar installations is ill-conceived and fails to account for many circumstances in which the previous year's electrical usage may not be representative of typical or future consumption. The standby charge is also misguided, and fails to account for the substantial benefit that utilities derive from having power fed back into the grid during periods of peak demand (e.g., hot summer afternoons).

Virginia also needs a mandatory renewable portfolio standard (RPS) for our utility companies which are, after all, state-sanctioned monopolies. This should be accompanied by a robust SREC market, which has proven to be wildly successful in other states as a way of encouraging the deployment of solar electric generation. Our legal and regulatory framework should incorporate what is in the best interest of the public rather than what is in the best interest of corporations. Supreme Court rulings notwithstanding, corporations are not people and the interests of the two should not be conflated.

Virginia's continued reliance on coal, gas, and nuclear power guarantees continued environmental degradation and harm to public health and safety. We have an obligation to ourselves and to future generations to reverse course and adopt proven, sustainable technologies such as wind and solar to provide the basis for the Commonwealth's energy economy in the 21st century.

19. **COMMENTER**: Louise Wallace

TEXT: We owe it to all creatures of the world and to ourselves to have clean air, water, and land. We have avoided the consequences of our dirty energy policy far too long. Solar energy could stop global warming and prevent the extinction of many species. Tax credits to private citizens and businesses would make it affordable and speed up the process. Wind energy should not be encouraged due to the death of hundreds of thousands of birds and bats. Geo-thermal energy where appropriate would help clean the air as well.

20. **COMMENTER**: Heather Lantz, Harrisonburg, VA

TEXT: This past summer, my niece Peyton, who is six, started becoming concerned about this thing she's heard about called climate change. She understands that we need rainfall and a certain temperature for the squash and tomatoes in her garden to grow, that a rising ocean could destroy our favorite beaches, and that people can lose their homes and pets in disasters like floods and hurricanes. So then what do I say

when Peyton asks, "So how can we fix climate change?" Because six-year-olds have a natural desire to find solutions to our problems. Sure, we've talked about turning off our lights, eating food that's grown locally, and walking and riding our bike instead of driving. But if I'm going to be honest with Peyton, I know that these things alone won't "fix climate change." I see Virginia's CPP as a piece of the action that is needed, and I believe that we need to make it as strong as possible. Virginia has been given a clear opportunity to limit some of the impacts of climate change and reduce our amount of carbon pollution. I want a plan that prioritizes increasing energy efficiency in homes and offices. Virginia needs a plan that will maximize it's potential for clean renewable energy, like wind and solar. It is time for Virginia to catch up to its neighbors like Maryland and North Carolina in its development of solar energy, which will also have a positive impact on job growth. I want to see Virginia create a strong CPP that puts our children and their future first. We have a moral obligation to do so.

21. **COMMENTER**: Sally Tucker, Batesville, VA

TEXT: I have solar panels on my house, as I am trying to be part of the solution to global warming and energy self- sufficiency. I am now hearing that I will most probably be penalized by the power company for doing this. This is ridiculous. We need to get the power companies on board with what is going on in the world. They are not taking the initiative with this, so it looks like they will need to be forced to do it. Please encourage more solar in Virginia, as our neighbors north and south of us have outdone us on this already.

22. **COMMENTER**: Karen Fedorov, Bealeton, VA

TEXT: Our family had solar panels put on our home...adding more 3 more times. It was a big expense, but worth it to be "part of the solution, not part of the problem" of climate change. We were helped by the federal tax credits, but got no support from the state of Virginia. This needs to change so more Virginians can become "clean energy" citizens. Other states have had push-back against solar energy, even going so far to call solar panel homeowners "freeloaders." This sort of behavior by energy companies must not be allowed to happen in Virginia. The big energy companies must start investing in clean energy themselves. Perhaps they need a Virginia state tax credit to do so.

23. **COMMENTER**: Kiquanda Baker, Norfolk, VA

TEXT: With a commitment to energy efficiency and renewable power, Virginia families and businesses will waste less energy and keep our electricity affordable and reliable, while ensuring our children have clean air to breathe. Also adopting a CPP is the morally conscious thing to do as the rest of the world has been working to protect our environment. It's not just about protecting the environment but also saving the human race in the long term. If you would rather take money from the big power companies

and listen to the lies of the lobbyists rather than the cry of the people, then I would rather not live in Virginia anymore. Hopefully I won't have to pack my bags.

24. **COMMENTER**: Mark Howard, Fincastle, VA

TEXT: Bring about and mandate a renewable energy standard to replace our failed "voluntary" program. Twenty-nine states require renewable energy in their utilities generation mix and at a much greater percentage than what AEP and Dominion propose. Reject Appalachian Power PPA plan as it is designed for failure and will slow and limit solar deployment in Virginia--our ratepayers, higher education or business concerns should not be penalized for investing in clean solar energy.

25. **COMMENTER**: Larry Korte, Churchville VA

TEXT: My house is built to Energy Star compliance for energy efficiency with a ground-loop geothermal heating and cooling system. People usually raise their eyebrow when they hear this and have no idea what I am talking about. This is a shame when the most cost effective way to heat and cool our homes and businesses is to save energy. When I tell them our combined heating and cooling bill is about \$350 each year, I'm sure they don't believe me. We're all electric. Do not build more generation; rather emphasize energy savings with a focus on state buildings, then commercial and homeowners. In addition, 4 years ago I decided to add solar electric and solar thermal panels. The purchase and installation was the easy part. The paperwork and reading lengthy net metering contracts required by Dominion Power was crazy without a lawyer. I signed one contract and refused the other. I regularly receive updated contracts with changes from Dominion Power without my permission on a regular basis. I sell my clean energy credits to Pennsylvania or the highest bidder through a brokerage firm. Unlike our neighboring states, Virginia does not participate in the clean energy credit market with a Renewable Portfolio Standard, so we have to beg from other states.

Virginia is rated near the bottom on most solar-friendly surveys. It's embarrassing and I would think a challenge for many businesses trying to attract new employers and employees. Most high tech businesses use solar and wind energy as a feather in their cap for marketing purposes. Too bad Virginia is at odds against their marketing. Walmart has one of the higher solar installations in the US but I have not seen many on Virginia Walmart stores. It's also a shame when friends tell of cease and desist orders for their church and university solar projects from their utility company. Solar and wind provide significant long-lasting jobs and revenue.

My second request is to encourage solar and wind projects in Virginia instead of discouraging these projects.

- Join our neighboring states with a Renewable Portfolio Standard and provide SRECs to the market.
- Allow solar leasing programs like many other states. There is no cost to the state

and free solar for customers.

- Provide solar tax credits and rebates.
- Allow and encourage community solar projects.
- Demand off-shore wind generation instead of locking it up to prevent competition.

If we change to methane gas generation, we just shift the pollution to other states dealing with escaping methane from fracking wells and polluted ground-water. That's not sustainable. Let's join neighboring states in the carbon trade system. New generation stations and feeder pipelines have detrimental consequences. My energy efficiency and solar does not, except for fossil fuel company profits versus solar and energy efficiency company profits. When a gentleman stated his methane gas bill for heating at a recent FERC scoping meeting, I was shocked how high it was.

26. **COMMENTER**: Dennis Atwood, Maurertown, VA

TEXT: Consider the mission of DEQ: "DEQ protects and enhances Virginia's environment, and promotes the health and well-being of the citizens of the Commonwealth."

- DEQ cannot fulfill its mission over the next 15 years by merely adopting the goals established in the EPA CPP.
- As dire as were most scientifically-agreed anthropogenic global warming climate change impact assessments done just a few years ago, nearly weekly there are reports that the negative impacts are even greater and happening more rapidly than initially assessed, in particular with respect to polar and high-altitude ice melting, sea level rise, deep ocean temperature increase, and global surface air temperature increases.
- The EPA CPP is deficient, because it allows an over-reliance on natural gas - a greenhouse gas - and the currently proposed large-scale pipeline projects in Virginia will introduce huge additional amounts of natural gas as well as cause significant damage during construction, and spill risk during operation, to fragile and high-value physical environment, including mountain forests, streams, wild and rustic recreational areas, and farms. On the basis of greenhouse gas emissions and damage to the physical environment, approval of these pipeline projects would represent a failure in environmental protection.
- It is crucial to set goals and implement approaches that more rapidly phase out the use of fossil fuels and to accelerate the adoption an increasing percentage of renewable energy.
- There is an easy and effective action by which much of this can be achieved - that is by joining RGGI. Since 2008, RGGI member states have reduced GHG emissions by 31% and, in 2012-2014 realized a total of \$1.3 billion in net present economic value

I urge DEQ to get off the floor set by EPA's CPP, join RGGI and incorporate much more renewable energy, especially solar and wind in Virginia's CPP.

27. **COMMENTER**: Sarah Bucci, Environment Virginia, Richmond, VA

TEXT: Environment Virginia strongly supports EPA's CPP. The CPP provides a huge opportunity and framework for Virginia to get serious about tackling our own global warming emissions and promoting clean energy and energy efficiency resources. I want to thank Governor McAuliffe for saying that he is a huge advocate for the plan and pledged to ensure that Virginia meets its CPP goals. But, I'd ask that you go further. Virginia is not yet a leader in solar, wind and energy efficiency and so there is much low-hanging fruit we can accomplish to go above and behind the minimum requirement by EPA that will grow the clean energy sector, diversity our economy, save consumers money through efficiency and protect public health.

Solar energy is booming - in just the last three years, U.S. solar photovoltaic capacity tripled. In 2014, a third of U.S. new installed electric capacity came from solar power. But, America's solar revolution is being led by a small number of states that are having the greatest amount of solar energy capacity installed per capita, and Virginia is not yet on the leader board. We're certainly making progress and our state's CPP can help move the ball further.

Earlier this month, Environment Virginia's Research and Policy Center released a new report called "Lighting the Way." The report ranks states based on their total solar capacity and looks at that policies in place in the states leading the way. In 2014, Virginia ranked 30th in the nation for solar PV capacity, with 12 MW of cumulative solar electricity capacity. Compare that to North Carolina, ranked 4th in the nation with 954 MW. Or with the District of Columbia, which is ranked at 31, just behind Virginia, with 10 MW of solar capacity. Just on our heels, DC, just over 60 square miles, is less than 1% of the land area as Virginia. We can do better. And EPA's plan is set up to reward early action. I encourage the DEQ and McAuliffe administration to investigate how Virginia can take advantage of the parts of the plan that will give us extra credit for early action in renewable energy and energy efficiency.

Lastly, as a state with an enormous amount to lose if we do not take action to tackle climate change, we must do our part to curb our own carbon emissions, to protect public health of our citizens and to set an example.

28. **COMMENTER:** Jonathan Lantz-Trissel, Harrisonburg VA

TEXT: I ask Governor McAuliffe and his administration to put forward a strong CPP that goes beyond the minimums required by EPA. I am a sustainability professional working daily on greenhouse gas mitigation at Eastern Mennonite University, and while I do not speak for the university, my work tracking and reducing greenhouse gas emissions will be greatly impacted by Virginia's CPP. EMU and 15 other private and public colleges and universities in Virginia have pledged to reach climate neutrality by no later than 2050. Our facilities and financing departments are working hard to meet and exceed these goals. At the same time higher education is, of course, educating students, and

undergraduate students coming in the doors are concerned about climate change. An aggressive CPP will help the higher education sector stay competitive in attracting these young students as states around us currently have outpaced Virginia in promoting clean energy generation and research. The jobs in clean energy are growing and Virginia's CPP will create opportunities for our colleges and universities to research and deploy clean energy projects that will in turn help the state meet its CPP goals. At EMU we have found substantial financial benefits in our efforts to reduce energy use and bring onsite solar electricity generation to our campus. By this time next year the university will be generating 10-12% of our electrical consumption through on-site solar, at a cost savings to the university and to our local municipal utility, in part through peak demand generation according to a recently published report researched by our students. For the health and financial wellbeing of our Commonwealth, Virginia needs a strong CPP.

29. **COMMENTS:** Ralph Grove, Harrisonburg VA

TEXT: I believe it is imperative that Virginia implement a strong and proactive climate protection plan for the Commonwealth. We need a strong plan for three reasons:

1. Climate change is a serious threat to our society. All around the world, humans and other species are suffering the impact of climate change and the effects are becoming more severe. Melting Arctic ice threatens both the species who live there and the native North Americans who depend on them for survival. Melting glaciers threaten water supplies for people throughout the Americas. Many areas, including the American west, are threatened with drought and increased fire risks. Coastal communities, including our own on the east coast of Virginia are threatened with flooding due to rising sea levels. All of these effects are real, they are happening now, and they will only get worse.
2. The new energy economy is now developing and will be at the core of economic success in decades to come. Germany, Japan, China, and other far-sighted countries are developing the infrastructure to produce and to use sustainable energy from wind, solar, and biomass sources. Virginia and the U.S. will be left in the economic dust if we don't make efforts to become leaders in the new energy economy, rather than continuing our addiction to obsolete dirty fuels. Reducing carbon pollution and moving toward sustainable energy will save money, create jobs, and strengthen our economy.
3. We have a moral obligation to leave the world in a livable state for generations to come. We have been spoiling the Earth and polluting the air, water, and land for a century. What kind of world do we want our children and their children to inherit? One in which the air is unbreathable and the land has turned to dust because of climate pollution, or one that is green, enjoyable and prosperous because of a shift to sustainable practices?

I urge you to plan for a climate protection plan that will produce an actual reduction in carbon pollution from Virginia sources, rather than just the illusion of change. The best way to reduce carbon emissions is obviously energy efficiency. We can make our buildings, transportation systems, manufacturing, and agriculture all much more energy

efficient, reducing both costs and carbon pollution. We should also increase investments in renewable energy and demand that Virginia's utilities increase their use of wind and solar energy production. We should consider joining RGGI, and beyond that, implementing a carbon tax to put a price on carbon emissions so that market forces can be used to produce positive change, and so that polluters pay a fair price for the harmful impacts of emissions. Finally, the economic benefits of these changes must come back to the people in reduced energy costs and an improved environment, and not become more excess profits for utility companies.

30. **COMMENTER**: David Rampy, Stanley, VA

TEXT: Now is the time for Governor McAuliffe and his administration to act forcefully and decisively to implement and use all the provisions outlined in EPA's CPP. Now is the time for Virginia to embrace the CPP and by doing so lower our carbon emissions by reducing our dependence on fossil fuels and generate much needed resources for Virginia communities to help them transition from fossil fuels to alternative energy sources and greater energy efficiency. The continuing emission of CO₂ into the atmosphere is a primary cause in climate disruption and change. Rising temperatures and rising sea levels along coastal Virginia is an indisputable problem. This problem will not only affect people's lives but cause immense economic strain in adapting, rebuilding and possibly relocation. Because of the huge military presence in Virginia the sea level rise caused by climate change will also directly affects national security.

Virginia's response to EPA's CPP must be visionary in the use and development of solar and wind energy. We cannot be locked into years of dependence on natural gas, a fossil fuel that while cleaner than coal, emits huge amounts of the methane gas that rapidly increases the greenhouse effect in climate warming. The proposed gas pipelines and new gas power plants are the wrong choices for Virginia. DEQ must choose clean and renewable energy and energy efficiency over natural gas. We must use this opportunity to invest in renewable, alternative energy sources. Wind and solar are mature technologies that are getting cheaper every day. By investing in these alternative energy sources Virginia can create tens of thousands of new and sustainable jobs. Governor McAuliffe has estimated that nearly 40,000 energy efficiency jobs can be created here in Virginia. Additionally 10,000 offshore wind jobs are at our fingertips. And over 14,000 jobs focused on solar power generation can be created in Virginia. We can become a clean energy leader.

While these jobs are being created other jobs are being lost. During this time of social and economic transition, Virginia must provide community assistance in economic re-development, education, and retraining. We must always remember that Virginia takes care of its own.

All my life I have felt a strong sense of being with Nature. From the moment my bare feet felt the cool green grass. Swimming and fishing in the creeks and rivers of Kansas,

hiking the arroyos of New Mexico and now on the Mountains and in the forests of Virginia. I sense a change in the wind of Nature. I'm seeing different invasive plants and plant disease; new bugs, beetles, and insects that are invading our homes and eating our vegetation. There is no one cause, there are many. But we the human race are a primary factor by using fossil fuels that emit CO₂, other greenhouse gases and health damaging pollutants which degrade our health and the environment. We have a moral obligation not only to ourselves but to our children and grandchildren to tackle the issues of climate change. The first six months of this year was the hottest year on record. July 2015 was the hottest single month ever. We have a clear opportunity to limit the impacts of climate change and reduce significant amounts of CO₂ and other pollutants here in Virginia. We must develop a strong CPP for Virginia.

31. **COMMENTER**: Dave Pruett, Harrisonburg, VA

TEXT: In 2008, my family and I traveled to Germany for two weeks. On a 2-hour train trip from Stuttgart to Munich, we were amazed to see the south-facing roofs of every structure of every hamlet along the route covered in solar panels. When we asked our German friends "why," they informed us that the German government was heavily subsidizing residential photovoltaic as part of its national strategy to transition from fossil fuels to renewables. That effort has paid off royally. On a sunny day in 2014, residential PV panels generated more than half of Germany's total electrical needs. I need not remind you that Germany is a heavily industrialized country. On average, solar now contributes 22% of Germany's electrical needs, which is quite remarkable considering that Germany's mean latitude is on a par with Montreal.

America lags far behind, and Virginia lags behind much of America. Vermont, for example, I've read, is now fossil free. That said, exciting things are happening in Virginia, thanks to grass-roots organizations such as VA SUN, which has sponsored some 30 solar co-ops in the state. In particular, VA SUN helped initiate Solarize Harrisonburg. Within one year of the inaugural meeting in April 2014, 68 households in the Harrisonburg area had installed solar PV. Ours was one of those households. Since Feb. 4, when our panels were installed, we have generated nearly 4MWH of electricity, about 90% of our family's electrical needs. We will recoup our investment in 7-8 years. The estimated lifespan of the system is 25-30 years. The Solarize initiative was so successful it has spawned Solarize Harrisonburg II, which has been renamed Massanutten Regional Solar Coop because of its expanded reach.

Solar co-ops are a win-win-win-win situation. Solar PV generates good jobs for VA far more than coalmines or gas pipelines. Households save money over the long run. Air quality and water quality improve when energy generation is clean. And, most of all, renewables start to heal the damage we have done to our climate so that our children and grandchildren have a fighting chance.

I encourage DEQ to do everything in its power to encourage energy efficiency and to foster a rapid transition from dirty fossil fuels to clean energy, especially solar and wind

32. **COMMENTER**: Matt Ruscio, Secure Futures LLC

TEXT: One of the tremendous opportunities we have to create a more dynamic Virginia economy and power our state using renewable energy is with the EPA CPP. Today, Virginia is nearly 80% to meeting its proposed CPP target. With investments in renewable energy and energy efficiency, Virginia will meet its CPP mark, while spurring job growth, attracting and retaining businesses, and protecting our local economies. Solar energy is the fastest growing industry in the U.S. In 2014, the solar industry created 1 in every 78 new jobs, while the industry poured a combined \$873 million of capital investment into our neighboring states of Maryland and North Carolina. The solar industry represents a pillar for these state's economies, while Virginia's 2014 solar investment experience was less than \$15 million. Understanding the CPP as an opportunity to spur economic growth in Virginia will result in a projected 14,000 solar jobs in the Commonwealth, and new capital investment.

Renewable energy investments will also attract new businesses to Virginia, by providing innovative avenues to install and use solar energy. The recent announcement by Amazon regarding an 80 MW solar project in Accomack County is an example of such. Other companies such as General Mills, eBay and Staples are corporate leaders signing on in support of the CPP. By complying with the CPP, Virginia is saying yes to business and opening the doors for new companies to relocate to Virginia.

Most importantly, compliance with the CPP is investing in our Commonwealth's future. The Hampton Roads region represents the second most vulnerable region to sea level rise, the economic impact of which may range between \$12-\$87 billion. Virginia's CPP target is achievable with investments in renewable energy and energy efficiency. These investments will protect our current economic pillars, while embracing clean energy and supporting the development of Virginia's new dynamic economy.

33. **COMMENTER**: Jeff Nicholson, Sigora Solar, Waynesboro, VA

TEXT: Our government is tasked with how to respond to the CPP and how to respond to the threat of climate change, which is the biggest challenge of our age. The only question is how. Renewables provide a reliable fixed-price energy source that can put Virginia ahead of its neighbors. Right now 1,088 MW of solar generation are installed in North Carolina. 275 MW are installed in Maryland. Virginia can only boast 14 MW of solar. As a consequence, our state's solar job creation numbers are far behind those of our neighbors. While solar is quickly becoming one of the least expensive means of generating power, it is also the most labor-intensive generation to install. This fact means that we can put more Virginians to work while saving money and saving the planet. The final rule acknowledges both utility-scale and distributed (residential and

commercial) solar as means to compliance. Incentivizing all solar sectors in Virginia would create many more companies like Sigora, and a wealth of supply and support businesses as well. I feel very fortunate to be a part of the solar industry. I've watched our company grow from 3 to 35 people in the course of 4 years. Prioritizing renewables in Virginia's plan would replicate our success story many times over. However we cannot afford to wait until 2022 to comply. Seven more years is too long to wait to deploy solar in a big way. Not only should Virginia utilize renewable energy as a means to achieving compliance; we should proactively claim the "early bird bonus" emission rate credits available through the plan's Clean Energy Incentive Program by building our renewable capacity as soon as possible. The sun shines brightly on Virginia and you have the opportunity before you to turn that sunlight into clean power and rewarding jobs for our state.

34. **COMMENTER**: Leslie Grady Jr., Rockingham County, VA

TEXT: After my retirement I became concerned about climate change and decided to educate myself on the subject. Since that time I have studied textbooks, articles in scientific journals, and popular books about climate change. My studies have convinced me that climate change is real and is being driven by our emissions of CO₂ and other greenhouse gases. Furthermore, I have come to realize that the IPCC reports paint a more optimistic picture of the future than is justified by climate science. This is particularly true for projections of sea level rise. In addition, it is becoming clear that a temperature increase of 2°C is not a safe target and that we must work diligently to decrease our greenhouse gas emissions to zero as rapidly as possible.

Given the modest goals of the CPP, it is apparent that it is inadequate to meet our needs. While I would prefer a nation-wide carbon fee and dividend, because the CPP is currently the only game in town, we must embrace it and make Virginia's response to it as strong as possible, exceeding our mandated reductions wherever possible. Our plan must prioritize the development of carbon-free electricity. Virginia lags far behind our neighbors in the installation of solar generation, both residential and industrial scale. With the proper incentives, we can do much better. We have significant potential for off-shore wind energy. Dominion won the right to develop off-shore wind and they should be required to move forward as rapidly as possible, taking full advantage of all that has been learned in Europe. Where necessary, appropriate incentives should be provided to reduce the risks associated with off-shore wind to speed-up its deployment.

Households of low and moderate income must be protected from increased costs associated with the shift to carbon-free energy. Since many live in older homes with poor energy efficiency, generous programs should be developed to retrofit homes, both owner occupied and rented, to bring them to a higher standard, thereby decreasing their energy use. Finally, similar programs should be developed for helping the small business community adapt to the need to use less energy.

35. **COMMENTER:** Joy Loving, Grottoes VA

TEXT: This past June, one of our elected state senators was quoted in the local newspaper as saying that "I don't think anybody believes we can provide broad-based consumer power, based on solar energy at the present." He reportedly also expressed the view that solar may be viable in 20 or 30 years. I emphatically disagree with his opinion. My husband and I went solar 3 years ago. We wanted to reduce our carbon footprint. Our youngest grandson and his soon-to-be-born brother will more than likely live into the 22M century, and we want their lives not to be cursed by the horrible effects of climate disruption that we fear are coming unless we act soon and aggressively to stop them. We wanted to exercise the freedom to choose how our electricity is produced. We wanted to help improve our energy security. And, as retirees, we wanted to reduce our electricity bill by taking advantage of our utility's net metering program. Because our solar panels produce all the electricity we need, we no longer pay for the kW's the grid delivers, although we do pay an infrastructure fee. We also chose to use a local installer, to help improve our local economy. Although our system helped meet all our goals, I quickly realized one family going solar isn't enough. So, in 2014, working through Climate Action Alliance of the Valley (CAAV) and VA Solar United Neighborhoods (VA SUN), both non-profits, I helped organize and lead Solarize Harrisonburg, a solar co-op through which area residents could go solar with their neighbors at a discount through their bulk purchasing power. Sixty-eight Harrisonburg/Rockingham residents signed contracts worth \$1.3M. The installations completed in July 2015. These solar systems will generate close to 570,000 kWh annually. That's quite a bit more than what my 7.5 kW system can produce-10,000 kW a year. And, thanks in part to Solarize Harrisonburg, one local solar installer has grown from 4 to 38 employees in three years. One more stat about my system: it's reduced CO₂ emissions by 1/2M tons in 3 years.

Augusta County Solar Co-op, serving the Augusta County area, followed Solarize Harrisonburg and is still underway. Meanwhile, many Harrisonburg and Rockingham County residents reached out to say they wanted another chance to go solar at a discount. So now we have a third co-op in the Central Shenandoah Valley. Named Massanutten Regional Solar Co-op, it launched on August 26, and is serving Harrisonburg and Rockingham, Shenandoah and Page Counties. Virginia's first solar co-op, Solarize Blacksburg, began in early 2014. Since then, there have been 29 more, with at least one more in the planning stage. These have happened all across the state. VA SUN's Program Director Aaron Sutch said this about solar co-ops: "The success of solarize programs across the state demonstrates that the time for solar in Virginia is right now. We can no longer afford to limit market access for a technology that is creating jobs and helping Virginians achieve energy freedom."

In Feb 2015, Jim Pierobon of The Energy Fix reported more than 2,500 homeowners have inquired about joining a coop leading to 1,511 on-site rooftop evaluations. At least 283 systems have been installed, or contracts signed, representing 1.42 megawatts

worth of new solar power capacity. The local economic impact: more than \$4.6 million in sales. These numbers have increased since February of this year.

As the many solar co-ops around the Commonwealth show, many Virginia residents have embraced solar as their energy source of choice. Unfortunately, Virginia's laws and policies, and its utilities, are out of sync with their wishes, remaining unfriendly to renewable energy. Even our grid manager, PJM, has said the grid can handle as much as 30% electricity production from solar through effective peak load management. For example:

- Virginia has no renewable portfolio standard, so its utilities have no requirement to generate any of their electricity from renewables; Virginia has only a voluntary guideline with no penalty for not meeting it, and the definition of what constitutes renewable energy is quite outdated.
- Virginia has placed a trivially low cap on the utilities' net metering program, so at some point the utilities can refuse to give credit for kW's produced by their customers' solar systems once the cap is reached in an area.
- Just this year, Virginia's legislature installed a 12-month "look behind" to limit the system capacity of net metering customers' systems installed after July 1. To me, this new law represents yet another way the state wants to limit citizen's freedom to choose their energy source.
- Virginia has few if any tax and other incentives in place to enable individuals to make significant improvements in energy efficiency or to install renewable energy systems for their electricity production.
- Virginia ranks 30th among the states in cumulative solar electricity capacity.
- Virginia's utility model prohibits most forms of distributed electricity production, because the model authorizes regulated monopolies.

Virginia now has the opportunity, thanks to the CPP, to take a hard look at and change its policies toward solar and other renewables. Virginia can build on the efforts of many of its citizens to incorporate solar energy into its CPP compliance strategy. Making solar an attainable option for more people, particularly those at lower income levels, would be one important way. Others would involve eliminating or reducing the above and other existing restrictions. Virginia can incentivize and require its utilities to embrace the reality of solar energy by actually using solar energy produced in the state to meet significant amounts of Virginia's electricity needs. It is inconceivable that Virginia will choose not to seize this moment to follow the lead of its citizens who have voted for solar energy through the Commonwealth's many solar co-ops.

36. **COMMENTER:** Jane Twitmyer, Roseland, VA

TEXT: Last year I submitted comments to the Governor's Commission and DEQ for the rewrite of Virginia's Energy Plan. My comments asked Virginia to aim high--for the simple reason that we can. Virginia has spectacular renewable resources, detailed in the NREL's GIS Report. They include offshore wind able to produce 4 times the GW/hrs

we used in 2012 and a production potential for rural solar even larger than that. In addition, NREL sees a Virginia rooftop solar opportunity capable of meeting Dominion's summer peak demand. So far, Virginia is not deploying any of those spectacular renewable resources, and our primary utility has voiced the opinion that EPA's new environmental rules could force an increase in the cost of electricity, hurt the economy, and erode the reliability of our power supply. Those charges are false and it is important to refute them.

Solar, wind and efficient buildings will develop our economy, not hurt it:

- Dominion believes they need an additional 4,000 MW of power by 2021. A commitment to lower demand through efficient buildings would change that demand projection. Warren Buffet's PacifiCorp expects their building efficiency program to allow them to close some old plants as well as to build nothing new until 2028.
- IKEA is planning to install 1 million solar panels on their roofs. They want the ability to contract for their own energy, but Virginia's rules don't allow third party contracts.
- The D.R. Templesman Company installed a solar array on the entire roof of their CT manufacturing facility and expects to produce 100% of their energy needs. The Connecticut ZREC program provides utility customers who generate power using zero emissions renewable technology with production based payments for 15 years. Virginia has nothing similar.
- There are now nearly 174,000 solar workers in the U.S., more workers than the coal industry employs.
- Our utility's' choice for gas-fired electric plants is based on supporting the other 75% of Dominion's business. Excel Energy's Public Service of Colorado utility just signed a 25-year agreement to purchase power from a 56-megawatt solar farm. The Comanche farm solar power beat out all other power sources including gas, and there is no future risk of fuel price escalation.

The "shale gas revolution" Dominion is counting on to meet Virginia's electricity needs may not be durable:

- Researchers at the University of Texas and the Post Carbon Institute analyzed extensive well production data and concluded that most shale gas fields will have reached peak gas production in three years.
- Fracking requires excessive amounts of fresh water and can cause ground water contamination. Toxic wastewater that cannot be processed by water facilities is re-injected into old wells and has caused earthquakes. New York State banned fracking after an intensive evaluation by the State Board of Health.
- The supposed 50% reduction in greenhouse gas emissions is not a complete or accurate comparison when pipeline and wellhead leaks are included. A new Massachusetts survey found 20,000 potentially dangerous leaks that have cost ratepayers more than \$1 billion over the years.
- While in the atmosphere methane is 75 times more potent than CO₂.

RGGI cut carbon without raising prices or hurting the economy. Virginia can join the RGGI as one way to meet the EPA CPP's carbon reductions. The legislature should re-address this option. RGGI results are excellent:

- Between 2009 and 2013, 3.7 million households and 17,800 businesses in the RGGI have saved 3.8 million MW/hrs of electricity.
- Utility costs are an operating expense. Those RGGI homes and businesses saved \$395 million, monies that became available for other things.
- The RGGI states have experienced over a 40% reduction in power sector CO₂ pollution" since 2005, while "the regional economy has grown 8%."
- Cumulative proceeds from all RGGI CO₂ allowance auctions total \$2.2 billion. This year's auction generated a total of more than \$152 million.

All over the country forward thinking utilities are looking at new ways to structure their businesses to include a variety of distributed resources. I hope that the administration, including the Governor, will review all the potential pitfalls of Dominion's "on in for natural gas" plans, or their alternative choice of more "nuclear on the fault line." There is really no reason to delay meeting or even surpassing EPA's CPP.

37. **COMMENTER**: Cathy Strickler, Harrisonburg, VA

TEXT: My comments are focused on the longest lasting ramifications of the decisions made for implementing the CPP. Every decision that is made is a choice with other choices left unchosen. Each choice is an ethical, moral decision and each choice has either better or worse moral consequences. We are talking about a CPP in order to decrease as much carbon as possible that we emit so that global warming does not amplify the horrors of droughts, deluges, migration and war. We have to take responsibility for what decisions we can control and to make sure they are the best moral ones given the tragic consequences of bad moral decisions. Donald Brown, in his book *Climate Change Ethics: Navigating the Perfect Moral Storm* says, "Ethics has been the crucial missing element in the climate change debate that has unfolded over the last 35 years, ... this absence is a monumental tragedy in light of the urgent need for a just global solution to this civilization-challenging problem. Ethicists must help the world turn up the volume of the ethical dimension of climate change. They need to begin by speaking loudly about actual positions on climate change policies that have and will likely continue to be taken, and that fail any reasonable ethical test. The failure to spot and discuss the obvious ethical questions entailed by climate change is unlikely to be caused primarily by the difficulty of the ethical issues, but is a consequence of the power of those who oppose action on climate change to frame the question in discourses that do not acknowledge ethical responsibilities."

Please acknowledge the ethical responsibilities that are the bedrock of the CPP and may theft:: be courage and determination to be strong against "the power of those who oppose action on climate change."

38. **COMMENTER:** Hannah Wiegard, Charlottesville, VA

TEXT: I lived until age 5 in Emporia, Virginia, notable now as quite near the site where Dominion now proposes an uncommonly large new gas-fired power plant. Then through my teen years I lived only a few miles from Dominion's Chesterfield Power Station, a coal-fired plant, and incidentally my younger sister suffered from asthma growing up. So I naturally support the new federal standards limiting carbon pollution from power plants and the other air pollutants that are packaged with it, and I am keen to see Virginia diversify our sources and harness our renewable energy potential. But, I am concerned that without a concerted effort to change Virginia's path, we'll miss out on the benefits that should come from a wise, clever use of the CPP, and instead will become more reliant on fracked gas - with the negative environmental and fuel-price consequences that entails, which are unaccounted for in the CPP process. I hope we will not see our region trade our overreliance on coal for overreliance on fracked gas, given the serious risks inherent in its lifecycle, from drilling to transmission pipelines.

Utilities must develop models for compliance with the standards, but publicly we hear statements about electricity cost and reliability problems obscuring the matter. Meanwhile we seem to lose sight of what we should know by now: how to make use of these standards and how to go beyond the targets to save energy and relieve the burden of high electricity costs on many customers, which have been shown to be greater for rural residents in the southeast than they are on urban dwellers. At the same time, Virginia needs a more open market for solar if we are to catch up to other states and get the value of a source that helps avoid the need for expensive new plants, secure the grid and provide affordable power, often at peak or near peak times. Unfortunately, Appalachian Power's Hybrid Resource Plan adds 836 MW of combined cycle natural gas by 2029, while only planning for 510 MW of solar even though it is fast becoming cheaper, and planning only a miniscule degree of energy efficiency operations in spite of the great potential assess and retrofit aging homes.

The good news is the CPP, especially the CEIP, should help open doors for energy solutions in an area of Virginia that needs them. I hope DEQ will incorporate these elements into a state plan that boosts economic activity while setting Virginia on track for long-term emissions reduction and energy system resilience and sustainability. Please avail Virginia of the double credit for early energy efficiency operations and the rewards for growth in cost-effective, job-creating solar power and site-appropriate wind. And look at multi-state mass-based compliance options for generating revenue. Additionally I urge engagement with utility stakeholders and ask that the administration continue to provide opportunities for customers to be heard, as well as other newer players in the energy sphere including independent solar and wind firms. I believe a constructive dialogue with all Virginia's energy installers and providers should begin now and will allow us to face and work through any planning incompatibilities and arrive at outcomes that benefit the environment and everyday Virginians.

39. **COMMENTER:** Dan Crawford, Sierra Club, Roanoke, VA

TEXT: In the 70's, I was concerned about what the future held with the increasing levels of greenhouse gasses in our atmosphere. I celebrated the solar panels on the White House and the 55 mph national speed limit to reduce fuel consumption. Though a response to the oil embargo, it lasted 11 years. There were tax incentives in Virginia for passive solar installation. Wind farms sprang up in California. We were on the right path, but it didn't last. Now, my concern has turned to alarm. The increasing frequency and severity of destructive weather events that should be spurring us to aggressive action are too often met with shocking denial, thanks in great part to the misinformation campaigns of the fossil fuel industry.

And now, natural gas pipelines, the dangerous, destructive tentacles of the true monster, the fracking industry. Contrary to popular belief, substituting natural gas for other fossil fuels actually worsens the greenhouse impact. It emits less CO₂ than coal or oil, but extraction includes unavoidable escape of the gas, which is 98% methane, an extremely potent greenhouse gas. This detail must be included in any comparison. In a 2014 paper (A bridge to nowhere: methane emissions and the greenhouse gas footprint of natural gas) scientist Howarth of Cornell University further states: "In fracking, methane always escapes, some during drilling, some when extracting the injected fracking fluid, some in 'downstream' processes - transport, pressurization and storage. The escaped percentage of fracked gas is, according to the best available studies, between 3.6% and 7.9%."

We must transition as fast as possible to renewable energy and increased efficiency for strikingly obvious reasons. We can mitigate some of the coming climate-borne devastation, while reaping tremendous rewards. Governor McAuliffe has estimated that nearly 40,000 energy efficiency jobs can be created in Virginia. Additionally 10,000 offshore wind jobs are at our fingertips, and over 14,000 jobs in solar power. Our choices should be easy, but with big money involved, it rarely is. Your responsibility is clear: Protect our environment while recognizing those industries and businesses that also serve that function. Easy? Not necessarily. Clear? Definitely.

40. **COMMENTER:** Carolyn Reilly, Blue Ridge Environmental Defense League (BREDL), Glendale Springs, NC

TEXT: BREDL supports the following criteria for EPA-mediated carbon dioxide reductions:

- To reduce emissions by 25-30% by 2030 and make further reductions thereafter.
- To require that emission reductions be measurable, verifiable and enforceable.
- To require enforceable requirements for each covered emission source.
- To include all fossil fuel sources that generate electricity for the grid and are currently required to report their emissions.

- To recognize all measures that quantifiably reduce emissions from the covered sources, including energy efficiency and renewable energy.
- To ensure that performance standards in EPA's guidelines accurately reflect the full set of measures that can be used to comply.
- To provide for approval of alternative state plans only if they result in total CO₂ reductions from the power sector as great or greater than those in the guidelines.
- To allow states to adopt plans that are more stringent than EPA guidelines.
- To review and update the plan at least every 8 years.
- To ensure that vulnerable communities are protected by standards and are consulted throughout the standard-setting process.
- To encourage investments of public resources to help dislocated workers and impacted communities that are traditionally tied to the coal sector make the transition to the clean energy economy.

Natural gas is a fossil fuel. Like coal, it is found underground, it is burned to release its energy and it is the product of eons of accumulation; therefore, it is a limited resource and not renewable. The global warming differences between coal and natural gas are a matter of degree, not of substance. Fracking, the invasive and destructive practice of extracting hitherto uneconomical pockets of natural gas, expanded greatly after 2004, when EPA declared that the practice posed no threat. However, this conclusion was disputed even by EPA's experts. Weston Wilson, a scientist and 30-year veteran of the agency, who sought whistle-blower protection, emphatically disagreed, saying that the agency's official conclusions were "unsupportable" and that five of seven members of the review panel that made the decision had conflicts of interests. Nevertheless, as a result of the "Halliburton Loophole" in the 2005 energy bill, EPA is prohibited by law from regulating fracking. This fact continues to distort the Agency's analysis and undermines one of the three "building blocks" of the Clean Energy Plan. Natural gas suffers from a series of insoluble problems. Once the gas is removed from the earth, it must be transported in trucks, compressed and delivered by pipelines where it is burned for heat and power. At each stage in this process, pollution is created. And compressor stations and electric power plants are two major pollution sources which are often overlooked. For example, at the Richmond County Energy Complex in Hamlet, NC, Duke Energy Progress operates seven combustion turbines permitted to burn either fuel oil or natural gas to generate 2000 megawatts of electric power. But turbines are remarkable for their lack of efficiency in converting chemical energy to mechanical energy. More than 50% of the turbine's power output is consumed by the turbine itself to aid combustion. Two types of turbines are simple-cycle and combined-cycle. The simple cycle has a thermal efficiency of only 15-42%. Combined cycle units add a heat recovery steam generator to boost efficiency) to between 38 and 60%. So, at best 40% of the fuel burned produces no electric power; at worst 85% of the fuel burned produces no electric power. Air pollution and global warming gases are created whether power is produced or not.

Another major source of air pollution from natural gas is compressor stations. Spaced along pipelines 50-100 miles apart, they keep the gas moving along the pipeline from

production site to end use. Natural gas is received via upstream pipeline, compressed, and then pumped into the outlet pipeline for transmission downstream. Power for these compressors is provided by internal combustion engines which use natural gas as a fuel source. These engines release huge amounts of air pollution including SO₂, NO_x, VOCs, CO, PM, hazardous air pollutants such as benzene and formaldehyde, and huge amounts of CO₂. For example, a single, a medium sized compressor can emit 203 thousand tons of CO₂ annually.

A recent article points towards the connection between health issues and rural gas compressor stations. Air contaminants from the Millennium pipeline compressor station, located in Minisink, NY has reached levels that exceed that of a big city. Many residents have complained of health ailments, and a research team from the Southwest Pennsylvania Environmental Health Project, a nonprofit group of public health experts, facilitated a study from October to December 2014. The study found that "spikes in air toxins around the compressor coincided with residents' adverse health symptoms Asthma, nosebleeds, headaches, and rashes were common among the 35 participants in eight families living within one mile of the compressor ... Six of the 12 children studied had nosebleeds, which health consultant, David Brown, attributed to elevated blood pressure or irritation of mucous membranes by formaldehyde, a carcinogen found in excess around compressors in a recent SUNY Albany study." Environmental health expert, Wilma Subra, has observed the same health issues and concerns around the country, near gas compressor stations, but also gas power plants and gas drilling sites: "[I] typically find symptoms such as asthma, allergies, coughs, nosebleeds, dizziness, weakness, and rashes among 90% of residents and workers in a 2-3 mile radius of gas infrastructure ... Resulting chronic ailments she cites include lung, cardiovascular, reproductive, liver, kidney, and neurological damage; birth defects; and leukemia."

A Union of Concerned Scientists study estimates that unburned natural gas escaping from production infrastructure is equivalent to emissions from about 170 coal-fired power plants. A total of 7.7 million tons of methane are released annually by oil and gas production facilities: wells, processing, compressors, transmission and storage. Methane, the principal component of natural gas, is 34 times more powerful than carbon dioxide at trapping heat. In fact, reducing coal use from the present 74% to 40% of the power supply by mid-century and substituting natural gas would reduce global warming emissions by only 3% (from 2,036 to 1,972 million metric tons).

Natural gas combustion releases a wide variety of hazardous air pollutants: benzene, toluene, dichlorobenzene, arsenic, cadmium, chromium and formaldehyde. In fact, some of these pollutants are emitted in greater amounts from natural gas than coal. For example, for a given amount of electricity, emissions of formaldehyde from natural gas are 800% higher than from coal. Formaldehyde is a probable human carcinogen and eye, skin, and respiratory tract irritant. It can produce narrowing of the bronchi and accumulation of fluid in the lungs. Children are more susceptible to the respiratory effects of formaldehyde than adults. It is obvious that we must protect the health and

well-being of our children. EPA has established guidelines in its Final Rule regarding Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks and concluded that "the agency has evaluated the environmental health and welfare effects of climate change on children. CO₂ is a potent GHG that contributes to climate change and is emitted in significant quantities by fossil fuel-fired power plants. EPA believes that the CO₂ emission reductions resulting from implementation of these final guidelines, as well as substantial ozone and PM_{2.5} emission reductions as a co-benefit, will further improve children's health."

In order to take into account all of the substantial risks to the health and safety of our children, we must include the evidence that natural gas and the risks associated with the gathering, processing and transportation of natural gas have a significantly harmful affect on health and well-being and construct our plan for the future of energy production accordingly. Reducing CO₂ emissions from coal only to replace them with other dangerous emissions and a multitude of health and safety risks from natural gas does not address or solve the problem; it merely creates a new one.

EPA's Environmental Justice CPP's Community page states: "While addressing climate change will provide broad benefits, it is particularly beneficial to low-income communities of color that are already overburdened with pollution and that are more likely to be disproportionately affected by, and less resilient to, the impacts of climate change." Recent census data compiled by BREDL indicates that there are disproportionate impacts on lower income counties along the Mountain Valley Pipeline's proposed route through Virginia. Threatened counties in Virginia had lower income per capita and percent graduating high school, as well as increased percent living in poverty than the statewide average. The striking p-value obtained for income per capita, 0.00006, suggests that the odds of getting such an alarming discrepancy between the averages in the threatened counties and the statewide average due to chance is close to 0%. For comparison, while the statewide average per capita income in Virginia is \$33,493 per year, the average of the threatened counties is \$22,300 per year. For percent living in poverty, the statewide average 11.3% compared to 19.5 in the affected counties. Lastly, the statewide percentage of high school graduates is 87.5%, compared to 82% for the threatened communities.

Communities along the proposed Mountain Valley Pipeline route in Virginia have markedly lower levels of income and education than the statewide average, raising similar concerns of environmental injustice and the targeting and exploitation of those already economically disadvantaged for private gain. Guidance for enforcement of the National Environmental Policy Act states, "When a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe has been identified, agencies should analyze how environmental and health effects are distributed within the affected community This type of data should be analyzed in light of any additional qualitative or quantitative information gathered through the public participation process."

According to the Department of Transportation's Pipeline and Hazardous Materials Safety Administration, there are three fundamental environmental justice principles:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

DEQ must take these factors into account and address them comprehensively and constructively in order to pursue energy solutions that support the principles of environmental justice.

EPA's recommendation that the wide-spread utilization of natural gas and the conversion of coal-fired plants to natural gas as an essential ingredient of the CPP is misplaced. Therefore, we recommend that DEQ reevaluate its recommendation that natural gas is a viable method of generating electricity and simultaneously adhering to emissions standards. The CPP's carbon reduction goals are highly achievable, at less cost and without damage to the environment and public health, when the utilization of renewable energy is truly factored into the equation. The Best System of Emissions Reductions need not be limited to EPA's CPP building blocks so long as states meet their goals. The sun provides 7,000 times more energy to the earth's surface than current global energy consumption. Plainly, capturing but a small fraction of this energy potential by utilizing geothermal, wind and solar power is the only way to transition into a future that is sustainable for our health, well-being and ultimately, our survival.

41. **COMMENTER**: William Roman, Sterling VA

TEXT: I believe that Governor McAuliffe and his administration must embrace bold climate action in Virginia, action that lowers our carbon emissions and generates much needed resources for Virginia communities on the front lines of climate change, while steering us away from an over reliance on natural gas. I believe the most important step the DEQ can take is to put us on a path to join RGGI. This proven program would set a declining cap on our carbon emissions while generating \$200 million annually for Virginia to reinvest in local solutions, including flood protection measures along our coast, and clean energy and energy efficiency programs statewide. The CPP sets a new minimum floor for action on climate change in Virginia. Rising temperatures and the immediate threat of sea level rise along our coast requires that we do much more. The first six months of the year were the hottest on record, with 2015 expected to be the hottest year since record keeping began. Hampton Roads is one of the two most vulnerable areas in the nation to sea level rise. And flooding is already a regular occurrence threatening homes, businesses, and vital infrastructure, including Naval Station Norfolk. Rising sea levels in Hampton Roads are projected to get much worse

due to climate change. And Richmond has made the list of the nation's top Asthma Capitals several times in recent years. Air pollution threatens the health of kids and families, driving up medical costs for everyone and hindering Virginia's economy. Virginia must lead on clean power and climate change action for our children's and grandchildren's sake. Clean power reduces costs of climate change damage, reduces health problems, and is easier and cheaper than environmental cleanup later. It makes economic sense and as Pope Francis has recently reminded us, is also a moral and spiritual imperative. Don't let Virginia be remembered as lame on clean power and climate change. Joining RGGI is an action that lowers our carbon emissions and generates much needed resources for Virginia communities on the front lines of climate change. Joining RGGI is the most important step the DEQ can take is to put us on a path to a stronger economy, healthier populace, and better world.

42. **COMMENTER**: Catherine Rumschlag

TEXT: The federal CPP is a tremendous opportunity for the Commonwealth to not only reduce carbon pollution that contributes to climate change but to also improve public health, generate new clean energy jobs and reduce consumers' electricity bills. This plan is a step in the right direction.

42. **COMMENTER**: Barbara Bacon, Mount Vernon Unitarian Church, Fairfax County

TEXT: In June, the Unitarian Universalist Association adopted an Action of Immediate Witness calling upon nearly 200,000 UUs across the country to act for a livable climate. This Action is taken in recognition of our belief that "The crisis of climate change is the gravest threat facing our world today." Also in June, Pope Francis released his encyclical, which calls addressing climate change a moral and ethical imperative. His call for action has been echoed worldwide by leaders of many denominations, Jews, Buddhists, Muslims, Hindus and millions of non-religious citizens of the world.

The CPP sets minimum requirements for Virginia to reduce emissions from dirty power plants. We challenge Virginia to go beyond the minimum and do everything within its power to create policies that reduce emissions, increase energy efficiency, assist communities affected by sea level rise, and encourage the development of renewable sources of energy. We encourage DEQ to have Virginia join RGGI.

We realize that a moral and ethical imperative may not be enough in today's world, so let me suggest an additional reason to implement the CPP. Last week, nine major corporations announced their commitment to convert to 100% renewable energy sources, including Johnson & Johnson, Procter & Gamble, Goldman Sachs, Nike, Starbucks, Voya Financial and Walmart, joining IKEA, Unilever and Marks & Spencer and 26 other companies, that have so far joined the global campaign RE100, which encourages businesses to source 100% renewable power. If Virginia is to attract such

businesses in the future, it must build the renewable infrastructure that will allow companies to meet these commitments.

43. **COMMENTER:** Richard H. Ball, Annandale, VA

TEXT: The CPP is an important first step toward mitigation, but it is just the first installment on what will be required by the U.S. to do its part in curbing global warming. I want to make just a few key points regarding the risks in a high dependence on natural gas generation and how Virginia's Compliance Plan should address the CPP.

Virginia power producers are headed toward very high dependence on natural gas, which is very risky for two reasons: Natural gas resources arguably have been greatly overestimated by the industry according to several independent geologists, while demand for gas is rapidly increasing, which could lead to a supply-demand crunch with high gas prices or supply disruptions. Mitigating global climate change will require much faster cuts in CO₂ emissions than currently planned, so likely future serious constraints on emissions would make current gas plant investments stranded capital. To protect Virginia ratepayers against those risks the CPP must discourage large new investments in natural gas generation by adopting a CPP plan that emphasizes clean energy sources such as solar, wind and energy efficiency. A critical CPP option is to adopt a mass basis and include new sources, as well as including allowance set-asides that foster clean energy.

Many electric power producers in Virginia have been aggressively adding natural gas-fired power plants. Signs are evident that some plan to continue that strategy while complying with the CPP. For example, Dominion Virginia Power's (DVP) 2015 IRP would add at least 8 GW or more of new NGCC plants by 2040 plus substantial gas turbine peaking power, dwarfing the amount of additions of clean, renewable solar, wind or energy efficiency savings, and even possible nuclear power proposed in their alternative compliance plans. That would lead to substantial increases in CO₂ emissions, rather than the decreased emissions sought in the CPP. That approach has several implications. High levels of natural gas generation, such as in DVP's 2015 IRP plan, might meet the CPP rules if the state promulgates a plan based on either an emission rate or a mass basis that does not include new sources. However, that might not be acceptable to EPA given other provisions of the EPA Final Rule. But if it were allowed, it would put Virginia on an increasing CO₂ emission path well past 2030. That path has at least one key problem: Scientific studies of global warming indicate that global CO₂ emissions will have to decrease sharply, beginning as soon as possible, in order to keep global warming from reaching unacceptable levels. To meet global warming mitigation requirements it is highly likely that future, much more stringent constraints on CO₂ emissions will be imposed on Virginia--well beyond those in the CPP rules. Hence, if Virginia becomes heavily dependent on natural gas fired generation in the near future it is likely that generation from existing and new natural gas plants will have to be curbed sharply to meet those constraints long before their

economic lifetime has been reached. The state can best avoid the pitfalls of a high CO₂ path by adopting a CPP plan with a mass-based system that includes new sources of CO₂ as well as existing sources, and by additional plan features that encourage efficiency and truly clean, renewable energy sources (not by allowing questionable so-called renewables like wood burning and land fill gas that actually result in substantial lifetime carbon emissions and other negative environmental impacts). For example, the state could set aside a portion of CO₂ emission allowances directed toward supporting efficiency and distributed clean power programs. The current rush toward natural gas use for electricity generation and industrial uses, both in Virginia and throughout the eastern U.S., plus plans for LNG exports, are all predicated on an increasing supply of domestic natural gas at relatively low prices. Most of that supply is expected to come from hydraulic fracking in tight geological formations such as shales. However, several independent geological studies of shale resources indicate that the resource has been highly overestimated.

The combination of risks from potential natural gas supply shortages and more stringent future CO₂ emissions indicates that depending heavily on natural gas generation is extremely unwise for Virginia. It could lead to much higher costs to ratepayers, threats to electricity reliability and natural gas supply, and stranded capital invested in natural gas plants and natural gas infrastructure such as pipelines. Virginia should be doing its part to reduce its CO₂ emissions, not allow them to increase, both for the sake of the global environment and its own supply resilience. Hence it is important that Virginia discourage dependence on natural gas. Virginia's plan should be structured to encourage greater diversity in supply that emphasizes inherently clean energy sources, such as wind and solar power, and much greater energy efficiency. Integration of substantial wind and solar resources into the grid could be achieved through incorporation of grid resources that include combinations of energy storage, greater demand-response measures, smart grid features, incentivizing distributed generation and storage resources, and developing more customer-centric policies by utilities that foster cooperative arrangements between utilities and their customers. Virginia's plan for the CPP should be structured to promote those goals.

44. **COMMENTER:** Tiziana Bottino, Union of Concerned Scientists

TEXT: We do not need to look at a distant future to see the destructive effects of global warming. 2015 has been the hottest year on record and we see many natural disasters caused by higher temperatures ranging from the extensive droughts and wildfires in California to the devastating hurricanes of recent years. Some scientists have suggested the possibility of temperatures rising up to 3°C by 2050 which will have catastrophic consequences. I have an almost 6 month old baby and in 2050 she will only be 35 years old. Every day I am terrified thinking of the kind of future she is inheriting from us through no fault of her own. Throughout human history the atmospheric level of carbon dioxide has stayed at roughly 280 parts per million (ppm). Since about 1750, with the rapid increase in the burning of fossil fuels and the more

recent industrialization of agriculture, the level of carbon dioxide in the air is growing and now stands at 400 ppm. Scientists have estimated that we need to get the atmospheric carbon dioxide level back to about 350 ppm to avoid catastrophic climate change. There is no question that humanity as a whole needs to stop releasing excessive amounts of greenhouse gases. It is estimated that about two thirds of those emissions are because of our burning of fossil fuels. We need to end our reliance on fossil fuels and develop alternative sources of energy. But even if we were to stop all emissions today the greenhouse gases that we have already released into the atmosphere will continue to heat the globe for decades and perhaps centuries.

In short, the vital solution to not only slow down global warming but to actually reverse it, is to put the CO₂ in the atmosphere back where it belongs: in the soil. Maximizing soil stability is one way power plants could offset their emissions. Through photosynthesis plants take carbon out of the air and put it into living matter. Therefore CO₂ is naturally present in the soil but we have brought 136 Gt of carbon out from the soil by land clearing and agriculture since the beginning of the industrial age. Again, we are at 400 ppm and need to get back to 350, so we need to restore 50 ppm, or 106.25 Gt of carbon to the soil.

The most effective ways to bring carbon back into the soil have been found to be:

- Keeping the soil planted to avoid erosion by wind and water
- Minimize tillage
- Diversity and crop rotation instead of monocultures
- Eliminating the use of synthetic agricultural chemicals
- Pasturing
- Converting degraded soils to forest use
- Biochar, charred residues used to enhance soil while restoring carbon to the soil

Soil carbon restoration could be especially useful if Virginia joins a cap and trade system, and we could lead the way for other states to limit and trade carbon credits through agricultural methods. If we want to survive we really have no alternative but to restore carbon to the soil. This can be done through biology, using a method that has worked for millions of years. Farmers, gardeners, homeowners, landscapers - anyone who owns or manages land - can follow these simple principles and not only restore carbon to the soil but help rebuild the marvelous system that nature has put in place to renew our atmosphere while providing food, beauty and health for all creation.

45. **COMMENTER**: Linda Burchfiel, McLean VA

TEXT: Virginia is already suffering from climate change, and it can be seen most vividly on the coast. I go down to Norfolk once a month to see my mother and on many days the streets are so flooded that staff can't get to work. And the flooding will only get worse, as seas are forecast to rise 1-1/2 feet in the next 20 plus years. While the city has a mediation plan in hand, it does not have the funding for implementation.

We can craft a plan that reduces carbon emissions from power plants, and do it so that we reduce our costs, improve our air quality, and grow our economy. Such a plan must prioritize energy efficiency. Virginians waste a lot of energy and that costs us; our bills are the 9th highest in the nation, according to the DOE's Energy Information Agency. We are making a start, with the program to buy back refrigerators over ten years old, and need to do more. We must look to the CPP for guidance on cost-effective energy efficiency strategies, and use the Clean Energy Incentive Program to get credit for early investment in demand-side energy efficiency projects. Solar, wind and geothermal generation must be part of our plan. We need to catch up with neighbors like North Carolina and Maryland who last year averaged over 500 MW of solar between them, compared to our 12 MW.

Please consider a cap and trade model that would cap both existing and new power plants, so that pollution won't rise in the future. Putting a cap on carbon emissions, one that gradually ratchets downward, would give businesses planning time to develop the most cost-efficient plans. Allowances would be auctioned and generate millions of dollars in revenue. And that revenue must be returned to benefit residents, possibly with investment in mitigation plans, like the one needed in Norfolk, or a rebate. With a Virginia plan that prioritizes energy efficiency and renewable energy, we can meet our goals, lower our bills and enjoy cleaner air, providing some relief to the hundreds of thousands who suffer from asthma and other respiratory diseases. Our economy will be boosted by business investment and innovation, and an estimated 40,000 energy efficiency jobs will be supported, all of which are local. Thousands more jobs would be generated by solar and offshore wind production.

46. **COMMENTS**: Chris Casey, Montclair, VA

TEXT: Your work is of critical importance to the health of our citizens, and our environment, and of our economy. The word "plan" is often paired with the word "future." You don't plan for the past; it's already past and can't be changed. You plan for the future. But in undertaking such planning, we must learn from the past. We have learned that polluting power plants contribute greatly to our warming climate, which in turn negatively impacts us all. These impacts include asthma and other lung conditions suffered by many Virginians, negative impacts on the habitats and health of Virginia wildlife such as the largemouth bass and the black duck, and negative impacts on our economy, such as the harm that rising sea levels and higher temperatures have on Virginia's outdoor recreation industry. I ask that as you plan for the future, you consider these lessons from our dirty energy past, and plan for a clean energy future. Virginia has the resources and the skills necessary to be a leader in the development of clean energy. And we have a moral obligation to protect the health, the environment, and the economy for future generations to enjoy and to protect in turn for all who follow them.

47. **COMMENTS**: Joseph Eaves, National Electrical Manufacturers Association

TEXT: Our nearly 400 member companies manufacture a diverse set of products including power transmission and distribution equipment, lighting systems, factory automation and control systems, electric motors and drives, and medical diagnostic imaging systems. The U.S. electroindustry accounts for more than 7,000 manufacturing facilities, nearly 400,000 workers, and over \$100 billion in total U.S. shipments. Our members in Virginia include ABB, Eaton, GE, Hubbell, Lutron and Siemens.

NEMA believes that energy efficiency policies, for the residential, commercial, industrial, and transmission sectors, should be an important component to Virginia's state plan. Energy efficiency touches all aspects of our economy and, can help meet the requirements set forth by the rule by recognizing the importance of finding energy savings across all sectors. Not all of your choices intended to reduce carbon emissions require you to consider constructing new sources of electricity generation, therefore the cost per ton of carbon avoided should be borne in mind at all times when considering plans and policy strategies to meet the target reductions. Energy efficiency measures, when measured in terms of cost per kilowatt-hour of electricity, can be less than the cost of constructing new electricity generating units (EGUs).

Residential and commercial buildings consume approximately 40% of the primary energy and 70% of the electricity in the U.S. on an annual basis. Recent advances in commercial building equipment--such as lighting, sensors, controls, electric motors and drives, and integrated systems, including high performance pump, fan and compressor products--now make it possible to achieve a significant reduction in buildings' energy consumption, transforming older, more inefficient buildings into high-performance buildings (HPBs). In addition, through automation and integration with the grid, individual buildings and groups of buildings can help manage peak demand through demand response programs, reducing CO₂ emissions from the most carbon-intensive peaking EGUs. HPB products make buildings safer and more efficient while contributing to energy security and creating high-quality manufacturing and construction jobs.

Just as with commercial buildings, residential homes are getting smarter and more efficient. According to the Energy Information Administration, 14% of home electricity use goes toward lighting, 18% for cooling, 9% for heating water, and 6% space heating, all of which can be reduced with off-the-shelf technologies. Reducing energy waste in homes can significantly reduce the monthly financial burden on homeowners, who spend approximately 3% of their income on energy bills each year. This strengthens Americans' purchasing power and the overall economy in addition to reducing CO₂.

The industrial and manufacturing sectors benefit from energy efficiency as well. In 2010, according to the Department of Energy, the industrial sector consumed 21% of the nation's total energy and 23% of the nation's electrical energy. When high efficiency drives and electric motors are combined with sensors, intelligent process controls and monitoring systems, it is estimated that 15-30% energy savings are attainable in most

industrial environments. These savings result in more efficient productivity, less cost per unit produced, and lower prices to consumers, all of which improve international competitiveness and lower emissions nationwide.

Finally, the electric grid itself can be modernized to operate more efficiently. NEMA members manufacture the equipment that will build America's 21st century electric grid. A modern grid uses information and communications technologies, such as smart meters and high-tech sensors, to isolate problems and repair them remotely; recover more quickly from extreme weather outages; and maximize the efficiency, reliability and affordability of electricity. New grid technologies and solutions consume less energy and decrease the carbon-intensity of the grid through the use of efficient transformers, volt/VAR optimization, energy storage, microgrids, and combined heat and power applications; allow energy efficient buildings and residences to sell power to the grid; and accommodate a growing number of electric vehicles - all of which contribute to lower emissions and economic growth. NEMA encourages Virginia to include aggressive energy efficiency measures as part of the state plan--the fastest, least-expensive, and most economically beneficial way to meet the state rule's compliance targets. With robust and diverse projects already occurring at the state level, it would be a missed opportunity to overlook this vital resource in Virginia's compliance strategy.

48. **COMMENTER**: James Russell Hople, Fairfax VA

TEXT: • Count all carbon pollution emissions from new and existing sources of electricity. Cap that amount and work to reduce the total pollution emissions-this creates a marketplace of valuable carbon allowances.

- Develop a voluntary mechanism for the trading of these carbon allowances either within the state or across state lines. This creates monetary value in pollution reductions--thereby further encouraging more carbon pollution reductions via energy efficiency and renewable energy.
- Ensure that the value of any of these allowances benefits the people of Virginia by reducing energy bills and re-investing in projects that further reduce the impacts of climate change (i.e., adaptation, mitigation, energy efficiency, etc.). The value of these allowances should not be given to the utilities as profit margin.

My family and I love parks and we need a healthy environment to enjoy our parks. Justin has many JR Ranger badges from many parks where he learns how our plants and animals are dying off because of environmental changes. We learn together how important every living thing in our parks and preserves are a critical part of our own survival and the value of all God's creatures. We want to ensure his kids are able to enjoy these beautiful parks with the same plants, animals, birds and insects. Climate change and warming is causing many bacteria and microbes to increase and destroy plants and animals costing us our diversity of life. Disruption of our public park lands and preserves for drilling, fracking, or pipeline of energy should not be tolerated. We take renewable energy seriously at our home and want Virginia to invest in this as well.

We pay a Green Power Rider on our monthly power bill to ensure that each watt we consume is replenished on the grid with renewable sources. We've been in our house for over 10 years now but we only learned about this option earlier this year. I wish I had known about this years ago and wish that more would do more to get the message out to its public. More visibility should be given to those businesses that participate in this program. We might set goals for public participation in Green Power Rider and raise awareness of how many people are using it, how many new people have joined over time, how many more we want by 2030 to support our reduced carbon targets. This program can't be the primary finance mechanism for our renewable transformation but it can go a long way to increase public sponsorship and participation.

We should also be sure that the SCC does not allow Virginia Power to overcharge us for creation of solar farms and allow third party firms to participate in renewable resource development. Virginia ranks 30th among states for use of solar. We can do better and should rank in the top 10 by 2030. Dominion should offer an additional match of renewable wattage for every watt consumers invested in this program. Virginia should have a mandate for renewable power ratio independent of consumer's voluntarily investing in it as we are one of the few states remaining that doesn't. I am considering putting solar panels on my roof but the upfront expense seems too high. I wish Virginia would do more to support a wider variety of options for using solar power at the home. I understand there are "power purchase agreement" plans in place in other states that allow property owners to obtain many of the benefits of using solar energy while avoiding paying all the costs upfront. By hiring a third party solar company to install, own, and maintain solar panels located on their own land, customers contribute to job growth in local clean energy businesses. Power companies seem to block, obstruct, or depreciate the potential for this type of program but we need to surpass that and look out for the interests of Virginia people and environment. Virginians pay the 9th highest electric bills in the nation so we need to be empowered with alternative options. I regret to admit that I use gas for heating my house. I am dismayed by what fracking does to our environment and afraid that Virginia may choose to expand its participation in that horrible practice. It would be expensive to migrate off my gas heater and replace it with an electric and this would shift my costs over to electric. I could afford this better and be more motivated if the solar power option provided better economics and our electric costs were reduced.

Virginia needs to reduce its dependence on gas and put an end to any new fracking facilities to protect our water supply and our environment. Efficiency is an important part of reducing our carbon output. I take this personally by investing in insulation and other home improvements. Virginia can stand to make great improvements in this area. Virginia is ranked 35th nationally in policies directed to improve efficiency. Multiple studies have shown that Virginia consumers can save money when the Commonwealth fully embraces simple energy efficiency and renewable energy advancements. Georgia Tech estimates a 24% consumer savings by 2030 with a strong Virginia plan focused

on energy efficiency and renewables. Governor McAuliffe has estimated that nearly 40,000 energy efficiency jobs can be created here in Virginia. Additionally 10,000 offshore wind jobs are at our fingertips. And over 14,000 jobs focused on solar power generation can be realized here in the Commonwealth. These are good-paying jobs that will help Virginia become a clean energy leader.

Virginia has the opportunity to focus workforce training and economic development funding on the workers and communities where coal has been a significant economic driver and source of employment. Virginia should respond to the federal CPP with the following guidance to ensure we lead in renewable energy and efficiency:

- VA should be among the states with the most credits for sale or had the most credits sold by 2030 and use the earnings to reinvest in renewable and efficient energy improvements.
- VA should lead the nation in renewable energy sources across the grid from the plant to the consumer and drive the economic growth from these investments and innovations.
- VA needs to protect its land, ecology, water, and air by radically reducing the production, transportation, and consumption of carbon generating fuel sources.

49. **COMMENTER:** William J. Johnson

TEXT: I strongly support Virginia's adoption of a state CPP, and hope you will take advantage of this opportunity to reduce carbon pollution from coal and gas power plants, while staying away from nuclear. Dominion Power should not be allowed to propagate a compliance plan that exacerbates climate change, nor a compliance plan that relies on extremely expensive and risky nuclear energy. Relying on fracking removes fossil fuels from under the ground and increases the amounts of CO₂ and methane released into the atmosphere. Reducing coal usage is a step in the right direction, but it is still inadequate. Wasting infrastructure spending on gas pipelines will tie up money that should be spent on solar and wind energy, and will lock us into energy sources that increase greenhouse gas emissions when there are other viable, non-emitting sources today. According to Dominion's own analysis, solar is the least cost option, so why isn't that their number one choice? Solely because they are protecting their current business model, which benefits their shareholders, at the expense of their customers and the environment. Their cost estimate for wind energy points out why they bought the offshore leases--just to prevent anyone else from building there. Their estimates are outrageously high on wind energy and extremely low on nuclear. Even at \$19 Billion, it won't cover all costs, and customers will be straddled with far more expensive rates than necessary. It is also gross negligence that anyone would consider putting a nuclear plant on a geologic fault line, one that has had 2 earthquakes in the past 4 years. Dominion's coal cost estimates are bogus as they don't consider the health impact of pouring toxic emissions into the air. Dominion should not be allowed to increase their greenhouse gas emissions over the next few years, as they are planning to do. To prevent that, Virginia must adopt a compliance plan that counts

new sources, under a mass-based plan, and which doesn't allow Virginia to become a guinea pig for an untried nuclear technology.

The CPP is easily achievable for Virginia. We are projected to be more than 80% of the way toward the 2030 carbon reduction goal already, thanks to coal plant retirements and clean energy projects already under way. So the question is not whether we can comply with the CPP, but how we can do so in a way that best benefits Virginians. Solar and wind must become the primary source and we need to move there now.

50. **COMMENTER**: Richard Kennedy, Lorton, VA

TEXT: I was personally convinced by "The Economics of Global Warming," written in 1992 by a good economist named William Cline, who evaluated the evidence, concluded that case for global warming was very strong, and that the logical response is to begin to take remedial action. He published a second book in 2011, "Carbon Abatement Costs and Climate Change Finance", which concludes that the cost for the industrial countries would be modest: 0.3% of GDP initially, rising to 1.6% in 2050. CO₂ emissions are an externality--they impose costs on society that are not included in the prices of products, so even conservative economists would agree that the free market needs help. The best remedy would an internationally-agreed carbon tax, because that would minimize government's role, leaving it up to the private sector to find the most cost-effective way of reducing CO₂ emissions, but that clearly isn't in the cards now. Second-best actions are better than nothing, however, and joining RGGI would be good start, although it is not enough. I see in the New York Times today that all major nations, except India, have made a commitment to climate action, but not enough to prevent global temperature from rising another six degrees Fahrenheit. The U.S. obviously can't solve climate change by itself, but we usually take pride in being a world leader. The science is on your side and my grandkids will thank you.

51. **COMMENTER**: Earle Mitchell, Springfield, VA

TEXT: You will probably hear some paid fossil fuel lobbyists today and they will shout that "the sky will fall" if Virginia adopts the CPP. Business as usual has given us five old coal ash ponds at Possum Point which contain arsenic, lead, cadmium, mercury, etc. which leak into the soil. Needless to say, this is harmful to all forms of life. These ponds date back to the 1950s and now Dominion is addressing the issue. The "Point" is a 15 minute drive from this meeting place. There are many more ponds in the state. Do you remember the one that leaked into the Dan River last year? It threatened the water supplies of Danville, Norfolk and Virginia Beach.

Water withdrawals used to generate steam-driven turbines in Virginia require six to nine million gallons of water per day. Much of the water is lost through evaporation and leakage. Our southeastern water aquifer is dropping and water is too precious to waste. Much of our coal comes from mountaintop removal which has polluted over 2,000 miles

of streams in Appalachia over the past 20 years. These streams are now off limits for fishing and swimming. Nuclear is not a panacea. There is no nation on earth who has solved the problem of long-term storage of nuclear waste. Natural gas is not a cure all. New York has permanently banned fracking and Maryland has imposed a temporary ban. Dominion is reconfiguring Cove Point in Maryland to facilitate the export of natural gas. The plan is for more than 1.8 billion cubic feet of gas to be exported daily. That will constrict the supply here and increase our domestic costs.

The University of Delaware Special Initiative on Offshore Wind headed by Dr. McCelian has released a study this year which predicts that Virginia could supply its entire electrical needs through offshore wind. A recent survey has indicated that 64% of Virginians are in favor of developing wind power. Rhode Island has taken the first step on our East coast with a wind farm that is 50% completed. Europe has been in the business for over two decades with thousands of operating turbines. Virginia should closely examine the RGGI carbon cap and trade project with the idea of joining that association. Nine states have collectively formed RGGI and they have saved consumers more than \$460 million over the past three years in lower electric bills.

Adopting clean energy sources would improve the health of our citizens and would create many nonpolluting good jobs in our state. And yes, I'm a Dominion shareholder and I like to get a good return on my investment. I also believe Dominion can achieve a reasonable return by investing in renewable energy.

52. **COMMENTER:** Ivy Main, Sierra Club

TEXT: Virginia should adopt a CPP compliance approach that is mass-based and includes new sources of CO₂ emissions.

The CPP almost gives Virginia a pass. All that is needed to meet CPP is to ensure that new demand is met with RE. This is a low-cost compliance option because it relies on using energy more efficiently, which saves money, and on using renewable energy, which has emerged in recent years as a price-competitive alternative to fossil fuels. Dominion has admitted that solar is the lowest cost option for meeting the CPP. That is also the option that creates the most jobs in Virginia, puts us most in control of our energy supply, and does the most to strengthen the grid against the threats to our energy security. Using distributed forms of energy like solar and wind is a vital part of any strategy to protect the grid from widespread, economically-crippling power outages due to storms, cyberattack, terrorist attacks, or a solar flare.

A mass-based plan that includes new sources is the only way to ensure we stop statewide carbon pollution in its tracks. A plan that relies heavily on energy efficiency, wind and solar is also the one that causes the least collateral damage to public health and the environment. Collateral damage would come from fracking and new pipelines, or construction of a new nuclear plant. The CPP is just a down payment on the bigger

carbon reductions that we as a nation and a world need to make. We should anticipate new mandates or carbon taxes in the coming years. So in the longer run, we should plan for the retirement of Virginia's remaining coal fleet and the buildout of our tremendous offshore wind resources.

If we exclude new sources or follow a rate-based plan, nothing will stop Dominion from building new natural gas generating plants. That would mean Virginia's carbon emissions would actually increase over time. That would not violate the CPP, but it would contradict its purpose and make it much, much harder for us to comply with future demands for further carbon reductions. For the CPP to be effective in lowering carbon pollution nationwide, it must result in actual carbon reductions. If state plans allow utilities to avoid investing in clean energy and instead build more natural gas, that undermines the whole point of the plan.

In addition to its effect on carbon emissions, Dominion's gas-heavy vision of the future would lock us in to purchasing natural gas for the next 20 or 30 years, regardless of what happens to prices. There is great uncertainty about future gas supplies and prices after about 2020, and it be very bad for Virginia consumers to be locked into buying it just because we had invested heavily in new plants. It would also make us dependent on natural gas fracking to support our power plants. Right now that fracking is taking place in other states, but drilling companies have been buying up leases in Virginia. Ask people whether they'd like to see solar panels or gas fracking in their neighborhood. I don't think there is much doubt what answer you'd get.

Finally, a continued buildout of natural gas generating plants would require the construction of the proposed new natural gas pipelines that our friends in western Virginia are fighting so hard to stop. Dominion wants to build gas plants to ensure a captive customer base for its natural gas transmission business. That may be good for Dominion, but it's bad for Virginians.

53. **COMMENTER**: Arielle Newsome, Prince William County, VA

TEXT: I think the most important reason to support Barak Obama's CPP is because we all want to live a clean and healthy lives. Even though I don't live near a power plant, I still care about the people who do. One time I saw a power plant and I saw tons of smoke coming out and I told my dad to roll up the windows because smoke can mess with your health. People that live in smoky areas can't breathe in too hard. I believe in environmental justice and that everybody should breathe cleaner air. And that's all have to say about Barak Obama's CPP.

54. **COMMENTER**: Jalonne L. White-Newsome, WE ACT for Environmental Justice

TEXT: As the Director of Federal Policy for WE ACT, I am responsible for ensuring that the perspectives of low income communities, and communities of colors play a key role

in policy making processes on the local, state and federal level. So my work is not just an exercise in policy, but the recognition that everyone--regardless of race/ethnicity, how much money you make, or where you happen to live--deserves to live in an environment that is clean, healthy and promotes a higher quality of life and welfare.

As a resident of Prince William County Virginia, an advocate, a climate change/public health researcher and most importantly a Mom, I want to thank you for being one of the states moving forward with the public hearing process on how the state will meet its obligations around the CPP, and I look forward to your team putting together a robust plan that will reduce harmful emissions of CO₂ and other toxics but also improve the health and preparedness of communities across the Commonwealth. Improving general air quality is extremely important, and addressing the impacts of climate change is something that we no longer can afford to ignore.

For the past year and half, I have been advocating that the final CPP make environmental justice a priority at the federal level, and we had some major wins with the final rule that we worked on, specifically: requiring meaningful engagement with overly burdened and vulnerable communities, the Agency completing an proximity analysis in its supplemental materials, and recognizing environmental justice concerns to a greater extent in the final plan.

There are 3 considerations that I will bring up today that I hope you will take into account as you move forward with the planning process:

- **Meaningful Engagement:** Engagement means ensuring that everyone has the opportunity to help create, implement and evaluate how this plan takes shape for the state of the Virginia. It is important that this public hearing is not a one-off but the beginning of numerous opportunities to play an active role in the planning. Meaningful engagement also means extending beyond the "normal groups" you might work with, and ensuring that the voices of the most impacted are speaking for themselves, not the others speaking for them. So don't let this be the last time we chat, as there are models out there--specifically South Carolina comes to mind--that have really taken engagement to the next level.
- **Building on the EPA EJ Proximity Analysis:** EPA has provided a lot of flexibility to determine how states comply - which could entail a combination of reducing demand, trading emissions amongst sources, improving plant efficiency or relying more on renewable sources and expanding energy efficiency. Regardless of the options you choose, I hope that state will systematically consider how these options will impact, directly or indirectly, overly burdened communities. I hope that you will explicitly expand on the EJ Proximity analysis to ensure that Virginia's particular policy prescription will benefit everyone. So that's using state and local data sources to model and examine how the emissions profile in certain communities might change, identify areas that should be targeted for resource infusion around clean energy incentive program, and of course, a just transition for our coal-based communities. Using data from the Virginia Health Equity Report, and the Health Opportunity Index are key as well.

- Creating an Environmental Justice Advisory Team for the entire process: From my experience, the communities are typically left out of the conversation, and not invited to the table. Setting up a specific "team/table" for EJ advocates for the state would be a great next step to insure we are at the table, and not on just "on the menu." Additionally, it would be a great venue to share the guidance we are developing to help state think about how they should consider environmental justice in the planning process which I hope will be helpful as we all move forward in this process.

55. **COMMENTS**: Natalie Pien, Sierra Club

TEXT: I urge Governor McAuliffe and his administration to implement the CPP without delay or dilution. Moreover, the greenhouse gas reductions required in the CPP must be surpassed. There are many reasons for this. First, we have the technology to harness clean, renewable sources of energy. There is no need to continue reliance of fossil fuels, including natural gas. Given that natural gas is a much more potent greenhouse gas than CO₂, and today we know that significant amounts of fugitive gas escape from the drill pad, the pipelines, and is purposefully released at compressor stations, natural gas projects cannot be pursued. Financial resources devoted to the numerous new natural gas pipelines crisscrossing Virginia plus upgrades to existing pipelines and compressor stations are an unwise investment. Building natural gas infrastructure ties Virginia to polluting fossil fuels for decades. Natural gas projects in Virginia must stop.

Second, more that 120 major health organizations determined that pollution from burning fossil fuels creates a health hazard. Climate change causes increased asthma attacks so much so that Richmond has been the nation's top asthma capital several times in recent years. Further, the World Health Organization classifies air pollution as a carcinogen. Due to typical siting of power plants and pipelines, economically disadvantaged communities of color absorb a disproportionate share of adverse health impacts. Did you know that 68% of African Americans live within 30 miles of coal-fired power plants? This environmental injustice must not be tolerated in Virginia.

Third, evidence of climate change is undeniable. 14 of the 15 hottest years on record have occurred since 2000. The effects of climate change threaten Hampton Roads Virginia. Sea level rise physically affects Naval Station Norfolk and surrounding military bases, compromising national security. Moreover, as former Army Chief of Staff General Gordon Sullivan states, "Climate instability will lead to instability in geopolitics and impact American military operations around the world."

An effective response to climate change beginning with the CPP will have positive economic impacts by increasing the number of jobs spawned by clean energy technologies. Already, Virginia has witnessed a 157% increase in solar jobs. By 2020, reducing carbon pollution could create more than 5600 new jobs and provide \$517 million in energy savings for Virginians. Meeting the CPP through development of

offshore drilling will threaten Virginia's tourist and sea food industries. In addition, drill rigs will present dangers to military aviators. Virginia has the opportunity to meet the CPP reductions in a way that will provide funding for expensive adaptation measures needed for the Tidewater area to address sea level rise. DEQ should take steps to join RGGI. Since 2008, emissions in RGGI states dropped 35% whereas non-RGGI states only experienced a 12% drop. Participating in RGGI will set a declining cap on greenhouse gas emissions while generating \$200 million annually through 2030 to reinvest in adaptation measures that include flood protection, clean energy, and energy efficiency programs. The cap and trade program must be a mass-based plan.

56. **COMMENTER**: Mary Jane Cobb Reyes, Lorton, VA

TEXT: Burning biomass for electricity emits about 3,000 pounds of CO₂ per megawatt hour--approximately 50% higher emissions than from burning coal. Burning biomass is not clean power. Refuse derived fuel pellets often means that there will be no air pollution control technology required during the combustion process, an EPA loophole. Refuse derived fuel pellets are not clean power. Municipal solid waste to energy is not clean power. Combustion creates deadly toxins from garbage. The Covanta trash incinerator in Lorton is becoming more toxic to its surrounding community over time as air pollution control devices are not efficient during shutdowns and start-ups for repairs which become more frequent with age. Unbelievably, periods when the downwind Lorton community (and Manassas and Centreville, etc.) are most at risk have, up until now, been periods exempt from reporting toxic exceedances.

There is no DEQ air quality monitoring facility in Lorton. Reports are prepared by Covanta and their incinerator friendly consulting firm. Covanta is, at this time, self-monitoring of toxins created at the facility and DEQ required air testing conducted annually, on the same day each year, so the trash stream could be substantially modified in the period before the testing date. Further, the ash testing is only conducted twice a year and no actual quantities of toxins are reported. The ash is first "cooked" and only the potential for leachability of this altered ash is required to be reported. Trucks sometimes bypass the tipping floor to dump their loads directly into the hopper. Further, the toxic ash is now allowed to be piled in higher and higher grades which physics would dictate allows for higher risk of failures down the line. Electricity generated from burning trash is not clean power.

Lorton, Virginia is a culturally diverse community suffering a disproportionate negative public health and environmental impacts due to massive trash burning, sewage treatment, and landfills sited without adequate buffering of residential areas.

57. **COMMENTER**: Mona Sheth, Third-party Delivered Energy Efficiency Coalition (TPDEE)

TEXT: The TPDEE Coalition is comprised of energy service companies (ESCOs) such as AECOM, Ameresco, Energy Systems Group, Honeywell, Johnson Controls Inc. (Jel), Ingersoll Rand/Trane, Lockheed Martin, Schneider Electric, Siemens, United Technologies/NORESCO (Virginia projects completed by Ameresco, Jel, Siemens, Schneider Electric, Ingersoll Rand/Trane, United Technologies, Honeywell, and Energy Systems Group); industrial efficiency actors part of the National Electrical Manufacturers Association such as ABB, Rockwell Automation, Danfoss, Siemens, Eaton, and General Electric (Virginia industrial actors include ABB, Eaton Electrical, Siemens, Lutron Electronics, GE Lighting, Valcom, Federal Pacific, Cooper Crouse-Hinds); and above-code building efficiency leaders such as the U.S. Green Building Council, which administers the LEED program. Private-sector driven energy efficiency measures amount to a \$7-9 billion dollar industry in the United States. Collectively, these private sector projects complement traditional utility-led efficiency approaches while ensuring reliable, predictable, and quantifiable greenhouse gas reductions.

Including TPDEE in Virginia compliance plans will lower costs for state ratepayers, increase industrial competitiveness, and create jobs across multiple sectors. ESCOs specialize in efficiency upgrades such as lighting improvements, HVAC controls, boilers and chillers, electric motors and drives, building envelopes including windows and insulation, renewable energy, and water conservation. Examples of past ESCO projects in Virginia include the Washington and Lee University (two-year project encompassing lighting retrofits, water conservation, boiler modifications, steam traps, variable speed drives and pool systems), as well as the Newport News Public school systems (NNPS is expected to save nearly \$700,000 annually in energy costs-upgrades included Phase 2 featured the installation of a division-wide fiber optic network). Wireless and broadband internet access throughout 42 school and 13 city buildings were replaced with 82 miles of fiber-optic cable). Virginia will be able to implement ESCO projects with ease, as the Department of Mines, Minerals, and Energy has already overseen the administration of numerous projects.

The industrial sector is diverse and includes the manufacturing, mining, construction, and agriculture segments. Large industrial and manufacturing facilities have the opportunity to increase operational productivity through efficiency measures that reduce cost, energy use, material loss, waste streams, and improve product processes and quality. There is significant opportunity to reap the myriad benefits of reducing energy consumption and energy costs through the adoption of energy management systems. Programs, such as U.S. Department of Energy's Superior Energy Performance (SEP) program, can help facilities deliver, measure, and verify the energy savings associated with implementation of an energy management system. There are several companies in Virginia that have availed themselves of the opportunity to deliver third-party energy efficiency savings. For example, Volvo Trucks, located in Dublin, Virginia, has achieved nearly 26% efficiency over the past three years.

LEED, a green building certification program, is found in nearly 72,000 projects worldwide, comprising 13.8 billion square feet of commercial and institutional construction space and more than 197,000 additional residential units (registered and certified). As of today, Virginia has 2,212 LEED certified or registered projects, equivalent to approximately 356,353,843 million square feet.

Our coalition supports the CPP's inclusion of demand-side energy efficiency as an important, proven strategy to lower carbon emissions from the power sector. We strongly urge DEQ to include this powerful tool in its state plan, which would benefit in three important ways: lowering costs for consumers, strengthening the industrial sector, and creating jobs.

First, TPDEE provides the least-cost path to compliance and is the lowest cost resource available to Virginians: TPDEE can rightly be viewed as baseload power, similar to natural gas and coal, or as a carbon-free way to meet energy demand akin to wind and solar generation. These projects pay for themselves-requiring no public financing or funding to harness efficiency savings. EPA estimates that efficiency projects will spur a 7% reduction in electricity demand by 2030, reducing electricity bills by \$7/month on average for families and businesses across the nation. Moreover, we are encouraged that the final rule gives states the opportunity to design trading-ready plans. Our coalition believes that market-based emission trading programs can drive down compliance costs and allow states to capitalize on TPDEE.

TPDEE can operate effectively in any CPP pathway. In a mass-based approach, states can incentivize and reward TPDEE by allocating allowances to all properly registered projects, including measures that occur prior to 2022. In a rate-based system, TPDEE measures implemented after 2012 can receive emission rate credits for quantified and verified savings that occur in and after 2022. In a state measures approach, EPA allows states to include EE programs and policies in their plans, without requiring those measures to be federally enforceable. Virginia should consider incentivizing and driving further TPDEE deployment by utilizing executive orders, regulations, utility-led incentives, and legislation like the Guaranteed Energy Savings Act of 1998. DEQ should take advantage of all opportunities to give credit for early action.

Second, efficiency measures have the potential to revitalize Virginia's industrial base by modernizing and upgrading industrial facilities, which will enhance the state's overall competitiveness. Inclusion of industrial measures in a state plan would direct resources toward Virginia's manufacturers to increase their ability to implement new efficiency projects. Furthermore, industrial customers can earn revenue from CPP crediting mechanisms while also lowering their operating costs through efficiency investments (by selling allowances and ERCs). According to a recent industrial efficiency Executive Order issued by President Obama, manufacturers can save as much as \$100 billion nationally in energy costs over the next decade through efficiency. That estimate translates to annual \$200 million subsidy per state to keep industrial bases strong.

Estimates of the potential to reduce industrial energy consumption through efficiency measures by 2020 are as high as 18%. A recent study led by DOE estimated that up to 32% of industrial energy use could be saved through efficiency measures. According to DOE, "These industrial energy-saving opportunities are available throughout the nation, but will be particularly important in states with a heavy manufacturing base ... where the industrial sector represents roughly one-third of the state's energy use."

Third, TPDEE creates jobs across the manufacturing, construction, engineering, financial, technological, environmental, and energy supply chains. TPDEE sectors are projected to increase exponentially in the next decade. According to a study conducted by the Lawrence Berkeley National Laboratory, an additional 17 billion square feet is available for retrofit projects--a reduction of nearly 470 million tons of CO₂ at little or no cost to the public. LBNL projects that the industry will grow to between \$10.6-15.3 billion by 2020, which would increase the potential job impact to a range of 100,000-145,000 jobs.

Our coalition encourages Virginia to unleash TPDEE--the fastest, least-expensive, and most economically beneficial way to reduce carbon pollution. With robust and diverse TPDEE already occurring at the state level, it would be a missed opportunity to overlook this vital resource in Virginia's compliance strategy.

58. **COMMENTER**: Ida Shiang, Energy Recovery Council (ERC)

TEXT: ERC urges Virginia to take advantage of the opportunities afforded by the CPP to utilize waste-to-energy as a tool to reduce greenhouse gases from the power sector. There is a tremendous opportunity to benefit from reduced greenhouse gases made possible by Virginia's past and future investment in waste-to-energy facilities. There are 84 waste-to-energy (WTE) facilities in the United States, which produce clean, renewable energy through the combustion of municipal solid waste in specially designed power plants equipped with the most modern control equipment to minimize emissions. America's WTE plants process approximately 30 million tons of trash per year, enabling them to send nearly 15 million megawatt hours of electricity to the grid, as well as export steam to local users. In addition, WTE facilities recover and recycle more than 700,000 tons of metals per year. Virginia is home to five WTE facilities, located in Alexandria, Hampton, Harrisonburg, Lorton, and Portsmouth. These facilities process more than 6,400 tons of trash per day and have an electric baseload capacity of 177 megawatts. In 2012, these WTE facilities, produced in excess of one-third of Virginia's non-hydro renewable electricity, while reducing the emission of more than two million tons of greenhouse gases.

The climate benefits of WTE technology are well-documented, both internationally and in the U.S. According to EPA, life cycle emission analysis show that waste-to-energy facilities actually reduce the amount of greenhouse gases expressed as CO₂ equivalents (GHGs or CO₂e) in the atmosphere by approximately 1 ton for every ton of

municipal solid waste (MSW) combusted. Waste-to-energy achieves the reduction of greenhouse gas emission through three separate mechanisms: 1) by generating electrical power or steam, waste-to-energy avoids CO₂ emissions from fossil fuel based electrical generation, 2) the waste-to-energy combustion process effectively avoids all potential methane emissions from landfills thereby avoiding any potential release of methane in the future and 3) the recovery of ferrous and nonferrous metals from MSW by waste-to-energy is more energy efficient than production from raw materials - thereby avoiding CO₂ from fossil fuel combustion. While the CPP only recognizes avoided GHGs from the power sector, Virginia can use WTE in its state plan to leverage other GHG reductions.

WTE is baseload power. It is important to consider that waste-to-energy plants supply power 365-days-a-year, 24-hours a day and can operate under severe conditions. Waste-to-energy facilities average greater than 90% availability of installed capacity. The facilities generally operate in or near an urban area, easing transmission to the customer. WTE power is sold as "baseload" electricity to utilities that can rely upon its supply of electricity. There is a constant need for trash disposal, and an equally constant, steady, and reliable energy generation.

WTE is compatible with recycling. Since research on the subject began in 1992, communities that rely upon WTE maintain, on average, a higher recycling rate than the national EPA average and very much in line with the recycling averages of the states in which they serve. In a paper entitled, "A Compatibility Study: Recycling and Waste-to-Energy Work in Concert, 2014 Update," Eileen Berenyi with Governmental Advisory Associate, Inc. researched the recycling characteristics surrounding 80 waste-to-energy facilities in 21 states. Recycling data was obtained from 700 local governments, as well as statewide data from the 21 states covered in the report. In 2011, the report shows that communities with waste-to-energy have an average recycling rate of 35.4%. The national average for recycling as estimated by EPA is estimated at 34.7%, while BioCycle/Columbia University estimate it to be 28.9%. Recycling compatibility is borne out by the recycling rates of European countries as it relates to their reliance upon waste-to-energy or landfilling. The most progressive countries recycle a lot, recover energy as much as possible, and landfill little. Less advanced countries landfill as much as possible, while doing little to no recycling or energy recovery.

WTE has a very positive economic impact on the communities in which these facilities are located. In Virginia alone, the waste-to-energy industry directly employs approximately 400 people with salary and fringe benefits in excess of \$34 million per year. In addition, the WTE sector creates an additional 611 indirect or induced jobs, which pay salary and benefits of more than \$31 million per year. The total economic impact of revenues for waste-to-energy in Virginia is \$423 million, including the \$236 million produced by the waste-to-energy sector directly. Every dollar of revenue generated by the waste-to-energy industry puts a total of 1.79 dollars into the economy through intermediate purchases of goods and services and payments to employees.

WTE is a cost-competitive source of renewable energy and GHG reduction. The U.S. Department of Energy's Energy Information Administration (EIA) uses Levelized Cost of Energy (LCOE) to measure the competitiveness of a particular energy resource. EIA defines LCOE as: "Levelized cost is often cited as a convenient summary measure of the overall competitiveness of different generating technologies. Levelized cost represents the present value of the total cost of building and operating a generating plant over an assumed financial life and duty cycle, converted to equal annual payments and expressed in terms of real dollars to remove the impact of inflation. Levelized cost reflects overnight capital cost, fuel cost, fixed and variable O&M cost, financing costs, and an assumed utilization rate for each plant type." The average LCOE from a new WTE facility is approximately \$85 per megawatt hour, which is very competitive. This places WTE higher than combined cycle natural gas; comparable to onshore wind, hydro, and geothermal; and less than off-shore wind, solar, biomass, coal with carbon capture and storage, and nuclear. This is comparable to other recently published values for WTE's levelized cost, including those in a recent peer-reviewed article by Duke University scientists (\$94/ MWh) and a 2014 report coauthored by Bloomberg and the Business Council for Sustainable Energy (\$48-130/MWh). In addition, WTE is a large source of low-cost GHG reductions upon which states can rely to meet their obligations under the CPP. WTE facilities can achieve GHG reductions of 70 million tons (of CO₂ equivalents) per year, with a GHG abatement cost of approximately \$9 per ton CO₂e, if the U.S. moves to a more sustainable waste management practices modeled after the European Union. The abatement cost is comparable to that of on-shore wind, and well below the cost of many other GHG abatement technologies including solar PV, biomass co-firing, and coal electrical generation with carbon capture and storage.

The CPP clearly identifies WTE as an eligible compliance tool to displace electric generation from fossil fuel-fired electric generating units. Since the CPP is implemented by states, it is imperative that Virginia include WTE as part of its state plan to ensure that the benefits of WTE can be realized in Virginia. The type of state plan adopted can have a significant impact on the ability of a state to achieve its specific policy objectives. For example, in a rate-based state plan, only generation from post-2012 renewable facilities can be used by regulated electric generating units to adjust their emission rates. This would make it impossible for existing (pre-2013) renewable facilities to monetize their GHG reductions under the CPP.

States have greater flexibility to provide policy support to existing and new renewables (including WTE) under a mass-based plan through an allocation of allowances as well as complementary state measures. Virginia's compliance plan should support the investment in WTE made by local governments by ensuring that this reliable municipal waste infrastructure is supported with tradable compliance instruments (e.g., allowances). Under a mass-based plan, states should allocate allowances to existing waste-to-energy facilities in recognition of historic and future GHG reductions. This

support will provide financial stability to GHG-reducing WTE facilities, which operate in incredibly difficult markets dominated by cheap wholesale electricity, cheap landfilling rates, and extremely volatile commodity prices for recycled metal.

Through support for existing, as well as new, WTE facilities, Virginia can ensure that the investment made in WTE can continue to provide long-lasting GHG reductions. It is important to remember that if a WTE facility closes and its waste supply is diverted to landfills, GHG gas emission in the state will increase immediately. This risk can be mitigated by treating WTE appropriately in the state plan. The result will help protect local investment, keep disposal costs low for local governments, improve grid reliability by supporting baseload power, support local jobs and the economy, and reduce GHGs from fossil electric generators and landfills.

In summary, the Energy Recovery Council urges Virginia to develop a state plan under the CPP that reinforces the solid waste hierarchy and supports the investment that local governments have made in waste-to-energy. Failure to support the waste-to-energy sector in the CPP plan will have the unfortunate impact of increasing the release of greenhouse gases, reducing renewable generation, and increasing the difficulty and cost of complying with the CPP.

59. **COMMENTER**: Dan Smolen, The Green Suits, Woodbridge, VA

TEXT: Adoption of the CPP is not only good for Virginia--it will also create thousands of high paying and stable jobs throughout the Commonwealth. With the CPP, Virginia can become the-best place in the nation for the thousands of jobs the clean energy industry needs to grow and scale. That's not hyperbole. We have the infrastructure already in place to make that happen. First, Northern Virginia has one of the highest concentrations of high-tech talent in the nation professionals who are eager to pivot their skill and experience into fields that will lead our economy's growth over the next 40 or 50 years. Second, we have the best education and training resources in the nation. Our universities, community colleges, trade schools, and other resources are readying our workforce for these fields. What is more, we are helping talent in declining industries and underperforming areas of the Commonwealth pivot their skill and experience into the clean energy field. Third, as Virginia ranks highest among states to do business, we are well positioned to make sure clean energy jobs created here stay here. That means our talent can set down roots and invest in the community, which in turn stabilizes and diversifies local economies. Fourth, and this is perhaps most compelling to Virginia's workforce, our talent want the high paying and stable jobs that investment in the CPP will bring: 40,000 in energy efficiency, 10,000 in offshore wind, and over 14,000 in solar. Virginians who are new to the workforce to those who are the most experienced want to do well (earn a good living) while doing right (help conserve our natural resources and save the planet from the effects of climate change).

60. **COMMENTER**: Tim Stevens, Falls Church, VA

TEXT: The CPP has come about as a result of overwhelming evidence that GHG emissions are disrupting our climate, leading to increasing difficulty for people everywhere to lead normal lives. The problems will continue to worsen as long as our GHG emissions continue. So the problem is clear, and the solution is clear - we need to stop GHG emissions. How we do this is of course complicated, and to be successful, it needs to involve all levels of government. My preference is that while coming up with specific actions to meet the CPP's mandates, our state government keeps in mind that the objective is to reduce and eventually eliminate GHG emissions. The goal should not be to game the CPP so that we can get by with the minimum amount of GHG reductions possible, or to use the CPP to help our investor owned utilities meet their corporate financial objectives. As you consider the many decisions you have to make, such as rate base or mass based, whether or not to join RGGI, I would ask that you use the simple test of whether or not the specific action you are considering gets us to the goal of the largest reduction possible in GHG emissions.

Our recent experience with stormwater pollution runoff offers guidance. EPA gave the states around the Chesapeake Bay a target for reducing the amount of pollutants they could discharge into the Bay. And they told the states to come up with their own plan for achieving those targets. Our state government, in turn, required each local jurisdiction to come up with a plan to reduce the level of pollutants their residents put into the Bay. The result has been rather positive, at least from the standpoint of the urban areas of the state, which now are involved and have a stake in the outcome. And in Virginia, we have had less of the "rain tax" backlash that has surfaced elsewhere.

So I would encourage you to come up with a plan that engages local jurisdictions in the effort to reduce GHG emissions. Make it clear what we are trying to accomplish and give the localities targets where feasible. Encourage people to reduce their own GHG footprint by improving the efficiency of their use of energy, by installing renewable energy systems in their homes, and to transition to electric powered cars. Finally, Virginia is so far behind our neighbors in installed solar energy. We need to remove the marketplace barriers that keep us behind many other states. I encourage you to include in our CPP ways that we can encourage a faster pace for solar energy systems, and to use the energy generated by those systems as credit toward our state's compliance with the mandates of the CPP.

61. **COMMENTER:** Susan Stillman, Vienna VA

TEXT: I am so pleased that the EPA has put forward the CPP to move the U.S. to do what needs to be done to start to mitigate climate change. The plan put forward by the EPA is a good first step and I hope that Virginia will put a plan in place that garners clean renewable energy for the state while fostering economic development that includes a massive increase in energy efficiency and solar and wind energy. I'm a gardener so I see first hand the changes in our weather and climate because of global

warming and climate change. The rains are different. The rains come in much less time and much more intensely. The weather extremes that we have been experiencing harm my perennial plants. The polar vortex kills them back to the roots. Along with changes in patterns for gardening, I've, in recent years, had basement flooding problems that I did not have in the preceding 20 years that I lived in my home. People who don't want to mitigate climate change talk about how expensive it will be. Don't think that it wasn't expensive for me to deal with the water in my basement. In fact, the cost to fix my basement was exactly the same cost as putting solar panels on my home.

I don't think that the CPP will be a short term fix for the problems I've been experiencing but I hope that a strong plan from Virginia and all the other states will take advantage of the opportunity to start the move off fossil fuels to clean renewable energy. Virginia should adopt a mass based plan and join RGGI. The plan should be structured in such a way Virginia does not build massive amounts of generation powered by natural gas. The natural gas folks want us to believe that their fuel is a bridge fuel. But the price is too variable, methane is leaked in the extraction and carbon is created in the burning. Others think we should build more nuclear energy but it is too risky and too expensive. Let's have a state plan that focuses on saving energy through efficiency and conservation and which drives the development of wind and distributed solar.

62. **COMMENTER:** Barbara Tuset, Audubon At Home in Northern Virginia, Fairfax Station, VA

TEXT: I recently retired from a technology sector career and have devoted my newfound time to volunteering to preserve and restore healthy ecosystems and wildlife habitat where our own choices have real impact, in our own backyards and neighborhoods. As we volunteers work to educate children and property owners how to be good stewards of nature and with it, our own health, we cannot work effectively over a national fabric of disregard for the impacts the choices our governments, utilities and public sector businesses make to stay the unimaginative and selfish course of investing unequally in fossil-based fuels and forsaking what we all know is a healthier, more responsible and more patriotic choice for clean energy and support for Clean Power. Our future depends on sound, clean choices that respect the right of everyone to a healthy and safe environment. Virginia is well positioned to lead in clean energy technology and jobs across the spectrum of employment. Our legislators should vote on the right side of history to support clean energy. The tired argument that pits a healthy environment against a healthy economy, that demonizes regulations designed to drive responsible behavior and applauds overblown threats to capitalism and the American way of life should be deactivated just like dirty power plants and our continued dependence on fossil fuels. Virginia and the United States must lead in this unprecedented point of danger for our country, planet and way of life. As Virginia devises its plan we should consider the difficulties faced by our neighbors in West Virginia and help them commit to clean power while taking care of their mining communities that hover near the poverty level . The fulfillment of clean power will be a

win and a cause for celebration that spurs creativity and energy to tackle the next set of tough problems that face us in taming climate change.

63. **COMMENTER**: Jean Wright, Fairfax, VA

TEXT: We know what's causing climate disruption. It is carbon pollution greenhouse gases released when carbon base fuels are dug, mined, drilled, and burned. These gases are blanketing the earth. There are consequences. We need look no further than at our neighbors experiencing increased flooding here in northern Virginia and sea level rise in Newport News. Greenhouse gas pollution is human caused. We need to stop our complicity in denial and business as usual. The CPP will reduce carbon pollution; we can harness the political will to move forward. I care because as a child of the Raleigh County, West Virginia coal fields, with generations of coal miners in my family, I know firsthand the external, undeclared environmental and health costs of mining; my great grandfather died of Black Lung Disease. As a child, I recall the miners getting off their shifts and heading to the bathhouses to shower before going home. They were so covered with coal soot that they looked like minstrel performers. The whites of their eyes and their teeth were the only visible brightness about them. I care because my grandchildren will not experience the natural beauty I once did. This saddens me. I care because my faith calls for stewardship of creation. I believe we have a spiritual, moral and ethical obligation to listen, respond pro-actively and make a difference. My caring calls me to action to protect my grandchildren and future generations from the cost of preventable diseases and environmental degradation. The DEQ has a special responsibility to act on behalf of Virginia citizens and to implement the EPA CPP. The Faith Alliance for Climate Solutions support your doing so.

Living in Richmond, Virginia, is detrimental to one's health. Soot and particulate matter make Richmond the asthma capital of the U.S. Virginia citizens have a right to breathable, clean air, free of carbon pollution.

Now, the good news is that energy efficiency is the cheapest, quickest and easiest way to reduce carbon pollution in the short-term. 30% of energy use is wasted; that is a fact. The EPA rules encourage and support states in increasing energy efficiency. Energy efficiencies implemented at every level can cut that energy waste to practically zero while creating new businesses and jobs. In fact, just 4 days ago, Governor McAuliffe announced a \$300,000 grant from the Department of Energy to the Virginia Department of Mines, Minerals and Energy, to provide expert support to them for achieving an energy reduction goal of 10% by 2020. There are tools and technologies available to quickly and inexpensively begin reducing human caused carbon pollution. One important new technology is the use of Energy Dashboards to track and show energy use at both the micro and macro levels; energy dashboards provide the data showing where and how improvements in, and reduction of, energy use can be made. Already, across the nation, many utilities, schools, homes, and communities are using Energy Dashboard technologies to show when, where, and how much energy is used;

dashboards also allow friendly competition between groups in their energy use thereby supporting reductions in energy waste. Reducing energy waste frees dollars in energy budgets. For example, George Mason University, through using an Energy Dashboard and other energy efficient technologies was able to cut its utility budget by \$2.5 million annually; annual reduction in the GMU carbon footprint is 20,505 metric tons of CO₂. And, GMU is only in the initial phases of its energy efficiencies programming. Can you imagine if all VA institutions, governments, businesses and homes did likewise? The reduction in CO₂ pollution would be staggering. Surely, Richmond would go from being the Asthma Capital to being one of the healthiest and cleanest.

We can develop CPP rules for VA. It can get done. We have 15 years to do so. Let's not waste this time dithering but in preparing for the phase 1 and 2 targets for Virginia. There is a large, diverse menu of possibilities and options in meeting the EPA CPP requirements - both directly and indirectly (including all manner of energy efficiencies). Let's not bequeath our descendants a state capital that is the U.S. Capital for Asthma; rather, let us show that we had the political will, the intellectual capacity, the visionaries, the wisdom and love needed to act on behalf of a beautiful, productive, thriving, hospitable Virginia.

64. **COMMENTER:** Quan Williams, New Virginia Majority, Richmond, VA

TEXT: While man-made Climate Change is one of the biggest issues affecting us all, our communities are more likely to be affected by and live near air polluting power plants. Asthma is exacerbated by pollutants and, in Virginia specifically, mortality rates for asthma among African Americans were three times higher than those for whites. My personal experience and struggle to manage asthma in Virginia has not been easy. Since moving to Richmond three years ago, my asthma symptoms and rescue inhalers needed have doubled. I am thankful I have health insurance. Many of our members do not--making breathing these days seem more like a privilege than a right. The CPP is not simply a win for people in Richmond but it is also a win for coastal and rural communities. If implemented correctly, it reduces pollution, lowers energy costs and saves lives. We urge DEQ and others responsible for writing our state plan to ensure that Virginia has a plan that benefits everyone in the Commonwealth and not just some.

There are 3 considerations we hope you will take into account as you move forward with the planning process:

- Increasing Meaningful Engagement. Meaningful engagement means ensuring that everyone has the opportunity to help create, implement and evaluate how our plan takes shape. It is important that these listening sessions are not just technicalities and that they are just the beginning of opportunities for the public and diverse groups to play an active role. NVM doesn't want to be a "token" organization speaking on behalf of communities of color. We want to be among stakeholders working together to ensure that those most impacted are speaking for themselves.
- Building on the Environmental Justice Proximity Analysis: We hope you will expand on

the EPA's Environmental Justice Proximity analysis to examine how the emissions profile of overburdened communities might change. This will help identify areas that should be targeted for infusion of resources and clean energy incentives.

- **Creating an Environmental Justice Advisory Team:** From my experience of talking to leaders and elected officials in working to address solutions for climate change, few are aware of what Environmental Justice even means and fewer are aware that there are disparities in impacts. Setting up a specific team/table for EJ advocates to advise in the development of the plan would be a great next step.

In conclusion, there is a quote that really resonated with me that I'd like to share here. "Energy -who has access to it and what it is used for -- has never been race or class neutral."

65. **COMMENTER:** Jeremy Richardson, Union of Concerned Scientists

TEXT: I have a unique perspective on reducing greenhouse gas emissions from the burning of fossil fuels. As a scientist, I understand the urgency to reduce greenhouse gas emissions to protect the planet's climate. As the brother, son, and grandson of West Virginia coal miners, the question of how we go about tackling climate change is deeply personal to me. First, on behalf of UCS's more than 450,000 supporters, I want to say that we strongly support EPA's efforts to limit carbon emissions from fossil fuel-fired power plants under the Clean Air Act. Simultaneously, I want to emphasize the need for special consideration for the families and communities facing the negative consequences of the transition to a cleaner, low carbon energy system. We appreciate DEQ's commitment to preparing a strong and timely plan for compliance with the CPP. As readily-available zero-emitting resources, renewable energy and energy efficiency are poised to help accelerate the transition to a cleaner energy economy.

Human-induced climate change is already having impacts that are being felt by people here in Virginia and around the world. If we collectively fail to make deep reductions in our carbon emissions, we will greatly increase the risk of serious economic, health, and environmental consequences particularly from accelerating sea level rise and storm surges. These impacts are a direct consequence of the increasing concentration of greenhouse gases like CO₂ in our planet's atmosphere. Power plants are the largest single source of U.S. CO₂ emissions, representing about 40% of the total. Reducing emissions from the electric power sector is therefore crucial to our overall efforts to tackle climate change. These facts compel us to act, and to act decisively. In doing so, we must recognize that some regions of our country are facing a heavier burden than others in accelerating this transition to a less fossil-intensive electricity system. The CPP provides a path forward for reducing emissions from the power sector. Our recent analysis of the final rule indicates that Virginia is well positioned to meet its final targets established by the CPP.

Renewables such as wind and solar emit no carbon, and are already delivering safe, reliable, and affordable power to consumers. They also help states diversify their electricity mix, improve public health, strengthen state and local economies, and reduce the risks of over reliance on natural gas. For example, the cost of rooftop solar is already equal to retail electricity rates in 14 states, and this number could more than double over the next year as the costs of solar continue to fall according to a recent study by Deutsche Bank. Virginia lags behind neighboring states in solar development, currently ranking 31th in installed solar capacity. Meanwhile, the cost of wind power dropped 43% in the last four years-and is now competitive with power from new fossil fuel plants in some regions of the country. Multiple market factors are making coal-fired power too expensive relative to other cheaper, less polluting options like natural gas, renewable energy, and energy efficiency.

Recognizing that the electricity grid does not stop at state lines, EPA has elevated the option for states to comply on a multi-state or regional basis. This provision for trade-ready plans creates an opportunity for new or expanded multi-state collaborations to drive down emissions at a lower cost. Virginia should be looking hard at how revenue generated from such a program could be used to invest in energy efficiency and renewable energy; as well as to provide support and training for communities and workers hit hard by the transition in the energy sector. Together with federal policy makers, Virginia should help ensure that economic diversification and resources for worker transition are an important part of its plan. In doing so, together we can not only establish a strong standard to protect the planet's climate, but also ensure that workers and communities have fresh economic opportunities; as market forces continue to drive a shift away from coal. I do not accept that this is an "either-or" proposition. Our children and our grandchildren will face the risks of a vastly different climate caused by our failure to act to reduce emissions today. My young niece, and maybe someday her children and grandchildren, will face an uncertain future if we don't get the second part right too. It is much harder, but it is imperative that we do both.

66. **COMMENTER:** Usa Jacobson, Business Council for Sustainable Energy (BCSE)

TEXT: BCSE is a coalition of companies and trade associations from the energy efficiency, renewable energy and natural gas sectors, and also includes independent electric power producers and investor-owned utilities. The coalition's diverse business membership is united around the revitalization of the economy and the creation of a secure and sustainable energy future for America. BCSE is a national organization and has members with commercial activity and jobs in the Commonwealth. BCSE members see Virginia as an opportunity state for investment. The release of the final CPP marks a significant milestone on the path to cleaner, more efficient sources of power generation in Virginia, using affordable, readily-available technologies. BCSE commends the leadership of the McAuliffe Administration in its intention to meet or exceed its CPP targets. The CPP also offers a great opportunity for constructive partnership between state policy-makers and the private sector, with clear paths to

explore state-specific and multi-state options for compliance. And according to a study by Bloomberg New Energy Finance and the BCSE, given its current and pending emission reduction activities, Virginia has already made significant progress toward meeting its final 2030 targets. Specifically, plant retirements from its fossil fleet, increased utilization of natural gas and current and pending renewables build take Virginia 18% toward meeting its 2030 rate-based target, while the state is already halfway towards achieving its 2030 mass-based target. Further, the study finds that sustainable electricity sources including natural gas, small hydro, combined heat and power and onshore wind, solar PV, and waste-to-energy are already among the cheapest options for generating electricity in the state. Also, Virginia should consider supply-side and demand-side energy efficiency.

I would like to offer the following preliminary recommendations for Virginia's state plan:

- Virginia should consider participation in the Clean Energy Incentive Program (CEIP). The program is still under development and BCSE is working with EPA and states to ensure that the CEIP provides a clear signal for action and does not delay investment in energy efficiency and renewable energy during the 2016 to 2020 time period.
- Virginia should adopt a "trade ready" approach, and should consider market-based elements to ensure cost effective compliance.
- Virginia should consider the full portfolio of clean energy technologies and resources for compliance planning. This includes rate-payer and non-rate payer programs and actions, including third party delivered energy efficiency.
- Further, if Virginia allocates allowances or auction allowances under its state plan, it should provide allowance value to clean energy technologies and resources to spur investment and provide clean energy market signals.

67. **COMMENTS:** Daryl Downing, Chesterfield, VA

TEXT: I may look like an environmental activist, which I am, but know that I served as an Air Force officer for 24 years. I swore to support and defend the Constitution of the United States against all enemies, foreign and domestic. I'm now retired from the military but there's a domestic enemy that needs to be "taken out." I'm talking about coal-fired power plants. We need to significantly reduce greenhouse gas emissions and emissions of heavy metals like mercury and coal ash and mountain top removal mining which is devastating the home of our brothers and sisters in Appalachia and particulate matter which contributes to asthma and other serious health problems and well you get my point. Every aspect of coal mining and burning is harmful to life (both human and non-human) and should be eliminated as soon as practical.

I proudly fly the American flag outside my house every day. Part of the reason I do this is not for what we've achieved to date as a nation (significant though that is) but for the promise of a better future, a cleaner future for our children and all future generations. We've done them a great disservice and the CPP is an excellent start to address historically weak regulation of a toxic industry. I charge Virginia and DEQ to embrace

CPP and implement it as vigorously as you can for the betterment of this great state and the people who live, work and play here. CPP is also important for our furry and feathered friends and the ecosystems they need to prosper. It's time to be on the right side of history.

68. **COMMENTER:** Shana Moore of Palmyra, VA

TEXT: I want you to picture sitting on the beach, enjoying a lovely sunny day, drinking a tall glass of ice tea. Now, when your glass is getting empty, do you keep gulping from your empty glass? Take tinier sips and ration? Or do you reach for that cooler of bottled water and longnecks beside you? Reaching for those alternative, thirst-quenching drinks makes more sense than slurping at a near-empty straw or rationing. Virginia is at a unique crossroads where the CPP, the retirement of existing energy infrastructure, and the existence of increasingly affordable and efficient technologies coincide. It was estimated in 2011 that 95% of the coal capacity and 99% of the gas capacity will be retired in the U.S. by 2050. Many of our existing coal plants are already 15 years beyond the typical retirement age and operate at roughly 20% reduced capacity. If we are naturally retiring plants, doesn't it make sense to replace those facilities with options that are better for human health, are more efficient, are renewable, and are job generators, not just holders of declining or stagnant employment? Natural gas looks promising; however, I urge DEQ to consider natural gas only as a transition to renewables, as it has a long history of price volatility and a hidden price tag in terms of human and environmental health. Switching to natural gas would only make sense if we didn't have healthier, cleaner and more efficient energy alternatives available. I do believe that existing natural gas infrastructure is part of our transition plan, but it should not be our first step if we want to remain competitive and stable well into the future.

Some things to consider. The CPP is about choice and diversification of our energy portfolio so we ensure long-term energy needs for the next 50-100 years and beyond. CPP looks at the big picture, not just short-term costs, and balances the 3Ps: People/Planet/Profits. Studies by the Union of Concerned Scientists, EPA and more show that average bills might increase slightly in the short-term, but the long-term average bill will get lower. Renewable energy jobs are a quickly growing and substantial economic sector; between 2012-13: solar had a 20% increase in jobs, wind had an increase of 51,000 jobs, hydropower supports 2-3,000 jobs with an estimated capacity for an additional 2-700,000 jobs, geothermal supported 35,000 jobs, wave and ocean power supported 370 jobs with the capacity for an additional 36,000, biomass supported 152,000, waste-to-energy supported about 13-14,000 jobs. That's a conservative total of 396,370 jobs in a growing sector, with capacity that reaches over 1 million. Change is not painless, but we desperately need to diversify and modernize our energy grid while we have time and choices. We cannot afford to adopt a wait-and-see strategy and then be forced to catch up on the back end, as that will cost more in terms of dollars, rushed planning, and an unstable power grid.

I encourage DEQ to consider the following:

- Incentivizing the development and construction of renewable energy sources to replace carbon-based facilities on both an individual and corporate level. One way to do this would be serious consideration of the carbon fee and dividend option presented by the Citizens Climate Lobby, which internalizes the costs of burning carbon-based fuels, and is an excellent transition strategy with good chance of bipartisan support.
- Working on a multi-state plan similar to RGGI, perhaps links to some of the Chesapeake Bay goals.
- Continued use of existing avenues for nuclear and Natural Gas
- Instead of using public monies to build more Natural Gas pipelines; I would encourage the state to strongly consider investing in renewable sources that will help us remain competitive on a national and global scale.
- We should only be investing monies into these sources that are necessary to see us through a 5-15 year transition period, at most.

There is a steady stream of misinformation, largely based on the fears of change and lost profits, yet a surprisingly large group of analysts, journalists, and activists agree that CPP implementation, done with careful consideration and outside the influence of self-interested parties, can help to create jobs, reduce energy bills, and vastly increase human health on local to global scales. This includes groups near and far, such as the Union of Concerned Scientists, the University of Maryland, Georgia Tech, The Economic Policy Institute, NextGen Climate, Stanford University, The National Renewable Energy Laboratory, and more. It is a simple fact that using non-renewable resources will eventually end in want because those sources are not renewable in our lifetime or even that of our great grandchildren, several times over. So, we can look at the CPP as an onerous and burdensome task or we can look at it as an opportunity to be innovative, protect the health of our citizens, and improve our long-term economic forecast for the next 50 and 100 years and beyond, not just for the next 5-10 years. I urge you to consider strong incentivizing of renewable energy sources, a carbon fee and dividend program, and a regional plan to help Virginia stay competitive, healthy, and strong. Let's not pursue short term convenience strategies that put us at risk and make us less competitive; let us instead seek to balance the 3 P's of People, Planet, and Profits now and into the long-range future with renewable energy sources.

69. **COMMENTER**: Richmond Audubon Society, Richmond, VA

TEXT: David Yarnold, President and CEO of National Audubon Society (NAS), commented on the impacts of climate change: "warming trends are one of the most significant threats to birds, their habitats, and global diversity." Scientific studies show these warming trends are created by carbon pollution from fossil fuels. Bird migration patterns have already been impacted up and down the 4 migratory superhighways in the sky we call flyways--Virginia sits right smack in the middle of the Atlantic Flyway. Of the 305 North American winter species, 60% are shifting their ranges northward on an average of 35 miles--change you can see in your back yard.

In 2009, NAS partnered with 22 other groups forming the Wind Turbine Guidelines Advisory Committee including the Nature Conservancy, Defenders of Wildlife, Dept. of the Interior, and U.S. Fish and Wildlife Service as well as several major wind companies to develop workable, consensus-based wind energy siting guidelines. These are important because they provide a foundation for protecting birds and bats on the ground as well as in the air because wind developers are now expected to avoid building turbines in ways that divide critical habitat areas like forests, grasslands, and other threatened places. One thing we want to emphasize is that these guidelines aren't only for birds-they will also:

- help create jobs for local economies throughout VA
- contribute to lower power bills
- lower pollution
- provide a road map for collaboration between industry and conservationists
- make America a healthier place for people and wildlife to live

We support clean and renewable energy, including wind and solar with the caveat that these projects are designed to minimize impacts on bird flight patterns and include studies focused on how to minimize invasiveness to the environment. If the U.S. obtains 20% of its electricity from wind power by 2020, it will reduce greenhouse gas emissions equivalent to taking 71 million cars off the road or planting 104 million acres of trees. Expanding wind power instead of fossil fuels also avoids the wildlife and human health impacts of oil and gas drilling, coal mining, and burning fossil fuels. DEQ can help solve this problem through creation of a strong Virginia plan focused on more energy efficiency, more renewable power.

- Consider extending the Air Check Virginia program currently in effect in northern Virginia to the entire state. Vehicle emissions contain pollutants that may affect water quality in the Chesapeake Bay and its tributaries.
- Continue funding and other support for the Virginia CZM Program Eelgrass Restoration Efforts. These beds are a protective nursery for many juvenile fish including menhaden, herring, shad, spot, croaker, weakfish, red drum and silver perch. They are also a valuable food source for migrating waterfowl such as Brandt, the American Widgeon and Green-winged Teal. The Canvasback duck searches the sediment under grass beds for nutritious seeds, roots and tubers. Protecting these plants help increase migrating waterfowl.
- Support renewable power: Virginia is ranked 26th in the nation for renewable capacity. Most forms of renewable energy emit zero CO₂ in the production of electricity. Therefore, the use of these sources as a substitute to high carbon producing coal will significantly reduce Virginia's carbon intensity.
- Wind power is currently the most economically competitive form of renewable energy. Wind power facilities can harm birds through direct collisions with turbines and other structures, including power lines. Wind power facilities can also degrade or destroy habitat, cause disturbance and displacement, and disrupt important ecological links.

Audubon strongly supports wind power and recognizes that it will not be without some impact; however, harmful effects to birds and other wildlife can be avoided or significantly reduced in the following ways:

- Proper siting and operation of wind farms and equipment;
- Development of new technologies that help minimize harm to birds and other wildlife;
- Mitigation of habitat and wildlife impacts through conservation measures;
- Strong enforcement of existing laws that protect wildlife, including the Endangered Species Act, Bald and Golden Eagle Protection Act, and Migratory Bird Treaty Act.

70. **COMMENTER**: Elizabeth Kennon Williams, MD, Batesville, VA

TEXT: I am a physician, recently retired from a pediatric practice in Charlottesville. Before medical school, in college in the late 60s and early 70s my area of study was biology; and after college I worked for a chemist at University of Kentucky who was studying photosynthesis, the process by which plants consume CO₂ and water to create complex carbohydrates, the fuel of life. Of course, occurring with the imminently necessary help of the sun. And the byproduct of this miraculous chemical reaction is CO₂. And here we see the root of the cycle of life on our planet and our exquisite interdependence. The focus of my entire career has been the healthy future of my patients - children, teenagers and young adults. We all know the tremendous amount of work, love and attention required to raise a child. We yearn for a healthy, creative, and content adult life for children, the future of our society. So I would like to speak to you for the children of Virginia. And I ask, are we undermining all our efforts, all our hopes, by failing to adequately address climate change?

All of you know the science behind climate change, the ill effects of greenhouse gas emissions and the dire predictions of climate disruption and devastation. What future do our children and children's children face in light of climate change and our continued use of fossil fuels? The predictions are bleak. This is a moral question for each and every one of us and for society at large. Those of us with education and the ability to act are obliged to respond. Virginia's response to EPA's CPP is an important step to turn around the increasingly dismal predictions of global warming and environmental disruption. I ask Governor McAuliffe to vigorously support a move away from fossil fuels, including methane-leaking natural gas, toward robust development of alternative energy and increasing energy efficiency. We already have a good model in RGGI.

71. **COMMENTER**: Kendyl Crawford, Sierra Club, Richmond, VA

TEXT: As a young adult I am very concerned about the consequences of climate disruption. According to a recent report by Dr. James Hansen, long-time chief climatologist for NASA and current adjunct professor at Columbia University, there is a serious threat of rapid sea level rise this century. Hansen and the 16 notable researchers who co-authored the study are worried that sea level rise of around 10ft. is possible by 2100 on current trajectories compared to the IPCC predictions of 3 feet in

the same timescale. This is horrifying as I expect to be alive for the majority of this century and the home where I grew up and my mother continues to live in Hampton, VA is only about 10 feet above sea level. Hampton Roads is the second most vulnerable area in the United States to sea level rise and storm surge. By immediately reducing carbon emissions in addition to more short-lived greenhouse gases, we can slow sea level rise. I applaud the standard set by EPA which is finally addressing our largest source of carbon pollution in the U.S., the power sector. I encourage DEQ to recognize the urgency of reducing greenhouse gases not only in Virginia, but around the country and the world also. Virginia has the opportunity to lead in clean energy development especially looking at offshore wind in Hampton Roads. In addition to clean energy, energy efficiency provides another excellent opportunity to cut greenhouse gas emissions and should be prioritized as well. Our plan must be just and equitable prioritizing the physical and economic health of the citizens of Virginia over corporate interests. Additionally, as DEQ is developing its plan I hope for deep and sustained engagement with the communities that are located closest to our power plants and experience the brunt of the negative effects of the societal necessity of power production. Lastly, Virginia not only has the capacity to meet, but also to exceed our state goal under the CPP It is only by acting locally and thinking globally that we will successfully address climate change.

73. **COMMENTS:** Lee Anne Williams, Richmond, VA

TEXT: I am in support of the CPP. I believe that Governor McAuliffe and his administration must provide scientifically informed, climate leadership and action in Virginia. Action that protects Virginia communities and lowers our carbon emissions, while decreasing our reliance on natural gas and coal. Whether or not we begin deeply cutting our emissions this decade will determine if we can expect the same from rapidly developing nations like China and India next decade. That, in turn, will determine whether or not humanity can stay within a collective carbon budget that will give us a decent chance of keeping warming below levels that our own defense department has said are unacceptably dangerous. We don't have another couple of decades to talk about the changes we want. We need a clear strategy with enforced deadlines now. We know that if we continue on our current path of allowing emissions to rise year after year, climate change will change everything about our world. Major cities will very likely drown, ancient as well as modern cultures will be swallowed by the seas, and there is a very high chance that our children will spend a great deal of their lives fleeing and recovering from vicious storms and extreme droughts.

Virginia needs to respond with a plan that lowers carbon emissions and mobilizes resources for communities on the front lines of sea level rise. A plan that caps total carbon tonnage is the simplest way to ensure Virginia reduces its carbon footprint. The plan must cover both new and existing sources to ensure adequate pollution reductions. We need to expand energy efficiency programs, and fund flood protection measures to areas vulnerable to sea level rise. I believe it's imperative that the DEQ put us on a path

to join RGGI. This proven program would set a declining cap on our carbon emissions while generating \$200 million annually through 2030 to reinvest in local solutions, including flood protection measures along our coast, and clean energy and energy efficiency programs statewide. Wind and solar are mature technologies that are getting cheaper every day. Utility scale solar is now beating natural gas on price alone in many parts of the country. Renewables are much more reliable than power based on extraction, since those energy models require continuous new inputs to avoid a crash, whereas once the initial investment has been made in renewable energy infrastructure, nature provides the raw materials for free. Proposed gas pipelines and new gas power plants are the wrong choice for the Commonwealth. The DEQ must champion clean energy and energy efficiency over obsolete and deadly fossil fuels.

74. **COMMENTER**: Amelia Pieti, Richmond, VA

TEXT: It is in Virginia's best interest to develop a plan that creates more clean power, focusing on significant increases in energy efficiency and renewable energy. A way to approach this is to count all carbon pollution emissions from new and existing sources of electricity. Capping that amount and then working to reduce the total pollution emissions resulting in a true reduction of carbon emission. If the state were to meet its already existing voluntary goals, reaching 15% of generation from renewable resources by 2025 and decrease consumption 10% through energy efficiency programs by 2022 then the state would actually beat the EPA's emission reductions targets by 20%. As a state we also need to jump start our renewable energy programs and begin to utilize Virginia's potential for wind and solar energy. So as a state we are not only lowering our carbon pollution from power generation but also setting ourselves up for future success, ensuring a future with more reliable and affordable energy. In addition more renewable energy generation will create competitive 21st century careers. In communities where coal has been a significant economic driver and source of employment the state has the opportunity to focus workforce training and economic development funding on the workers. We need to ensure that Virginia's plan benefits the people of Virginia by reducing energy bills and re-investing in projects that further reduce the impacts of climate change creating healthier air and a healthier community.

75. **COMMENTER**: Mary Finley-Brook, Chesterfield, VA

TEXT: I am a resident of Chesterfield County and mother of three young children. My number one priority is their health and safety: fossil fuel power plants polluting our air and water and disrupting climate patterns are one of the greatest risks to their current and future wellbeing. I am here to ask you to act decisively to significantly limit carbon pollution to protect my children and all current and future generations. My awareness of threats we face builds from academic training. I have an undergraduate degree in Environmental Studies and doctoral degree in Geography and the Environment. My research since 2008 has focused specifically on climate and energy policy. With the gravity of our situation, climate change is a topic I discuss in every class I teach at the

University of Richmond, where I have worked for over nine years. I want to start by sharing with you three common messages I tell my students:

- My generation and those before me have let them down and have avoided action to resolve the biggest challenge of our time. Whatever the focus of their studies (e.g., economics, law, political science, etc.), they must prepare to act on climate issues because other challenges they want to resolve, whether it is food and water security, international conflicts, or public health, will be influenced by climate disruption. I also note that this is an exciting time to be involved in climate policy because it is not too late to avoid the worst scenarios and most extreme crises. I hope that you will finally help change our destructive past energy policies instead of continuing to burden future generations due to short-sightedness.
- One of the major take-away lessons from 5th Assessment Report of the Intergovernmental Panel on Climate Change is that there is high scientific certainty that we need to reduce greenhouse gas (GHG) emissions by 40-70% (from 2010 levels) by mid-century to avoid temperature increases over 2°C, which would significantly alter life on Earth as we know it and cause trillions of dollars of economic damage and loss. I mention this range of 40-70% for necessary GHG reductions because it shows states considering coming in at or near the floor of the levels put forth in EPA's CPP are acting immorally, irresponsibly, and with deficiency. We must be more ambitious with our state standards.
- The transition to renewable and alternative energies is good for job growth and good for the economy. For the past five years I have worked with interns in the University Renewable Energy Education Program (U-REEP) to document win-win solutions that make sense economically and ecologically. We can't continue to invest billions of dollars in new fossil fuel infrastructure as these will become stranded assets. We need these same monies to be invested in long-term solutions-- not energy types that should be phased out as soon as possible. Interest groups who argue that we have to choose between environmental health and economic well-being are often those who profit from the status quo and resist change because it is not as profitable for them personally. Politicians and state agencies need to work with energy advisors who are independent and not motivated by personal gain in order to make better decisions for the public good. We can have a healthy environment and strong economy at the same time.

With all due respect, I do not agree with President Obama's "all of the above" energy strategy, but I do appreciate the detailed attention in the CCP to energy solutions that will protect the most vulnerable and marginalized populations. Environmental and social justice concerns should remain forefront during our state energy transition as we also seek to capitalize on federal funds for green business and clean development.

- We should target energy efficiency and conservation. This lowers electricity bills, which are disproportionately high for low-income populations. Weatherization programs and energy audits should become standard. There are job training and employment opportunities in efficiency and conservation fields. These are also cost effective ways to reduce greenhouse gas emissions and avoid the need for new fossil fuel infrastructure.

- We need to invest in clean energy, including solar, wind and geothermal. We should maximize on incentives offered from the federal government for early deployment of clean energy. There will be job growth and we will improve air and water quality while protecting public health and lowering health care costs. All Virginians will be healthier, but particularly the low-income, communities of color disproportionately living nearer to fossil fuel energy plants, facilities, and terminals. We should create green energy hubs in areas of economic blight and also attract investment for brownfields redevelopment.
- We should phase out all coal use as quickly as possible and take advantage of the federal government's POWER+Plan to invest in workers and jobs linked to clean alternatives.

76. **COMMENTER**: Steven R. Heinitz, Mechanicsville, VA

TEXT: I have been following the development of the CPP over the last few years and have previously provided input to the EPA during the public comment periods. Climate change has been in the news a lot lately especially recently with the visit of Pope Francis to the United States and his concern that climate change is a threat to the future of humanity. For a while the term global warming was being used excessively and many critics were questioning the science. At this point the consensus of 99+% of scientists around the world is that man is contributing to excessive climate change by the burning of fossil fuels. Now is the time for Virginia to develop a plan to ensure that power plants throughout the state reduce CO₂ emissions to meet the interim CO₂ performance rates between 2022 and 2029 and the final emission performance rates by 2030. I encourage Governor McAuliffe and DEQ to take aggressive climate action steps that lower our carbon emissions and reduce our over-reliance on natural gas as a fuel for power generation. I support Virginia joining RGGI. I also support a mass-based plan for both new and existing energy sources that caps total carbon tonnage. The future health of Virginia's economy, our natural environment and our citizens greatly depends on developing a CPP for Virginia that will effectively combat the devastating effects of climate change.

77. **COMMENTER**: Bill Tracy, Burke, VA

TEXT: DEQ should take the following actions:

- Continue the open and timely communications with public about the CPP.
- Provide additional background to the public, such as CO₂ emissions in the U.S. and Virginia from 2005 to 2030, to help the public better understand the overall magnitude of the CPP.
- Review and comment on EPA's CPP summary sheet for Virginia. To the extent that the Virginia state-at-a-glance summary sheet may be misleading, provide clarification for the Virginia public.
- Provide tentative specifics of the actions Virginia may have to take to comply with the CPP. I am not asking for a partisan assessment, but rather a balanced presentation that discusses various options and approaches. Currently, Governor McAuliffe is

suggesting Virginia can readily exceed the CPP targets. But we need to know, how?

- Review EPA's utility model for Virginia. Advise citizens if DEQ agrees with the EPA model, and provide specifics about how EPA's model manages Virginia power plants from now until 2030. See further discussion below.

- Clarify to the public that CO₂ does not cause negative health effects. I was concerned at the Lorton Listening Session when various speakers (including the speaker from the American Lung Association) implied that CO₂ caused asthma and premature deaths. While I share the concerns about reducing particulates and air toxics, we should be clear that climate change is the main problem with CO₂ per se.

My personal CPP energy philosophy for Virginia:

- Virginia's CPP strategy should focus on minimizing reliance on coal combustion while keeping Virginia's utility costs as low as possible. Alternate technologies that I favor include energy efficiency, highly-efficient natural gas, on-shore wind, solar, and trash-to-energy.

- I advocate strongly for trash-to-energy, feeling landfills are wasteful and cause pollution (e.g., methane emissions). However, at the Lorton Listening Session, I was dismayed to hear that the Lorton trash-to-steam facility may be creating excessive pollution. I advocate for modern, low-emissions trash-to-steam plants.

- I support clean coal technology (gasification) to maintain a viable, environmentally acceptable coal and/or wood waste business in Virginia.

- Virginia should strive to achieve a portfolio of cost-effective energy options (both natural gas and renewables) that can attract future business growth, including manufacturing.

I have authored a blog article on the Bacon's Rebellion web site entitled: "Yes, Virginia, the EPA is still cracking down on you." In that article, I take a preliminary position that the CPP targets could be very difficult for Virginia to achieve. Apparently, however, EPA does have a utility model that implies Virginia may have a relatively easy path to achieve the CPP targets. On the EPA's state-at-a-glance summary sheet for Virginia, the EPA model predicts that Virginia will likely achieve as low as 959 lbs CO₂/MWhr by 2020, before the CPP even takes effect. My preliminary calculations suggest that would require shut down of all but one coal plant in Virginia by 2020. I have personally contacted the EPA to ask if their 959 lbs CO₂/MWhr model number is possibly in error. EPA did kindly respond to me, but without giving me any specific justification or documentation to support their summary sheet value. It is important to understand how EPA's utility model predicts Virginia's future energy strategy. Although EPA claims that their model was not directly used to develop the Virginia CPP targets, the model may be factoring into their decisions. Also the EPA model may be misleading, if it turns out that that DEQ does not agree with the EPA model assumptions.

78. **COMMENTER**: Douglas Throp, Norfolk, VA

TEXT: I am writing in support of the EPA CPP. I live in Virginia and I am appalled by the

resistance to positive, life enhancing measures like the CPP. It is important and practical legislation for helping to clean up our air and any attempt to fight or water down its measures is misguided. Dominion Virginia Power should embrace this legislation and go even further, because it is the right and moral thing to do.

The health of our planet is in serious trouble. The extreme levels of carbon in our atmosphere and absorption of carbon by the oceans are having horrible consequences on life throughout our biosphere. They threaten not only human life, but the health of thousands of species. Unless dramatic changes occur in the near future, climate disruption will grow worse and bring about ever worsening extremes in temperature and precipitation events. World food production is bound to suffer. Even if such measures as the CPP have relatively minor effects on reducing world-wide greenhouse gas concentrations, the health of our citizens in Virginia will be significantly improved by the reduction of various other pollutants in the air we breathe.

I don't blame Dominion and similar corporations for all our problems. There are many causes for ever greater concentrations of greenhouse gasses in our atmosphere, including agricultural practices, the design of our cities, transportation systems, and the design of our homes. Significant improvements are needed in many areas. I'm sure that those who work for the power industry see their jobs as serving the public. But if the power industry doesn't do its share in contributing to the solutions for reducing the global threat from growing greenhouse gas concentrations in the atmosphere, then we all lose. The power generation industry is a necessary player in our civilization. Even though we need to greatly expand the proportion of total energy produced by renewable means, we also need the power generation industry to remain healthy in order to serve as a backup source of power and a distributor of power in general. Of course we should ensure that such backup power generation causes as few negative side effects as possible. It is understandable that the power industry might feel threatened by the growth of solar installations or private wind farms causing a reduction in the total power sold by the power industry. In Virginia, our major power producers are granted near monopoly power. And in return, the state ensures a certain level of profitability. Within that framework, the CPP will help our environment while having relatively minor effects on the bottom line for major power producers like Dominion. Dominion and our elected representatives need to stop thinking of themselves as being either for or against Dominion and instead serving the greatest good for one and all. And I count Nature as being a big part of that "all." We can't survive or thrive without a healthy environment.

My only question about the CPP itself is whether its limits are strong enough. I have heard from a few sources that its limits on the release of greenhouse gasses are not restrictive enough and I fear they are correct. The CPP may not be sufficient, but it is a necessary step. Virginia should fully support it and go even further. Rather than building any more power plants powered by the burning of fossil fuels, all growth in electricity generation can and should be done using clean renewable sources of energy.

79. **COMMENTER**: Barry DuVal, Virginia Chamber of Commerce

TEXT: The Virginia Chamber represents over 23,000 employers in the Commonwealth. As the voice for Virginia's business community, the Chamber has developed Blueprint Virginia: A Business Plan for the Commonwealth, a comprehensive initiative to provide business leadership, direction and long-range economic development planning. As set forth in Blueprint Virginia, we recognize the need to create a balanced, sustainable energy policy that supports economic development and job growth while meeting the growing needs of Virginia's population and business community. Virginia's business community values clean air but wants to ensure that the state implementation plan for EPA's CPP does not adversely affect Virginia's economic competitiveness. In prior letters to EPA, the Virginia Chamber raised concerns about the impact of the CPP. Now that DEQ is tasked with developing a plan to implement this EPA regulation, the Virginia Chamber requests that the state plan incorporate the concerns of the business community, include the least burdensome means of achieving Virginia's carbon emissions goals, and ensure the continued availability of reliable and affordable energy for the citizens and businesses in Virginia. The Virginia Chamber urges DEQ to adopt implementation measures that strike a balance between improved air quality and continued economic growth. I encourage you to consult with the business community as you contemplate the options Virginia will consider to implement the CPP.

80. **COMMENTER**: 206 emails (see Attachment D)

TEXT: I urge you to implement a strong state plan that readies Virginia to join RGGI. This is our best option to cap both new and existing sources of carbon pollution and mobilize resources for communities on the front lines of climate change impacts. RGGI would generate \$200 million annually through 2030 to reinvest in local solutions, like protecting coastal communities from sea-level rise. The RGGI program has a proven track record of success. Since 2008, emissions in participating states dropped 35% versus 12% in non-RGGI states. According to a recent study by the Analysis Group, RGGI produced \$1.3 billion in net economic value for participating states from 2012-2014 and led to nearly 14,200 additional jobs. It is critical that you craft a state plan that readies Virginia to participate in RGGI in order to bring bold solutions to our communities on the front lines of climate change.

81. **COMMENTER**: J. Wesley Saunders, Jr., Melissa Hundley, Rick Sutton, Raymond Scruggs, Michael Brickler, Jeanie Drescher, Kathy Childs, Michael Jamison

TEXT: These commenters expressed general support for the CPP but oppose the installation of industrial wind turbines, particularly in Alleghany County.

82. **COMMENTER**: John Asa Hertzler

TEXT: Please bend all efforts for producing electricity away from use of fossil fuels and

toward wind, solar, or water, even if electrical rates would subsequently rise.

83. **COMMENTER**: Anne Lusby-Denham

TEXT: The CPP is a win-win both for our economy and the environment. A strong plan can reduce pollution while also creating good-paying jobs in renewable energy. It is evident that we need to continue to increase our efforts in renewable energy. The Mayor of Virginia Beach, Will Sessoms, stated, "We cannot afford to do nothing, it is time to act." He said this at the "Rising to the Challenge" conference in Norfolk, June 2014. Hampton roads is experiencing the highest level of sea rise along the East Coast. For this and many other reasons Virginia needs to be a leader in the development of clean energy. We particularly need to move forward with solar energy since we currently rank 30th among the states in our development of solar. Over 14,000 jobs focused on solar power generation can be realized. Gas pipelines will not be helpful to Virginia or the CPP. Property values will drop and our water supply will be threatened among many other concerns. The compression stations will add to air pollution; the people employed by these companies will be from out of state; and the gas will be imported to other countries with no benefit to Virginia. What will come out of it for Virginia is a degraded environment and landowners who feel betrayed by their government. My hope is that our representatives and agencies in government will treat its citizens the way they would wish to be treated.

84. **COMMENTER**: Merrill Miller, Broadway, VA

TEXT: Give incentives to homeowners, schools, and businesses to install solar panels. Give incentives to cities and towns to be green. Please make it possible for all homeowners, no matter how poor, to install solar panels.

85. **COMMENTER**: Dave Werner, Rocky Mount, VA

TEXT: I am definitely for moving ahead quickly with solar and wind power sources of electricity in order to reduce fossil fuel dependency and emissions.

86. **COMMENTER**: Lawrence Miller, Harrisonburg, VA

TEXT: I am writing in support of the CPP. I believe that we need to move toward a cleaner environment and to slow global warming. If it raises our energy bills it means we are paying for the true cost of our usage which includes cleaning up the environment.

87. **COMMENTER**: Nell J. Fredericksen

TEXT: I am a parent of two young children living in the foothills of southwest Virginia. This is a very rural environment and low income. However, we recognize our land. We farm, fish, raise gardens, mow hay. We touch the earth beneath our feet and are

actually aware of changes in the air day to day, season to season. Virginia is full of folks just like us. And Virginia's leaders need to be aware of the air they breathe, the water they drink, the dirt beneath their feet. Climate change is happening and fast. That is a fact whether you believe in it or not, belief does not change the fact of it and its impacts on our land. As you review and plan to comply with the EPA regulations and grumble about how difficult this might be. I am going to tell you what I tell my children: Doing the bare minimum just to get by is not going to make you a success in this world. You need to go above and beyond. Meeting EPA standards for fossil fuel plants and even thinking about building new fossil fuel burning plants and turning towards natural gas with its unnecessary pipelines is a minimum effort for Virginia and its residents or as my son says, that is a cop out. Go above and beyond and move this state rapidly toward sustainable resources. Solar and wind are viable options for Virginia for the long term. Virginia can lead the way towards a more stable and clean future.

88. **COMMENTS:** Bruce H. Burcat, Mid-Atlantic Renewable Energy Coalition (MAREC)

TEXT: MAREC is a nonprofit organization that was formed to help advance the opportunities for renewable energy development primarily in the region where the Regional Transmission Organization, PJM Interconnection, operates. MAREC's footprint includes Virginia and eight other jurisdictions in the region. MAREC members include wind developers, wind turbine manufacturers, service companies, non-profit organizations, and a transmission company dedicated to the growth of renewable energy technologies. MAREC members have developed, own, and/or operate thousands of megawatts of renewable energy serving the PJM territory. In addition, one of our companies is headquartered in Virginia.

Having wind energy as one of the means to help meet the CPP would bring significant value to the state, as well as be a cost-effective tool for compliance. While Virginia has no utility-scale wind energy developments at this time, there is a significant wind resource. Developing this resource would lead to jobs and other benefits for the local economy. There are currently 6 facilities in Virginia producing components for the wind industry, and constructing more turbines will facilitate their continued existence, as well as increase the likelihood of further manufacturing facilities in the state. Farmers and other landowners could receive millions in lease payments for the use of their land, while still being able to utilize most of it for farming. Local communities would also benefit from tax payments paid by the owners of the wind energy facilities.

Wind is reliable. More than a dozen wind integration studies by U.S. grid operators and others have found that wind energy can reliably supply at least 20-30% of our electricity. One in particular, prepared for our grid operator, PJM, found that integrating 30% renewable energy into its transmission system is feasible, reliable, and cost effective. Given that there is only 2% wind energy currently online in PJM there is great opportunity for wind development. According to the DOE's Lawrence Berkeley National Laboratory, since 2009, onshore wind prices have dropped nearly 66% to their lowest

levels ever. Other than energy efficiency, wind has the lowest cost of energy for both conventional and alternative sources of electricity, as shown in the following figure. When accounting for the federal production tax credit, the price drops even lower. Not only is wind energy cost-effective, but policies supporting long-term contracts for wind energy (10-20 years) help get these projects financed at reasonable rates and ensure price stability. This is because the resource itself is not subject to the price volatility facing traditional fossil fuel resources over the long-term, like coal and natural gas. This means that wind can act as a hedge against rising prices in the future.

The benefits of switching to wind are easily measured and verifiable. One megawatt hour (MWh) of wind energy avoids .75 tons, or 1,500 pounds, of CO₂ emissions on average. A typical 2MW wind turbine avoids around 4,000-4,500 tons of carbon emissions annually, equivalent to the annual carbon emissions of more than 700 cars. In 2013 alone, wind energy saved the state of Virginia 25,000 short tons of CO₂, 144,000 pounds of SO₂, and 77,000 pounds of NO_x. While wind will not be the only component of implementing the CPP, it provides economic benefits across a wide range of policy and fuel price scenarios, and should be given strong consideration as a significant share of new generation going forward. It also provides the state with more flexibility in utilizing its existing generation, as switching to wind requires fewer coal retirements than switching to natural gas does due to emissions differences.

89. **COMMENTER**: Ashley Coleson, Harrisonburg VA

TEXT: Coal-fired power plants emitting CO₂ should have to agree to permits stating that they will reduce emissions. In this permit there will be guidelines on how to keep these emissions low as well as an agreement stating that coal fired power plants will advocate for a change to clean and renewable power. The power plants may do this by converting to hydroelectric, wind, or geothermal energy power plants. If a plant is not in the position to do so they must comply within a five year grace period. Within these five years each plant will need to come up with an emission standard performance base for what they currently expel into the air and if it is not up to standards, the plant will need to make them up to standards. Each plant will set a limit pertaining to how efficient their equipment is. The state government will oversee and accept or decline their emission standard. If standard is too low then they need to apply for federal loan to update equipment or if they can afford it, to get new equipment all together for another type of power generating plant. Turbines are used for many different types of energy production. If turbines can be reused (without further pollution) then they can be used for wind turbines, hydroelectric turbines and geothermal turbines. If they cannot be converted they will be turned over as scraps and the power plants will receive money to then convert over to a cleaner energy source. This permit will be enforced and if it is not complied with then the power plant will be fined and/or shut down until they are able to comply with turning their CO₂ burning plant into a more environmentally friendly clean energy plant. If the plant needs to relocate, then they need to apply (to the government)

for a new location and the government or other public body can give out loans (that must be applied for) in order to have money for a new place or equipment. The power plant should only receive money if the power plant signs a binding contract stating that they will only use the money to build or find a new location for a new clean energy power plant. I think that this could be used for all Virginia plants as well as plants all over the country. I understand that this a highly monetized problem and it seems like a lot to be asking from the power plants and the governments. However, there are a lot of different parts to my suggestion. I think that even if some part of this could be beneficial to DEQ, then it would be worth reading to help reduce CO₂ emissions in Virginia.

90. **COMMENTER**: Eleanor Labiosa, Staunton, VA

TEXT: We humans are easily addicted to pleasure. Flipping switches is definitely more pleasurable than collecting buffalo chips or chopping wood, but our addiction to fossil fuels is very new. Warming the homes of our ancestors took much more effort. The pioneers who settled this land for us hauled their own firewood after they felled trees to build the cabins that sheltered the hearths that warmed their souls by firelight. That was barely a dozen generations ago, when this country still rivaled the legendary Garden of Eden. In just a few hundred years, we have morphed from exalting America's beauty to exploiting America's booty. If we don't quickly wean ourselves from this euphoria, it will take only a few more generations to strand our own progeny on a barren, shriveled planet, gasping for air as they search for potable water. Tobacco, drugs, sex, and thermostats can all be addictive, but man can be weaned from any of those. Our only addictions that are not elective are our total dependency on air, water, and food. We cannot survive without any of the three, beginning with air. Within minutes, air deprivation can result in asphyxiation which is definitely not a pleasure. The victim's eyes will bulge and their tongue may swell beyond the lips, turning purple as the victim expires. Not pretty. Symptoms of complete withdrawal from water take longer to recognize and the finish is less dramatic, but dehydration can be equally painful and fatal. Starvation can be avoided simply by weaning oneself from air or water. The only humans who are likely to suffer fatal withdrawal symptoms if weaned from fossil fuels are those corporate heads and their stockholders who are also addicted to profits. They might succumb to apoplexy. Because we are all addicted to the air and water currently being diminished by our changing climate and dirty fuels, I respectfully beg everyone with authority - Please use every power you possess to hold all existing power plants to the most rigid standards possible while the fossil industry pursues the development of those renewable energy sources they recently bid to secure. By utilizing the excessive fuels they already hold in storage for market speculation, existing power plants can continue to operate comfortably without need of additional fracking while the industry explores the numerous clean energy sources already on the horizon. Fossil fuels have been brewing for eons, and the Earth is the most efficient and secure place to keep them stored while the industry recovers. Clean air and water are far more fragile and necessary for our survival than any of our convenient comforts.

91. **COMMENTER:** Carl Kikuchi, Audubon Society of Northern Virginia, Reston, VA

TEXT: The National Audubon Society's mission is to conserve and restore natural ecosystems, focusing on birds, other wildlife and their habitats for the benefit of humanity and the earth's biological diversity. Climate change is creating great disruption in our natural environment. Audubon's 2014 Birds and Climate Change Report found that 314 North American bird species are at risk because of climate change and that diminishing and shifting ranges could imperil nearly half of U.S. birds in this century. Virginia's Climate Change Commission, established by then-Governor Kaine, issued a report in 2008 documenting multiple harmful impacts of climate change in Virginia. The Commission's recommendations are a good first step and stand today as a roadmap for many of the steps Virginia still needs to take. We urge the state to implement all of the recommendations of that report. We look forward to the recommendations of Governor McAuliffe's Climate Change and Resiliency Update Commission and believe that these recommendations can move Virginia forward to a cleaner environment.

The CPP will reduce carbon emissions from fossil-fuel-fired, electric generating units 32% below 2005 levels by 2030. According to the NRDC, using a mass-based limit, "Virginia would need to limit its carbon pollution from all power plants to 27.8 million short tons in 2030." We agree with NRDC that this reduction is achievable in Virginia if elected and other government officials, individuals and the private sector have the determination to take the needed steps. All of us can reduce our carbon footprint.

Because coal combustion is a major source of greenhouse gas emissions, we believe that Virginia should decrease its dependence on coal-fired electricity and transition to cleaner energy sources, especially appropriately-sited solar and wind energy sources. As NRDC has demonstrated, Virginia can achieve great reductions by meeting its current voluntary efficiency and renewable energy goals for its utilities. The American Council on an Energy Efficient Economy ranks Virginia in the bottom among states, 35th in energy efficiency. Increasing energy efficiency is viewed by most experts as the most cost-effective way of reducing carbon pollution. And state officials should evaluate the effectiveness of the state's voluntary efficiency and renewable standards. While the CPP addresses power plants, ASNV believes Virginia should also more aggressively address other sources of greenhouse gas emissions. The state should provide more support for public transit and rail to reduce use of and dependence on vehicles. Virginia would benefit from tax or other incentives for high-efficiency vehicles.

Virginia should encourage a continuous increase in the tree canopy and give local governments strong flexibility and authority to preserve native trees. Trees and forests sequester carbon and are crucial in deterring the negative impacts of CO₂ emissions. State funding for tree planting should be more robust. We support the goal of the Chesapeake Bay Program's Management Strategy to expand urban tree canopy by 2,400 acres by 2025. We also support some of the key provisions in this strategy as important ways to help Virginia reach its goals laid out in the CPP. This includes a focus

on large blocks of functional forest, wetlands and farmland that not only sequester carbon but also demonstrate multiple economic and ecologic benefits. The Chesapeake Bay Program has highlighted the need for high-resolution data on ground cover to begin identifying and monitoring large natural sequestration areas in Virginia.

We urge the Governor, Secretary of Natural Resources and DEQ to actively oppose already announced efforts in the 2016 General Assembly to block the CPP. Creating obstacles and refusing to reduce the state's greenhouse gas emissions would be an embarrassment for a state that for years has taken great pride in its natural resources. It would also mean that Virginia would be shirking its responsibilities as a partner of the U.S. government and other states to curb emissions.

92. **COMMENTER:** Scott McGeary, Washington Gas

TEXT: WGL urges that Virginia's CPP include a meaningful role for clean, natural gas, consistent with the Virginia Energy Plan's recognition of its positive attributes.

Direct use of natural gas means using natural gas in a residential or commercial capacity such as cooking, clothes drying, water heating, and space heating, rather than burning it as a generation fuel for electricity. The efficiency of natural gas is not fully recognized when site-based energy analysis is used because it only measures energy used by individual appliances. This type of analysis fails to take into account energy lost during the extraction, production, conversion, generation, transmission, distribution, and delivery of energy to the outlet or burner tip. Electricity loses more than 70% of its usable energy during its journey from the mine, solar panel, wellhead or wind turbine to its final destination at the electric outlet. In contrast, natural gas loses only about 10%. The delivery of natural gas from the source to the location of end use is environmentally friendly and efficient. The Gas Technology Institute identified the following benefits which could be achieved by 2030 from consumer education and incentives:

- 96 million metric tons CO₂ emission reduction each year
- 50 GW cumulative power generation capacity additions avoided, with savings in capital expenditures of \$110 billion at \$2,200/kW
- 200,000 GW electricity savings each year
- \$213 billion in cumulative consumer savings nationwide

As identified in *Fueling the Future with Natural Gas: Bringing it Home*, published by HIS CERA with support from the American Gas Foundation, many existing natural gas policies were developed when natural gas was seen as scarce, when market fundamentals were far different from today's reality of more affordable and abundant natural gas. Benefits to consumers include:

- Households with natural gas heating, cooking, and clothes drying spend an average of \$654 less annually than those using electricity for the same appliances.
- Switching to a natural gas-heated home saves consumers more than \$5,700 on average over 15 years.

- Lower natural gas prices are expected to provide an increase in real disposable income of \$2,000 this year and more than \$3,500 by 2025.
- A natural gas vehicle saves an average of \$4,500 in fuel costs over five years, compared to one powered by gasoline.

WGL also recommends that Virginia's CPP promote use of combined heat and power, the simultaneous generation of useful heat and electricity. Also known as cogeneration, it captures waste heat from electricity generation and re-appropriates it for useful purposes, improving efficiency and reducing fuel consumption. Since a CHP unit generates electricity on-site using natural gas, the user does not need to purchase as much, if any, grid electricity. Generating more useful energy from the same amount of fuel also reduces emissions and cuts costs. CHP is ideal for businesses with heavy heat and electricity needs. Nationally, approximately 4,100 facilities use CHP applications. Examples applicable to Virginia include universities, hospitals, hotels, and manufacturing plants. A study by ICF International identifies more than 40 gigawatts of cost-effective CHP which could be installed and paid back over 10 years. This degree of electric generation capacity is sufficient to power 30 million households. For the same amount of useful energy, the CHP system uses only 100 units of fuel input. Less efficient conventional generation requires 154, a 54% increase. Less fuel for the same useful energy results in lower costs and lower emissions.

Lower and more stable natural gas prices make CHP an attractive investment. Virginia's embrace of CHP would be consistent with President Obama's Executive Order goal establishing a national goal of installing more than 40 GW of new CHP capacity. The EO directing the federal government to align its multi-agency resources to support adopting best practices and identification of financing mechanisms and regulations in support of accelerated adoption of CHP should be emulated at the Virginia state level.

93. **COMMENTER:** Brian Mosier, Virginia, Maryland and Delaware (VMD) Association of Electric Cooperatives

TEXT: Founded in 1944, the Association is a not-for-profit association owned by and serving the 13 electric distribution cooperatives in the Commonwealth of Virginia as well as one electric distribution cooperative in each of Maryland and Delaware. Virginia's thirteen electric cooperatives serve over two-thirds of Virginia's land mass and over six-hundred thousand Virginia electric meters, serving homes and businesses—approximately one in eight Virginians—who are the Cooperatives' members and owners. The Association includes in its membership some of the nation's largest electric cooperatives, among them Northern Virginia Electric Cooperative and Rappahannock Electric Cooperative. These comments are focused on the interests of the electric distribution cooperatives. The Cooperatives provide electricity to farms and businesses throughout their designated territories, with over 90% of the meters serving residential member-consumers, with an average of 7 consumers per mile of line.

As member-owned electric utilities, Virginia's Electric Cooperatives believe that safe, affordable, and reliable power is of the utmost importance. A balanced, planned, thoughtful approach is important when tackling energy policy issues. We believe that efficiency and conservation are important, and must be balanced against keeping energy affordable for Virginia families. Renewables and distributed generation have an important place in this balance; however, they cannot replace base-load generation. We believe that renewables and distributed generation should be complementary and additive to Virginia's overall energy strategy and existing generation sources, with cost recovery for utilities to avoid cross-subsidization for consumers choosing these options.

Even though the EPA proposal has been refined since its original publication, there is no doubt that the CPP will have the direct and predictable result of leading to increases in power costs. The Cooperatives are concerned about their member-owners being able to afford electricity in the coming years should prices rise. Many low- and middle-income Virginians live in Cooperative service territories, and electricity should not become a luxury item for them. Demographic data supports this: the Cooperatives' service territories have high numbers of low- and middle-income families, families and seniors on fixed incomes, and families suffering from unemployment and underemployment during tough economic times.

In addition to our comments at the listening sessions, the comments of our federated wholesale generation and transmission cooperative, Old Dominion Electric Cooperative, and the work of our national association on these matters, the Association simply wishes to underscore the conversations we have already had with DEQ on this topic. The Cooperatives, as member-owned utilities are not-for-profit and have only their ratepayers from which to recover costs; there are no separate stockholders. The Cooperatives are particularly concerned about the protection of the end-users of electricity: our member-owners. We are concerned that they be protected and that Virginia households not be shouldered with electric rate increases that would necessarily come about as a result of EPA's proposal. Multiple sources, including our own SCC, validate our concerns about electric rates. We strongly urge DEQ to take into account the options for special consideration afforded to electric cooperatives and small businesses (which most of the Cooperatives are also) within the CPP.

As utilities that distribute electric power to well over a million Virginians, we believe that an implementation of the CPP that balances safety, affordability, reliability, and sustainability, one which considers all generation fuel options, one that respects the primary policymaking roles of Virginia legislators and regulators, one that recognizes technological limitations, and one which protects residential ratepayers and families is one that will ultimately benefit the Commonwealth.

94. **COMMENTER**: Thomas R. Jacobsen, Blue Delta Energy, New Haven, CT

TEXT: Blue Delta is a renewable energy asset manager and service provider for hospitals, universities, commercial and industrial entities around the country. Our services include providing revenue streams from the environmental attributes generated from our clients' waste heat recovery (WHR) projects, including combined heat and power (CHP) units. The CPP has left states in a unique position of having to develop transformative compliance strategies in a relatively short amount of time to comply with a rule that already faces a tremendous amount of legal scrutiny. Given the uncertainty, it is important for them to look for those compliance options that will be acceptable to EPA while at the same time not committing scarce state resources on projects of limited benefit if the rule is eventually rejected. One technology with a proven track record holds a great deal of promise in helping Virginia to meet this challenge: waste heat recovery (WHR).

WHR applications encompass CHP, where a single fuel source is used to generate both heat and power, as well as systems where waste heat is recovered from a mechanical shaft or other industrial process to generate power. 82 GW of WHR have been installed nationally. Virginia has installed approximately 1717 MW of WHR capacity; recent studies by ICF International estimate that an additional 3094 MW of capacity is feasible in the state, representing installations of systems under 100 MW. Operating at efficiencies in excess of 75% versus ~45% for typical combined cycle power generation, these systems display considerable flexibility. They can utilize fuel types ranging from renewable biomass to natural gas and coal, are feasible in a wide range of geographies and can be installed at both industrial and commercial sites. WHR systems deliver a wide range of economic, social and environmental benefits, including:

- Lowering energy costs for project hosts .
- Improving grid reliability and resiliency of critical infrastructure.
- Supporting the deployment of technologies such as solar and battery storage.
- Creating high skilled manufacturing jobs with project installers, project hosts and equipment manufacturers through the capital commitment required to build projects.
- Providing support to the local natural resource based economy by utilizing locally sourced fuels such as biomass and abundant domestic natural gas reserves.
- Driving reductions in criteria and other hazardous air pollutants.

Although details still need to be addressed, EPA has signaled that WHR will be an acceptable compliance option in the CPP, by being eligible to generate emissions reductions credits under a rate based version of the program, and potentially being eligible to receive allowances under the renewable energy set aside under a mass-based program. Given the total benefits derived from WHR facilities, Virginia should not wait for a final ruling on the CPP to begin strengthening its own policies supporting WHR. As useful as WHR systems may be in a state plan, it would be wise in this interim period to expand its existing state renewable energy portfolio standards (RPS) to include the full spectrum of WHR resources. This will serve to drive industry growth, reducing costs as more participants enter and especially as clearer standards emerge.

It will allow Virginia to establish and familiarize industry participants with procedures to capture and quantify the resulting emission reduction benefits for its state plan. Just as crucially, it will allow Virginia to begin realizing better economic and environmental outcomes that will benefit their residents whether the CPP moves forward or not. Virginia's voluntary RPS currently recognizes renewable CHP and waste heat to power facilities. This policy, however, fails to recognize the full spectrum of benefits that WHR systems can provide, because it excludes non-renewable topping cycle CHP and bottoming cycle CHP, fails to account for the thermal benefit provided by non-renewable WHR, and limits credits to 20% of compliance obligation.

Virginia should amend its RPS to include the following best practices so as to preserve the integrity of the standard while being able to recognize the economic and environmental benefits of WHR:

- Include WHR explicitly and define the resource broadly by allowing non-renewable topping cycle CHP and bottoming cycle CHP to qualify as part of its energy efficiency, clean energy or alternative energy portfolio standard.
- Incorporate electrical and thermal output in credit calculations for non-renewable CHP and WHR as that best defines the total benefit a WHR system provides.
- Implement a minimum efficiency threshold to incentivize project hosts to operate facilities at their optimal level.
- Consider separate tiers or programs for WHR.
- Enable appropriate tracking and trading of credits, removing restrictions on the use of credits for compliance.

We have developed a white paper that expounds on these best practices in much greater detail, and can provide it upon request. In sum, we believe that Virginia should implement policies that recognize and credit WHR projects as part of its RPS in the near term. Such a path, which creates long-dated economic and environmental benefits with minimal downside, represents a sensible policy whether the CPP is implemented or not. And if the CPP does get underway, Virginia will already have a policy that delivers the benefits of a viable technology available today, and will be better prepared to comply with regulations from a cost, administration, and reporting perspective.

95. **COMMENTER**: Michael Adams, Virginia Beach, VA

TEXT: While many lament the EPA's decision to enforce limits on carbon pollution and regardless of one's views of climate change and global warming the reality that is before us is as monumental as the shift at the turn of the 20th century or the technology revolution. Inasmuch, Virginia and this administration has the opportunity and, I would argue, the mandate on behalf of its citizens to show national and global leadership in providing healthier communities, foster greater independence, insure the modernization, and thereby, the security of our infrastructure and spur economic growth that touches all segments of our population. With great vision, perseverance and faith anything can be accomplished and it is important as we sit in the middle of this

crossroads we rise above an antiquated economic system reliant so heavily on unfettered use of fossil fuel based resources supplied by a protected class of business.

First, our government has the opportunity to lead the way by raising its energy savings goal of 10% by 2022 and then deliberately working toward that target. In turn, leading by example, this administration will be able to build a model for the state's federal tenants as well as large and small businesses as they embrace and implement greater efficiency. As our state's government and business sector ramp up infrastructure investment to shift the spend on electricity to more economically productive endeavors, Virginia will enjoy job growth, wage growth, and a subsequent increase in consumer sentiment and spending which are the background of economic health and the path out of the past 7 years of anemic growth in our state and nation.

With the acceleration of growth comes greater innovation spurring small business investment in reaching out to residential communities to make an earnest drive toward the modernization of our homes to provide technologies that make families' lives easier and giving them the control to be responsible stewards of our power. It has been shown over the past century that a competitive marketplace provides lower prices and creative, productive solutions. I remind you that we had many of the same discussions as the telecommunications industry underwent a tectonic shift in the 1980s and 1990s buffeted by the perpetuation of the fear that it would lead to greater instability and increased prices. Instead the fresh ideas that resulted out of the change in how we interact with that utility lead to the advent of communication and access to information unimaginable when it began. It was as if the floodgates opened leading to a new economy and class of worker that did not previously exist.

The same can happen with this utility segment. It starts with the investment into sustained energy efficiency but is crowned by the proliferation of renewable energy sources throughout the state brought to the end users by a competitive marketplace. Think of it as the "internet of power." The independent federation of power sources will open the way to uses and data unforeseen today much as the internet did at the turn of this century. The falling cost of renewable sources of power, improvements in electricity storage, and creative approaches to distributed generation have paved the way for our country to recreate an infrastructure that is today predicated on post-World War technologies and create greater freedoms and hence productivity for our communities, campuses, buildings, businesses and neighborhoods. This is an economic imperative that will usher in the next great boom period in America.

Finally, while I firmly believe the solution to our debate is based on economics and the very freedoms on which our country is based, we can no longer make business and economic decisions in a vacuum. As we create a new class of successful workers and businessmen we have the opportunity to reach into our underserved and depressed populations to free them from the adverse health effects perpetuated by today's economic cooperatives of utilities, big food, big pharma, and the resulting healthcare

system. Let's use this group as the foundation to pull tomorrow's energy worker as the corner stone of this new paradigm. We have the opportunity to reach into deprived urban and rural communities to establish the backbone of the "internet of power." Let's replace coal ash dumps with solar and wind resources, production facilities for energy efficiency technologies such as LED lamps or environmental sensors. Let's empower the communities while reaching toward the goals brought to us, whether we agree or disagree, by EPA. While I'm sure this debate has the potential to continue for years to come propping up the status quo, I encourage you to rise above the minutia and forge a path to prosperity, greater independence, security while preserving this great and majestic Earth.

96. **COMMENTER**: Jacqueline Lowe, Chesapeake VA

TEXT: As a community member, I find it imperative to focus on renewable energy generation because, as we know, Hampton Roads is at the greatest risk for sea level rise along the east coast--1.5 foot increases are expected within the next 20-50 years. Virginia must take action to protect investments in tourism, military infrastructure and communities. A state plan focused on efficiency, renewables and reinvestment in mitigation and adaptation is important to protect coastal communities. As a consumer of energy, I want fair prices, I want to pay the true cost as well. Any student of economics knows that we don't yet pay that cost with fossil fuels. Multiple studies have shown that Virginia consumers can save money when the Commonwealth fully embraces simple energy efficiency and renewable energy advancements. Georgia Tech estimates a 24% consumer savings by 2030 with a strong Virginia plan focused on energy efficiency and renewables. By investing in energy efficiency and renewable energy we can lower electricity bills for Virginians--saving consumers money. As a consumer, I encourage this. As a job-seeker, I'd like to point out that a strong Virginia plan will spur innovation, accelerate clean energy development and create good paying jobs. Virginia has the opportunity to focus workforce training and economic development funding on the workers and communities where coal has been a significant economic driver and source of employment. Governor McAuliffe has estimated that nearly 40,000 energy efficiency jobs can be created here in Virginia. Additionally 10,000 offshore wind jobs are at our fingertips; And over 14,000 jobs focused on solar power generation can be realized here in the Commonwealth. These are good-paying jobs that will help Virginia become a clean energy leader. Can I get one of those? I'd like to conclude by pointing out that Governor McAuliffe has focused his attention on building the New Virginia Economy. Clearly, renewable energy and energy efficiency are economic markets that have a bright future here in Virginia--a lot of potential exists for these industries. A strong state plan can be the catalyst for growth.

97. **COMMENTER**: World Resources Institute

TEXT: On October 6, 2015, World Resources Institute released independent analysis that shows how Virginia can meet, and even surpass, its mass-based standard for

existing power plants. We find that Virginia can do this by meeting its existing clean energy goals and making better use of its existing fleet of natural gas plants. At the same time, Virginia has the opportunity to minimize compliance costs, ensure reliability, and harness economic opportunities in clean energy. Virginia's power plants have already reduced their CO₂ emissions by over 20 percent between 2005 and 2012. Over the next fifteen years, more renewable generation is expected to come online and coal-fired generation is projected to decrease. As a result, by 2030, CO₂ emissions from Virginia's existing fossil power generation fleet should fall by 8 percent below 2012 levels. These actions – which are already planned – would achieve almost one-third of the total reductions Virginia needs between 2012 and 2030 in order to meet its mass-based target under the CPP.

So, how can Virginia close the gap that remains? Our analysis identifies a number of actions that would be good for the state's economy while getting the needed emission reductions. Just by following through on existing energy efficiency and renewable goals and targets, Virginia's existing plants can surpass the state's mass-based target. Virginia can go even further below its emissions standard by increasing generation at its existing natural gas combined cycle fleet. Taking these type of actions would likely benefit Virginia's residents. For example, more investment in energy efficiency will reduce demand and could lower electricity bills for the state's households and businesses. Increasing efficiency is especially important because electric generation in the state is projected to increase by about 40% by 2030, partly in response to growing demand. Fortunately, studies have shown energy efficiency can curb this demand growth in Virginia, while also lowering the household energy bills that are currently among the ten highest in the nation. According to Virginia's 2014 Energy Plan, a robust energy efficiency policy could increase the state's gross domestic product by \$286 million and increase employment by 38,000 jobs by 2030.

Increasing Virginia's investment in renewable energy could also benefit the state. For example, analysis of the PJM region found that increased investment in renewable energy in the region would cut system-wide costs, resulting in a net benefit (after taking into account investment costs for new wind and natural gas generation and transmission requirements) of up to \$6.9 billion per year in PJM by 2026—or \$113 per year per person. In addition, if Virginia takes advantage of the opportunities for interstate trading under the CPP and follows through on the actions described above, the state could generate over \$100 million in revenues per year on average between 2022 and 2030 (this assumes a \$10 per ton allowance price).

One choice that Virginia faces is whether to use the standard for just existing plants or to adopt what is called the "new source complement" standard that would apply to both existing and new power plants. This is a very important choice for Virginia because the state's utilities are

planning to build new natural gas plants in the future. Because these plants would not fall under the CPP if Virginia decides to not use the new source complement standard, the state could end up emitting more CO₂ emissions than our estimates. If Virginia adopts EPA's new source complement, it would provide further incentives for carbon free generation sources.

In conclusion, all of these actions that move Virginia's power sector toward a low carbon future would not only help the state comply with the CPP, but could also create a new revenue stream for the state, lead to increased investment and make Virginia a clean energy leader.

98. **COMMENTER**: Calpine Corporation

TEXT: Calpine operates the largest fleet of natural gas combined cycle (NGCC) and combined heat and power facilities in the U.S. Calpine is also the nation's largest producer of electricity from renewable, baseload geothermal resources. Overall, Calpine is capable of delivering nearly 27,000 megawatts of clean, reliable electricity to customers and communities in 18 U.S. states and Canada, with 88 power plants in operation or under construction. Calpine's business is founded on two guiding principles: environmental stewardship and competitive markets. We have long supported programs that harness market forces to deliver emissions reductions, including both RGGI and the California Cap-and-Trade Program. Calpine has also supported congressional efforts to mitigate CO₂ emissions nationwide and believes that Congress should take the lead on U.S. climate policy. However, in the absence of congressional action, Calpine supports the CPP as a reasonable solution that will achieve meaningful reductions in power sector CO₂ emissions.

The CPP recognizes the unique interconnected nature of the electricity grid and relies upon market forces to deliver emissions reductions. By encouraging flexible, market-based and technology-neutral solutions, the CPP will hasten the shift towards increased utilization of efficient low-emission and zero-emission generating resources, while ensuring the reliability of the U.S. electric grid. We are pleased that Virginia has commenced a process regarding its implementation of the CPP. We were also pleased to see Governor McAuliffe's endorsement of the CPP last week. We strongly encourage Virginia to develop its own plan and to consider the following key suggestions.

The CPP provides states an unprecedented degree of flexibility to states in determining how to comply. states that do not submit an approvable plan will be subject to a federal plan. By developing its own plan, Virginia can take advantage of the CPP's flexibility, including the ability to choose: (i) which electric generating units (EGUs) are subject to the plan; (ii) how the emissions reduction burden (and, possibly, allowances) should be allocated among affected EGUs; and (iii) how to address the risk of "leakage" to new NGCCs if the plan requirements were only imposed on existing sources. Although the federal plan would afford many of the same flexibilities, Calpine believes that Virginia is

in the best position to tailor its plan to its electricity sector and provide greater flexibility than may ultimately be afforded by a federal plan.

The CPP provides a great deal of flexibility in choosing whether a plan should be aimed at achieving either (i) the subcategory-specific emission performance rates for affected EGUs; (ii) the statewide rate-based emission goals for the state; or (iii) the CPP mass-based goals for the state. Calpine strongly believes Virginia's plan should achieve the CPP mass-based goals using an allowance trading system. First, a mass-based plan will be much easier to administer than a rate-based plan because it does not require any complicated crediting to account for reductions achieved by increasing renewable energy and energy efficiency. Rather, under a mass-based program, the reductions achieved by RE and EE are automatically accounted for in the emissions that do not occur at affected EGUs. Second, mass-based trading programs are a demonstrated means of achieving reductions within the power sector. Both RGGI and the California cap and trade program demonstrate that mass-based trading systems can drive cost-effective reductions in CO₂ emissions with little to no impact on the power markets. Allowance trading systems have also delivered reductions at costs well below those originally anticipated in programs such as EPA's Clean Air Interstate Rule, the South Coast Air Quality Management District's Regional Clean Air Incentives Market Program, and the Houston area's Mass Emissions Cap-and-Trade Program for NO_x.

The final CPP recognizes that there is a significant risk that CPP implementation could result in "leakage" to new NGCC units: if emissions from existing NGCCs were merely to be shifted to new NGCCs that are not subject to the state's plan, the state could fail to achieve emission reduction levels consistent with the best system of emissions reduction. Such leakage would erode the reductions to be achieved by the CPP and undermine the purpose of the CAA. It could also result in a significant over-build of new NGCC units, relative to what would happen in the absence of CPP implementation. Accordingly, the CPP requires that states electing mass-based plans include requirements that address leakage or demonstrate that leakage would not occur. The CPP provides that a state can do this through one of three means: (i) It could impose the same requirements on new and existing sources. If a state chooses to do this, it may also receive a larger state budget, with the additional amount known as the "new source CO₂ complement". A plan that does this will be presumptively approvable. (ii) It could adopt allowance allocation methods that counteract incentives to shift generation from existing sources to new NGCCs and, if the state adopts the allowance set-aside provisions exactly as they appear in the finalized model rule, its plan would be presumptively approvable. (iii) Alternatively, it could demonstrate that emission leakage is unlikely to occur due to unique state characteristics or state plan design elements. EPA will reject a state plan that fails to address leakage through one of these means.

Calpine believes that it is critically important for states to address the risk of leakage through option (i). Accordingly, Virginia's plan should impose the same requirements on new and existing and incorporate the new source CO₂ emission complement. By

imposing the same requirements on existing and new sources, the plan will prevent market distortions that would arise if new sources could underbid their existing, equally efficient competitors in power markets. It would also avoid the construction of significantly greater new NGCC capacity than is needed to achieve the CPP's emission reduction goals, which may only result in increased costs to ratepayers and greater total CO₂ emissions, as each new NGCC plant would likely remain online for years or decades longer than existing plants. Adoption of the new source CO₂ emission complement would provide a larger budget of allowances as well. Finally, while option (ii) allocation methods might be used to counteract leakage, they are at best an imperfect solution to a problem that can be completely avoided by imposing the same requirements on new and existing sources.

Many stakeholders suggested that EPA encourage development of "trading-ready" state plans that facilitate trading across state lines, without requiring states to prepare a formal multi-state plan or share a blended target. The CPP therefore provides that states may allow their affected EGUs to trade with those in other states simply by indicating this election in its plan and agreeing to administer the state's program through either an EPA-approved or EPA-administered trading system. Calpine strongly encourages Virginia to develop a trading-ready, mass-based plan that facilitates trading with as many other states as possible.

99. **COMMENTER:** Malcolm Cameron, Mount Crawford, VA

TEXT: I grew up on the Lower Rappahannock River, close to nature, and it seemed like one thing we could depend on in the 1960s and '70s was the climate staying pretty much steady. There was a little island off our point of land where we played as kids. By the early 1970s it was beginning to erode away and by the time I moved away for good in mid-1980s the island was gone. It no longer protects the clay cliff from storm waves, so that too is eroding back and trees have fallen in. I don't need any other evidence of sea level rise caused by climate change. The shorelines of that western Chesapeake Bay area are all eroding faster than they used to. I now live in the Shenandoah Valley and our frost free season is noticeably longer than it was 20 years ago. Before about 1990, tornadoes were very rare in the valley. Now they have happened several times in the spring with warm or cold frontal passages. In April 2011, we had several tornadoes come through the Mount Crawford area. It's pretty scary to have to hunker down on the downstairs hallway floor at 3 AM watching the TV weather report. We've had 100-year floods in 1972, 1985 and twice in 1996. We've had our share of droughts, torrential rains and record snowfalls. The climate is obviously changing for the worse and burning fossil fuels is the main factor. There isn't much time left to avoid a future of hardship, loss and insecurity. We must make changes in how we produce and use energy. Virginia is blessed with having more choices than many other states in how we plan and develop a sustainable energy future. We have an offshore wind area with the potential to produce 40% or more of the state's electricity needs. Our moderate latitude allows for solar energy production. Some of our rivers could produce more hydroelectric power.

Virginia could:

- Provide tax incentives and grants to companies that produce wind turbines, solar panels, electric vehicles, low energy appliances and light bulbs to encourage them to locate here. This could make these products more cost effective for our consumers and provide jobs.
- Provide tax and other economic incentives, such as a strong renewable portfolio standard for electric utilities, to encourage development of offshore wind energy. The Hampton Roads area could become the wind energy capital of the east coast since we have a strong manufacturing and maritime base there already.
- Residential and commercial solar installation could be jump-started with tax credits, low interest loans and other measures.
- Provide more tax credits for hybrid and all electric vehicles and assist localities with the cost of installing electric charging stations.
- Provide incentives for utilities to encourage and assist customers in increasing energy efficiency in their homes and businesses.
- Increase funding for mass transit and passenger rail.
- Assist railroads in developing rail freight/ multimodal terminals.

These and other pathways to a future that uses less fossil fuel energy can and must be realized if our children and grandchildren are to have any kind of future at all. Virginia can easily develop such a plan. We are already further along than many other states.

100. **COMMENTER**: Heather Katelyn Smith

TEXT: As Virginia prepares to meet the new standards, I think its important to note that some plants in Virginia are not powered by fossil fuels. This is a great opportunity to perhaps see a long term switch to Virginia's energy sources solely from alternative sources other than fossil fuels. These are well known to be "cleaner" and produce less emissions, fully complying Virginia to the EPA's guidelines. Some power plants in Virginia are powered by hydro and biomass. These are good sources, however some are still powered by coal, oil, and natural gas. (This aforementioned list is not exhaustive as some plants are powered through nuclear, etc.). This is a mandate form the government the state can sue to finally be powered through non-fossil fuels. Not only is it better for the environment, it would also establish Virginia as a proprietor of clean energy. In compliance with the national standards set by the EPA, we have the opportunity to rely solely, or even mostly on alternative fuels.

My proposed policy plan is to offer subsidies to offset the costs of changing from fossil fuel to an alternative energy source. In order to establish equity amongst all power plants in the state, we could also offer subsidies to those who already have these alternatives in place in order to encourage those whoa re using fossil fuels to switch to an alternative source. Alternatively, since subsidies for all plants could be expensive, the state could issue grants that either cover or partially cover the costs of switching to a renewable energy source. Of course, not every plant has to change overnight, but

could potentially transform in the following years. This proposed plan seeks long term goals and long term sustainability for the state. The EPA plan set in place is market-based permits that may not lead to the replacement of fossil fuels. The market may not choose renewable sources as they are sometimes cost prohibitive and thus the cost would be translated onto consumers.

As a college student, I am concerned about long term sustainability for my generation and the ones after me. We can reduce emissions, stop using fossil fuels, and make a great impact on global warming. We have an opportunity here we cannot ignore.

101. **COMMENTER:** Nan Gray, Soil Works, Inc., Newport, VA

TEXT: EPA's Building Block 3 (shifting generation to zero-emitting renewables) should add, "and protecting non-renewables (soils)." RGGI is a state cooperative solving carbon emissions problems while generating money. Virginia should join the RGGI. Virginia should not have large fracked-gas pipelines trenching up, disrupting soils and soil life and creating a barrier to soil functions. Virginia needs to consider the cumulative effects of many pipelines on Virginia's wellbeing and soil health. DEQ does not have the resources nor man-power to deal with many pipelines. The comments are regarding elements of the CPP that rely on natural gas without taking into account the damage fracking causes to soils and the disturbance excavating a pipeline trench would do, irreparably, to the soils dug. The soil structure and function would be destroyed.

Please consider adding to the state plan:

- Undisturbed soils are a carbon sink and preserved native soils help the Plan reduce carbon emissions to the atmosphere
- Preserve large tracts of undisturbed soils as future nonrenewable resources to be a carbon sink
- Reducing the use of natural gas (methane from fracking sources)
- Using existing interstate infrastructure to transport natural gas
- Reducing the number of interstate pipelines to transport natural gas, thereby reducing soil disturbance
- Pipeline breaks would expose DEQ staff to additional hazards, both from soil erosion and pipe contents, if there is a spill. The CPP should recognize those costs/benefits when considering natural gas pipelines
- Specify Mountain Valley Pipeline (MVP) pipeline contents to only be methane gas.
- Specify that pipelines crossing sensitive areas are to be encased within another two pipelines, so that leaks are contained.
- Specify shut off valves are to be more frequently spaced than 60 miles.
- Require interstate pipelines carrying natural gas (methane) or "products of the fracking industry" to have Emergency Flow Restricting Devices, Remote Controlled Valves with Supervisory Control and Data Acquisition system or an independent, software-based leak detection system.
- Require direct leak detection by chemical sensing cable

- DEQ staff need a mechanism to investigate liquid and gas transmission pipelines, to report without penalty the findings of the investigation and to enforce regulations to protect the environment impacted by the construction and operation of the pipeline.
- DEQ's plan should include state specific Stormwater, Erosion and Sediment Control Regulations for interstate pipelines without exemptions

Your consideration of reducing CO₂ emissions needs to include another key factor and that is already reducing CO₂ emissions but remains vulnerable: large uncut natural soil. Soil is a sink, it sequesters carbon until it is released by exposure. Excavating a large, continuous pipeline trench will release soil CO₂. The replacement vegetation on the ground will not be able to produce as much oxygen, and the trade-off is bad. The CO₂ emissions reduction should not come at the expense of the very thing that already reduces CO₂--our forests and soils. There is nothing good for natural soils in the fracking industry or "natural" fracked gas production. Among the attacks on soils is fracking waste water which is 100 times saltier than seawater, everything gets deathly sick that fracking water touches in the soil.

The CPP needs to reduce CO₂ emissions, reduce our reliance on fossil fuels (i.e., fracked gas) and not build a 10-foot deep wall of disturbance in the soil. The soil will not be able to function the way it needs to to combat the carbon emissions already taking place. Quantify the value of no disruption to areas of high air quality and high water quality and high soil integrity function quality. Protect the areas that provide benefit of clean air and clean water. The Great Eastern Continental Divide is a good start. Many of the landform features contribute to each other, allowing the ecosystems to function as a large biosphere. Border lands to these protected areas (No Build Zones) should have pipelines encased three times with sensors and detectors and frequent shut off valves. You could designate No Build Zones. No pipelines or other utilities can be built in the No Build Zone. You see the value in that. It becomes a win-win. Conservation of resources such as non-renewable natural soils, clean water, clean air are better for our Commonwealth than a fracking pipeline. Conservation of natural dark quiet night sky is wholesome and good, too.

102. **COMMENTS**: Albert C. Pollard Jr, Irvington, VA

TEXT: I and others who have been working on having a robust implementation of the CPP in Virginia have asked PSE Healthy Energy to aide in drawing up comments for the Environmental Justice impacts of possible compliance scenarios. Given the DEQ's intent for an in-depth look at the possible adverse impacts on low income and minority communities, it is particularly relevant. While they have not done much work in Virginia, I would be remiss if I did not further note PSE's excellent analytic reputation. PSE Healthy Energy is a national energy science and policy institute focused on generating, translating and disseminating science and data to inform policy discussions. They have deep experience in analyzing the health and environmental impacts of energy systems across the country. Further, I would like to express my support for a mass based

system of compliance with allocation of carbon credits going to the rate payer to be held in trust by an entity (perhaps the SCC), the cash proceeds from the auction of these allocations would be invested in energy efficiency. By lowering bills from EE investments, such a system would likely be a financial help to who need it most as well as a positive feedback loop for the creation of funds to invest in EE. Obviously, such a system, combined with capping the new and existing emission in Virginia, has the benefit of lowering carbon emissions and moving Virginia toward the Governor's goal of exceeding CPP goals. It should also be recognized that a new nuclear plant, while it may have other considerations, is not a viable compliance path given the construction timelines and the untested design of, and thus likely delayed, proposed reactor.

The reduction of greenhouse gas emissions under the CPP provides an opportunity to simultaneously reduce harmful criteria air pollutant emissions and associated health impacts. Coal-fired power plants emit PM, SO_x and NO_x among other pollutants; natural gas-fired plants emit much lower levels of SO_x but still emit PM and NO_x, the latter of which is an ozone precursor. Acute and chronic ozone and PM concentrations are associated with a wide range of health impacts. Unlike CO₂, the impact of criteria air pollutants tends to be regional due to their shorter atmospheric lifetimes. As such, the location of criteria pollutant and their precursor emissions is important when assessing impacts. EPA conducted a proximity analysis around power plants affected by the CPP which shows that in Virginia these plants are disproportionately located near low-income and minority communities, which also tend to be disproportionately situated near environmental burdens from other pollution sources as well.

In addition to reducing greenhouse gas pollutants, Virginia has the opportunity to use the CPP to reduce criteria air pollutant emissions near communities that are currently disproportionately impacted by air pollution and also prevent future air pollutant exposure burdens. It should be noted that if natural gas is used as a compliance mechanism then emissions may actually increase near some of these same communities which would potentially degrade the plan's ability to achieve public health co-benefits of the policy. A compliance plan that pursues renewables and efficiency over natural gas may therefore be optimal from both an air pollution and climate perspective. From a carbon mitigation perspective, while EPA considers natural gas to have much lower greenhouse gas emissions per MWh generated than coal, it does not fully account for upstream methane leakage. Recent scientific literature has indicated this methane leakage is significantly higher than reported in the EPA greenhouse gas inventory and so switching from coal to gas will not achieve the full emissions reductions projected if these lifecycle emissions are included. When considering the additional criteria pollutants associated with gas-fired power plant generation, using renewables and efficiency to meet carbon emission targets will likely help Virginia achieve greater public health, air pollution, and environmental equity co-benefits.

The report aggregates additional data on the Virginia power plants covered by the CPP to provide some insight into the rate and type of air pollutant emissions from and

demographics around these plants and the opportunity to reduce some of the air pollutant burdens that are disproportionate on these populations. In this preliminary analysis, we do not provide specific guidance for reducing emissions from Virginia's power sector, but provide this data to highlight the fact that a compliance plan that targets only CO₂ emission reductions from fossil fuel-powered infrastructure will not necessarily realize the potential co-benefits of this energy transition, and may even increase the burden of pollution impacts on some communities. This data can also provide some insight into identifying affected communities where DEQ is seeking additional input.

103. **COMMENTER**: Chad M. Schott, James Madison University

TEXT: As we progress into the 21st century and further toward an increasingly industrialized society, we must also take time to ensure that our environment is not being irreparably damaged in the process. One huge way that this is happening is through the burning of coal and other fossil fuels in power plants. Recent studies show that burning coal constitutes 80% of our entire nation's carbon emissions. It seems that there are two options: remove the causes or control the effects. Burning coal creates roughly 50% of the electricity that is consumed in our nation, even though there are alternative methods of creating this energy. One such alternative power source is nuclear energy, which could provide the same amount of energy as coal without the harmful carbon emissions. Next the government could use policy tools such as regulation to mandate that higher quality insulation must be used in the construction of new houses, etc. This would decrease the amount of energy consumption. There are many other ways that the government can help reduce carbon omissions. First, government subsidization of companies that produce solar panels, low energy appliances, and other things that consume energy could help to increase availability of these products throughout the constituency. Second, the government could provide tax breaks or credits to homes that have solar panels and use them to satisfy a specific portion of their energy consumption. Third, the government could heavily tax traditional energy consumption, which would in turn help to decrease overall energy usage. Finally, the government could easily remove carbon emissions by shutting down the oldest power plants in operation, which also are the dirtiest, and many believe that this would neither decrease the availability of energy nor increase the cost of energy.

104. **COMMENTER**: Lisa Jacobson, Business Council for Sustainable Energy (BCSE), Washington, D.C.

TEXT: BCSE is a coalition of companies and trade associations from the energy efficiency, renewable energy and natural gas sectors, and also includes independent electric power producers and investor-owned utilities. The coalition's diverse business membership is united around the revitalization of the economy and the creation of a secure and sustainable energy future for America. The final CPP marks a significant milestone on the path to cleaner, more efficient sources of power generation in Virginia,

using affordable, readily-available technologies. BCSE commends the leadership of the McAuliffe Administration in its intention to meet or exceed its CPP targets.

The CPP also offers a great opportunity for constructive partnership between state policy-makers and the private sector, with clear paths to explore state-specific and multi-state options for compliance. And according to the Virginia State Energy Factsheet, given its current and pending emission reduction activities, Virginia has already made significant progress toward meeting its final 2030 targets. Specifically, plant retirements from its fossil fleet, increased utilization of natural gas and current and pending renewables build take Virginia 18% toward meeting its 2030 rate-based target, while the state is already halfway toward achieving its 2030 mass-based target. Further, the study finds that sustainable electricity sources including natural gas, small hydro, combined heat and power (CHP) and onshore wind, solar PV, and waste-to-energy are already among the cheapest options for generating electricity in the state. Also, Virginia should consider supply-side and demand-side energy efficiency.

I would like to offer the following preliminary recommendations for Virginia's state plan:

- Virginia should consider participation in the CEIP. The program is still under development and BCSE is working with EPA and states to ensure that the CEIP provides a clear signal for action and does not delay investment in energy efficiency and renewable energy during the 2016 to 2020 time period.
- Virginia should adopt a trade ready approach, and should consider market-based elements to ensure cost effective compliance.
- Virginia should consider the full portfolio of clean energy technologies and resources for compliance planning. This includes rate-payer and non-rate payer programs and actions, including third party delivered energy efficiency.
- Further, if Virginia allocates allowances or auction allowances under its state plan, it should provide allowance value to clean energy technologies and resources to spur investment and provide clean energy market signals.

105. **COMMENTER:** L. Jeremy Richardson, Union of Concerned Scientists (UCS)

TEXT: UCS strongly supports EPA's efforts to limit carbon emissions from existing fossil fuel-fired power plants under the Clean Air Act. EPA's actions are firmly grounded in science. The threat posed by unchecked climate change, which is driven primarily by CO₂ emissions from human activities, has been clearly articulated by numerous national and international scientific organizations. In 2012, power plants were the largest single source of U.S. CO₂ emissions, responsible for approximately 38% of these emissions. Taking action to reduce emissions from the electricity sector is therefore crucial to our overall efforts to tackle climate change. Virginia is on the front lines of sea level rise, with cities like Norfolk already experiencing chronic, damaging flooding during routine high tides. Billions of dollars are needed to help protect local communities, including in the Hampton Roads area. For planning purposes, the Virginia

Institute of Marine Science recommends anticipating an additional 18 inches of sea level rise within the next 20 to 50 years.

Virginia is well positioned to meet and exceed its CPP targets. In fact, an August 2015 UCS analysis shows that announced retirements of coal plants put the Commonwealth on track to be 35% of the way toward its 2022 benchmark. Additionally, Virginia will be much farther along the path to compliance if it meets its current voluntary renewable energy and energy efficiency goals. UCS strongly recommends that Virginia prioritize investments in renewable energy and energy efficiency to meet its emissions reduction requirements. Ramping up these cost-effective resources will cut carbon and other harmful pollutants, create economic opportunities in the clean energy sector, and help save consumers money on their electricity bills. This approach will also help limit the consumer, economic, and environmental risks of an overreliance on natural gas.

Virginia has tremendous untapped opportunities to drive down its emissions through cost-effective investments in renewable energy and energy efficiency. Virginia has significant wind and solar energy potential that can be economically deployed. According to a recent U.S. Department of Energy analysis, Virginia's renewable energy economic potential—led primarily by utility-scale solar and wind—ranges from 91.7 to 132.3 terawatt hours of electricity, far exceeding the state's current total power consumption. However, Virginia is currently nowhere near that potential—in 2013 only about 4% of Virginia's electricity came from non-hydro renewables. Virginia currently has only 15 MW of installed utility-scale solar. For comparison, in the past 7 years North Carolina has gone from virtually no solar energy to a solar leader, with 150 utility-scale solar facilities (573 MW) already in place and another 377 facilities (3,034 MW) planned. There are now more than 450 solar companies in North Carolina, which have brought in over \$2 billion in direct investments and support more than 4,300 jobs. Furthermore, a recent study by the American Council for an Energy-Efficient Economy shows that Virginia could go much further in its energy efficiency goals, achieving a 23% reduction in electricity consumption in 2030 relative to 2012 by implementing an energy efficiency savings target combined with national model building codes, investments in CHP systems, and equipment efficiency standards.

UCS supports the flexibility in the CPP that allows states to comply with the emissions reductions requirements on a multi-state basis, and recommends that Virginia adopt this approach to cut its carbon emissions cost-effectively. A mass-based compliance plan that includes both new and existing power plants can help ensure CO₂ emissions are tracked and accounted for accurately and is a straightforward pathway to enable multi-state trading. Importantly, by participating in a market-based trading program, Virginia would have an opportunity to generate revenue streams that could support related priorities, including: retraining of displaced workers, economic development in coal communities, investments in renewable energy and energy efficiency, and assistance to low-income communities. A trading program combined with strong

renewable energy and energy efficiency policies would be a cost-effective way for the Commonwealth to cut emissions and derive multiple benefits for the state's residents.

Virginia should establish programs for transition assistance for displaced workers. In recent years, the coal industry, particularly in Central Appalachia, has been in decline. As these economic factors combine with the nation's continuing transition to cleaner, cheaper forms of electricity, it is imperative to invest in economic development in coal-dependent communities like those in southwest Virginia, and to support coal miners and their families facing uncertain times. A revenue-raising compliance plan would provide an opportunity to do just that.

Virginia should also follow EPA's guidance to conduct an Environmental Justice (EJ) analysis of its compliance plan. The EPA's EJSCREEN tool¹² can help support this effort. Furthermore, the state should design a compliance plan to raise revenues for investments in EJ communities, including clean energy investments and energy bill assistance for low-income households.

We encourage you to continue the robust and inclusive stakeholder process to develop the state's compliance plan. Furthermore, we encourage the state to put forward a compliance plan (or a clearly defined interim plan) by September 2016 to provide certainty to utilities and investors about the future direction of the state's electricity sector. UCS has a number of analyses to be released over the next few months that you may find helpful as you develop Virginia's compliance plan. A new UCS analysis released today, *Rating the States on their Risk of Natural Gas Overreliance*, examines each state's natural gas past, present and future to determine its risk of natural gas dependency. The analysis found that Virginia and 15 other states are at high risk of over-relying on natural gas, which could have significant financial consequences for electricity consumers. More than one-fourth of Virginia's in-state electricity generation already comes from natural gas plants, an increase of more than 14% since 2008, and that number is expected to grow, given that 98% of Virginia's new or converted electricity capacity coming online between 2014 and 2017 is natural gas-fueled.

Later in October, we will release an analysis showing how clean energy financing programs offer Virginia a promising avenue for scaling up investments in renewable energy and energy efficiency that can reap significant economic and consumer benefits, while simultaneously helping the state achieve CPP targets. This timely analysis bolsters the recent recommendation of the Virginia Climate Change Commission to establish a green bank called the New Virginia Bank and builds on a report we published this summer on green banks as an effective financing mechanism for renewables and efficiency. Our preliminary results indicate that an initial capitalization of \$90 million would develop enough renewable energy and energy efficiency to reduce 2.8 million metric tons of CO₂ cumulatively over 15 years, and get Virginia nearly a quarter of the way toward its rate-based target in 2030.

Finally, we are currently modeling scenarios for CPP compliance in Virginia using the Regional Energy Deployment System (ReEDS) developed by the National Renewable Energy Laboratory. Our results will help inform how a carbon trading program combined with complementary renewable energy and energy efficiency programs can help Virginia meet its compliance obligations in a cost effective way.

106. **COMMENTER:** Zack Miller, Virginia Housing Coalition (VHC)

TEXT: VHC is a nonprofit member organization aimed at expanding housing opportunity and affordability for all Virginians and the Clean Power Plan has the potential to make housing more affordable and livable for some of Virginia's low income and most vulnerable communities. Residential energy efficiency, and specifically multifamily energy efficiency, offers a cost effective, demand side solution to lowering emissions from existing power plants. A strong argument can be made for focusing on this area based on cost and payback alone, but when considering the impact energy inefficient housing has on low income communities, residential energy efficiency becomes all the more pressing. A majority of low income Virginians rent their housing and can pay from 15-20% of their income just to heat and cool their homes, up to ten times as much as a percentage of income versus higher income Virginians.

A recent study from Energy Efficiency for All found that with aggressive investment, Virginia could realize 28% (838GWh) reduction in electricity usage in its affordable multifamily housing stock by 2035. These investments are cost effective, yielding \$2.90 in benefits for every dollar invested during that time period. VHC, along with many statewide partners, is focused on multifamily housing because this sector is particularly energy inefficient and has a larger share of low-income Virginians struggling to afford their housing than does owner occupied, single family housing. Many traditional weatherization and state and utility energy efficiency programs leave out multifamily housing over concerns of who benefits from energy improvements, the challenges of getting permission from multiple parties and other structural factors that make this housing sector harder to serve than single family housing. However, with the huge potential for energy savings and cost reductions to low income vulnerable populations, this sector cannot be ignored as the state decides how best to comply with the CPP.

Many states that have joined interstate cap and trade carbon programs have directed portions of the revenue from the auction of carbon allowances towards multifamily energy efficiency. Any approach that Virginia takes with the CPP whether mass-based or rate-based, should take into special consideration multifamily energy efficiency whether through carbon allowances for energy efficiency, auction revenues or programs directed specifically at energy efficiency. Additionally, the CEIP offers a strong incentive to Virginia to invest in energy efficiency in low income communities by doubling our credit toward emissions reductions. The CEIP makes multifamily energy efficiency a sensible strategy for the commonwealth, so VHC supports Virginia joining this program.

VHC has also signed on to more extensive comments being submitted by the National Housing Trust that offer more specific policy recommendations. It is our hope that VHC's comment reiterates many of the points of our corresponding group statement while also conveying that the affordable housing community stands resolutely behind the goal of greater residential energy efficiency and the many benefits it can bring to residents. Including multifamily energy efficiency in the state's strategies and goals makes sense for Virginia's economy, Virginia's air, and Virginia's low-income renters who struggle monthly with rising utility costs. We urge you to take advantage of this unprecedented opportunity to address climate change, one of the largest issues threatening Virginia's future stability and prosperity.

107. **COMMENTS**: Damian Pitt, Richmond, VA

TEXT: I am writing to express my strong support for the CPP, and to encourage DEQ to prepare a strong plan. This plan should go beyond the minimum GHG reduction targets set by EPA in order to establish Virginia as a regional leader in energy conservation, energy efficiency, and renewable energy use. I am an Assistant Professor of Urban and Regional Studies and Planning at Virginia Commonwealth University (VCU). The positions that I express in this public comment are my own, and do not necessarily reflect those of VCU, but they are informed by my years of research and teaching on federal and state energy policy. My specific research focus is on measuring and evaluating opportunities to reduce GHG emissions through energy efficiency, renewable energy, land use, and transportation policies at the state and local levels.

The CPP implementation process provides an opportunity for Virginia to thoughtfully reevaluate its traditional approach to energy issues. We must let go of the outdated notion that Virginia is a "coal state," and that our economic future is somehow fixed to that of fossil fuel industries, and instead position ourselves to take advantage of the emerging clean energy economy. The implementation plan should be built around four core principles and approaches:

- Recognition that some increase in the cost of electricity generation is inevitable, regardless of the technology used, and that a transition to a clean energy system will have lower costs, over the long term, than a continued reliance on fossil fuels.
- Integration of Virginia into RGGI or a similar arrangement with our neighboring states, that creates a robust GHG credit trading market and thus creates incentives for local investments in energy efficiency and distributed renewable energy generation.
- Policies that create incentives for local investments in energy efficiency and distributed renewable energy generation, and that remove barriers to the growth of distributed solar and other renewable energy technologies.
- Policies to incentivize and encourage economic development around clean energy and other new economy technologies, specifically targeted to southwest Virginia and other regions that have felt the negative economic impacts of a continued reliance on fossil fuel technology.

Data from the U.S. Energy Information Administration shows that the average retail electricity price in Virginia increased 44% over the past ten years, from 6.43 cents/kWh in 2004 to 9.25 cents/kWh in 2014. This average annual growth rate (AAGR) of 3.7% that we have already experienced under the current fossil-fuel based approach to electricity generation far outpaces any of the worst-case scenarios for electricity rate increases that are being predicted by CPP opponents. Adjusting those prices to 2013 dollars still results in a total inflation-adjusted increase of 15% over that 10 year period (from 7.93 to 9.10 cents), or an AAGR of 1.48%. By comparison, a frequently cited study by NERA Economic Consulting, prepared for the American Coalition for Clean Coal Electricity and other fossil fuel or traditional manufacturing interests, shows an 11% total price increase for Virginia from 2017 to 2031 under the Clean Power Plan, adjusted to 2013 dollars.² This translates to an AAGR of 0.7% over that 15 year period, or less than half of the rate of the price increases we are already experiencing. Furthermore, these simple analyses of electricity price impacts do not take into account the broader economic development and public health impact implications of the CPP. EPA estimates that the final CPP rule would have upwards of \$20 billion per year in health and economic benefits by 2030,³ based on a “social cost of carbon” model that provides “a comprehensive estimate of climate change damages and includes changes in net agricultural productivity, human health, property damages from increased flood risk, and changes in energy system costs, such as reduced costs for heating and increased costs for air conditioning.” According to some climate scholars, this method may actually underestimate the full range of benefits from reducing carbon emissions.

Several other studies have quantified specific benefits from the CPP for Virginia. For example, a study by Meister Consultants for the for the Advanced Energy Economy Institute and the Virginia Advanced Energy Industries Coalition found that CPP implementation would result in roughly 50,000 to 100,000 net new jobs in the Commonwealth. Additionally, a recent study by the Harvard School of Public Health found that Virginia would be among the top 13 states nationwide in receiving public health gains from implementing the CPP, based on potential avoided premature deaths, hospitalizations, and heart attacks. On a related note, we have also seen evidence that the so-called costs of distributed solar energy are minimal. For example, in 2011 the Virginia SCC completed a study of the costs and benefits of net-metered solar energy systems. This study modeled a scenario in which total net-metered PV capacity would reach 1% of peak-load forecasts for each utility service area, which is the maximum amount allowed under current state laws. At that time, the limit would have equaled an estimated 304.5 MW of installed direct current capacity, or roughly 20 times the amount currently installed across the state. The SCC found that installing enough net-metered PV capacity to reach that 1% limit statewide would result in an annual increase of \$6.73 per customer, or less than 0.5% of the average customer bill.

The wide range of benefits that can accrue from investing in a low-carbon energy system, and the minimal costs associated with converting to cleaner energy technologies, suggest that Virginia’s implementation plan should seek to reduce GHG

emissions beyond the minimum target set under the CPP. In fact, those minimum targets will be relatively easy to meet by continuing current trends. A 2014 study by ICF Consulting, on behalf of the Southern Environmental Law Center, found that Virginia could meet 80% of the GHG reduction goal proposed at the time, through steps that the state's utilities were already planning to take to retire existing coal plants and shift more generation to natural gas. The more accurate percentage will be closer to 90%, given that the final EPA ruling included a lower reduction target for Virginia than the one evaluated in the ICF report. DEQ should develop a plan that goes far beyond these relatively easy minimum targets, and instead seeks out opportunities to maximize the full potential of energy conservation, energy efficiency, and renewable energy.

The CPP has come at a time when the outlook for renewable energy is becoming increasingly positive. According to a 2014 study by leading financial services firm Lazard, wind and solar energy have become cost-competitive with conventional generation technologies in many market contexts. A study by the Lawrence Berkeley National Laboratory showed that the price of solar electric systems dropped by about 50% between 2009 and 2013. Subsequently, research by the Interstate Renewable Energy Council shows that grid-connected solar electricity capacity increased by about 7000% over the same time period, from around 1,500 MW to 12,000 MW, including a 50% increase just from the years 2012 to 2013.

I recommend that Virginia collaborate with neighboring states to pursue CPP implementation at a regional level, by joining RGGI or collaborating with other southern states to form a comparable regional organization that includes a carbon cap-and-trade program. Such a program should include a credit market for energy efficiency and distributed renewable energy investments, similar to the Solar Renewable Energy Credits that Virginia residents can currently sell to electric utilities in Pennsylvania. This would create incentives for Virginia residents and businesses to invest in those carbon-reducing technologies, helping to achieve the state's carbon reduction goals through flexible, distributed approaches that enhance grid security and reduce demand.

Above all, the state's plan should include efforts to improve economic and public health conditions in southwest Virginia and other parts of the state that have felt the negative economic impacts of a continued reliance on fossil fuel technology. This could include targeted efforts to recruit clean energy manufacturing industry to those counties, as well as programs to train local residents in energy efficiency auditing and retrofitting, solar energy installation, and other skills that will be in greater need as the Commonwealth shifts to a clean energy economy. Funds for these initiatives could be generated through Virginia's participation in the RGGI or a similar regional greenhouse gas cap-and-trade program, as was proposed in the 2015 General Assembly session by Del. Ron Villanueva's proposed Virginia Coastal Protection Act (HB 2205).

Virginia has already taken a number of steps toward developing a vibrant clean energy economy, including Governor McAuliffe's reestablishment of the Climate Change and

Resiliency Commission, appointment of a Chief Resiliency Officer, and formation of the Virginia Solar Energy Development Authority. The next step is to adopt a strong CPP plan that will take us the rest of the way to making Virginia cleaner, healthier, and more economically competitive.

108. **COMMENTER**: National Housing Trust and Virginia Housing Coalition

TEXT: Virginia's implementation of the CPP should focus on commonsense compliance options to ensure that the state fulfills its emission reduction requirements while providing benefits to vulnerable populations, including low-income families. Prioritizing investments in energy efficiency is a cost-effective means to reduce carbon emissions while providing multiple benefits, including lower utility bills, to vulnerable communities. Since the majority of low-income Virginia households are renters, the state plan should include focused strategies to reduce energy consumption in rental housing. To achieve this outcome, the plan should include the following:

- Conduct extensive outreach to low-income multifamily stakeholders as an essential part of state planning;
- Prioritize investments in energy efficiency;
- Target energy efficiency investments to low-income multifamily housing in whatever compliance pathway the Commonwealth adopts; and
- Invest in early actions by participating in the CEIP and submitting a final plan by the September 6, 2016 deadline.

How Virginia chooses to comply with the CPP will have significant impacts for the Commonwealth's most vulnerable populations. The impacts of climate change are borne disproportionately by low-income and minority communities. Virginia should seize the opportunity to maximize the environmental and economic benefits of a clean energy future for vulnerable communities by prioritizing energy efficiency in its plan. Prioritizing energy efficiency will result in multiple benefits for Virginia's vulnerable communities. More energy efficiency in rental housing would allow low-income families to increase spending on food, healthcare and other essentials; improve the affordability of low-income housing; and reduce residents' risk of exposure to environmental health threats.

Home energy is a significant and growing component of low-income household budgets. Households that earn less than the national median income spend 17% of their budget on energy costs. Spending by renters on home energy increased by 53% from 2000 to 2010, compared to a 22% increase in spending on all other types of goods and services. Moreover, households in Virginia consume more energy per month than households in every other state in the south Atlantic region. The disproportionately high energy burden borne by low-income families has far-reaching consequences where, despite recent increases in the number of households receiving energy bill assistance, only 27% of income eligible households are actually receiving assistance. This leaves a large proportion of Virginia's low-income population without the needed support to maintain stable energy services, or ability to afford other essential needs.

Utility costs have a direct impact on the affordability of both individually- and master-metered rental housing. The cost of energy is the highest controllable operating expense in affordable housing. Reducing operating expenses allows affordable housing providers to maintain reasonable rents, invest in resident services and make necessary building improvements.

Energy efficiency produces a positive impact on occupants' health and well-being. Energy inefficient housing increases residents' risk of exposure to several environmental health threats. Inadequate insulation, obsolete HVAC systems, indoor mold growth or malfunctioning combustion appliances (i.e., furnaces) are prevalent environmental complaints. These hazards increase residents' risk for developing serious negative health conditions, such as respiratory symptoms, asthma, cancer, and cardiovascular disease. Improving energy efficiency in affordable multifamily housing through insulation, sealing air leaks and installing HVAC systems significantly improves indoor air quality. Improved indoor quality can reduce residents' exposure to asthma allergens, along with other indoor contaminants.

DEQ should include affordable housing stakeholders in its outreach to ensure that low-income renters share in the benefits of Virginia's state plan. These stakeholders include state agencies, such as the Virginia Housing Development Authority and the Virginia Department of Housing and Community Development; affordable housing advocates, such as the Virginia Housing Coalition; tenants and owners of low-income multifamily housing; and local housing agencies, such as community development agencies and public housing authorities. Targeted outreach to affordable housing stakeholders is consistent with the EPA's emphasis on community engagement. Such outreach is also consistent with EPA's interest in ensuring that low-income communities are not adversely impacted by the CPP.

Although EPA removed energy efficiency and demand response as one of the building blocks used to determine each state's carbon emission target, EPA also affirmed in the final rule that energy efficiency is very much an appropriate and valuable compliance strategy. Moreover, EPA has stressed the critical role energy efficiency can play in keeping costs low for consumers. Prioritizing energy efficiency is all the more important given Virginia's currently high utility bills, which is due to high household energy consumption. According to data from U.S. Energy Information Administration (EIA), average residential energy consumption in Virginia is higher than every other state in the South Atlantic region. High energy consumption in Virginia is not surprising given that the Commonwealth has not historically promoted energy efficiency. In ACEEE's 2014 ranking of state energy policies, Virginia was one of only seven states that received zero points out of 20 for utility and public benefits programs and policies. Recently, however, progress has been made to make energy efficiency more of a priority in Virginia. This progress includes new low-income weatherization pilots being implemented by Dominion and Appalachian Power. DEQ should build on this progress

by prioritizing energy efficiency in the CPP. Doing so will help the Commonwealth meet its voluntary goal to reduce electricity consumption by 10% below 2006 levels by 2020.

DEQ should explicitly prioritize investments in low-income multifamily energy efficiency in order to ensure that residents and owners are not adversely impacted by potentially higher bills resulting from the CPP. There is significant untapped energy savings potential in Virginia's affordable multifamily housing stock that can contribute to the state's carbon emission reduction goals. Affordable multifamily rental housing tends to have far fewer energy efficient attributes, such as efficient appliances or adequate insulation. A recent study conducted by Optimal Energy found that cost-effective energy efficiency improvements in Virginia's affordable multifamily housing stock could cut annual electricity use by 28 percent, saving more than 830 GWh by 2035. To successfully reduce energy use in multifamily buildings, efficiency programs must be designed in a way that reflects the unique characteristics that set the multifamily market apart from other types of building sectors. The multifamily market is diverse, with different building types, sizes, meter configurations, and financing structures. Multiple decision makers can be involved in the energy efficiency process- owners, property managers, and residents. Owners of low-income housing can have limited capital on hand to make improvements, and may be limited in the amount of capital that can be leveraged by property cash flow. Incentives are not always aligned, as the costs and benefits of energy efficiency improvements are often borne by different parties.

Despite these challenges, there are successful model approaches for delivering energy efficiency to low-income multifamily housing. EPA highlighted several examples of low-income energy efficiency programs in the final rule that have successfully included affordable multifamily housing. The Limited Income Energy Efficiency Program in Maryland includes a low-income multifamily component. The Maryland Department of Housing and Community Development (DHCD) is the administrator for the state's utility-funded affordable housing energy efficiency program called the Multifamily Energy Efficiency and Housing Affordability program (MEEHA). In other states, utilities and other program administrators struggle to find, connect with, and recruit owners to their programs. In Maryland, on the other hand, there is a long waiting list of buildings eager to access utility funding. This is because owners already know and trust DHCD and are in regular contact for periodic refinancing and other oversight: DHCD is able to leverage their relationship with owners to seamlessly build energy efficiency into building lifecycle events. Since 2012 DHCD has committed \$9 million in funding to 3,805 units. These units are anticipated to achieve an estimated annual savings of 7,746 MWh and 151,123 Therms. The Multifamily Performance Program in New York provides per-unit incentives as well as low-cost financing for new construction and retrofits of existing multifamily buildings that achieve 15% energy savings from electric and gas. A member of the New York State Energy Research and Development Authority's network of service providers performs an energy audit and creates an energy reduction plan to identify how to achieve the 15% target. Escalating performance incentives are paid to owners for achieving savings over 20%.

In Virginia, there are already successful multifamily energy efficiency efforts underway that should be credited under the Commonwealth's CPP implementation plan. The Virginia Housing Development Authority (VHDA), provides incentives for energy efficiency in affordable housing through its Low-Income Housing Tax Credit Program (LIHTC). The LIHTC program is the single largest source of funding for affordable multifamily housing. VHDA implements incentives in the LIHTC program that encourage developers and builders to use recognized third-party standards in design and construction in order to reduce long term energy usage. The incentive requires the use of rigorous standards, third party testing and inspection from EarthCraft Virginia and LEED. A study of the impact of these incentives conducted by Virginia Tech's Center for Housing Research found that apartments built to VHDA's higher energy efficiency standards used 40% less energy than housing built to existing code requirements. Virginia should prioritize energy efficiency in affordable multifamily housing regardless of whether it adopts an mass-based/rate-based or a state measures compliance path.

If Virginia adopts an emissions mass-based compliance approach, DEQ should ensure that it reserves CO₂ allowances to be awarded for energy efficiency in affordable multifamily housing. If Virginia chooses to auction allowances, DEQ should set aside revenue from the sale of allowances to fund energy efficiency investments in affordable multifamily housing. States that have already adopted market-based CO₂ allowance auctions have taken this approach. In Maryland, RGGI proceeds are used to fund the state's Strategic Energy Investment Fund administered by the Maryland Energy Administration (MEA). Approximately one-quarter of the fund is earmarked for energy efficiency and conservation improvements that benefit low-to-moderate income families. MEA has dedicated a portion of the funds to subsidize the costs of energy audits and efficiency improvements in affordable multifamily housing. California's Community Services and Development Department administers the single-family and multifamily low-income weatherization program, funded through proceeds from the Greenhouse Gas Reduction Fund for a total for \$75 million over two years.

If Virginia adopts an emissions rate-based compliance approach, DEQ should explicitly include emission rate credits (ERC) tracking, trading, and issuance provisions for energy efficiency. ERCs should be issued for quantified and verified MWhs saved from energy efficiency in affordable multifamily housing.

If Virginia adopts a state measures approach, DEQ should include programs and policies that benefit or are specifically targeted to low-income multifamily housing. For example, if the Virginia increases its spending cap on efficiency programs, or establishes incentives for utilities to pursue energy efficiency, such measures should include requirements for investments that benefit low-income households, including in affordable multifamily housing. Minnesota's Energy Efficiency Resource Standard statute requires utilities to budget a minimum threshold of funding for low-income energy efficiency programs. In addition, the statute specifically defines low-income

programs to include programs that directly serve the needs of low-income renters.

EPA is providing extra incentives to encourage energy efficiency investments in low-income communities through its voluntary CEIP. Virginia should elect to participate in the CEIP. The CEIP provides incentives for energy efficiency projects in low-income communities by allowing states to earn twice as many credits than otherwise would have been available for a MWh of energy saved. EPA expects these incentives to help spur energy efficiency investments in low-income communities that are constrained by economic barriers. Such economic barriers in affordable housing include limited access to upfront capital to pay for improvements and a lack of alignment of who pays for and who benefits from the improvements. By participating in the CEIP, Virginia will not only encourage energy efficiency investment in low-income communities, but will jump start its progress toward achieving its emission reduction target. Since only energy efficiency projects implemented after the state submits a final plan are eligible to receive CEIP credits, Virginia should strive to submit a final plan by the September 6, 2016.

109. **COMMENTER:** Kate Addleson, Virginia Sierra Club, Richmond, VA

TEXT: The CPP offers unprecedented flexibility for state-developed plans that can achieve—and exceed—the CPP’s carbon reduction goals. Virginia should welcome this flexibility and design a workable plan that exceeds the modest targets for the state. By taking advantage of the opportunity presented by the CPP to expand renewable energy and energy efficiency, Virginia can create local jobs, attract new businesses, reduce stranded investments in fossil fuels, and create a more secure and reliable electric grid. By prioritizing significant increases in energy efficiency, our cheapest and least-used resource, and taking advantage of our untapped solar and wind energy potential, Virginia will also see the most broadly-enjoyed economic and environmental benefits of the CPP. Strong action now will serve the interests of our children, state and planet.

The plan should set CO₂ reduction requirements for Virginia’s power sector that are significantly greater than the modest, minimum goal set by EPA. This can be done, for example, by submitting a plan with a lower mass cap for 2030, and, as discussed below, by covering new as well as existing sources. Pursuing a stronger CO₂ emission goal is critical for the human and economic health of Virginia. This is true, among other reasons, due to Virginia’s unique coastal and health vulnerabilities, the importance of attracting businesses and creating jobs by being a leader in efficiency and new energy technologies, and the importance of avoiding stranded investments which are inevitable if the developed world is to reduce CO₂ emissions by 80% by 2050.

Virginia’s plan should be mass-based. A mass-based plan is simpler to design and implement, readily incorporates trading opportunities, and automatically benefits from private investments in energy efficiency and renewable energy (whether or not they meet EPA’s eligibility requirements for rate-based plans). This will yield additional rewards from the Governor’s initiatives to promote energy efficiency in government and

the private sector. However, it is important to recognize that achieving the rate-based target set by EPA would require utilities to make a greater commitment to renewables and energy efficiency than would the mass target set by EPA. This is another reason we recommend that Virginia set a steeper mass reduction target than has EPA.

The plan should cover both new and existing sources and achieve a net reduction in carbon pollution by 2030 from 2012 levels. By doing so, the plan will fully address “leakage” issues without having to design and enforce more complex safeguards. More importantly, it will protect Virginians from CO₂ from new sources that could overwhelm CO₂ reductions achieved by the CPP. (At the September 8, 2015 stakeholders meeting to discuss its latest Integrated Resource Plan, Dominion Virginia Power made it clear that its corporate goal is to build enough new fossil fuel generation to increase its CO₂ emissions by 67% over 2016 levels—doubling the level of CO₂ emissions which the CPP would permit from existing sources.)

The plan should be designed to enable trading so as to maximize use of market mechanisms to reduce CO₂ in a cost-effective manner. The opportunity to trade allowances will send price signals to reduce emissions, even though additional measures should be implemented to accelerate both phasing out coal plants and implementing clean energy and efficiency. Joining RGGI with stronger CO₂ reduction goals than set by EPA should be considered since RGGI has demonstrated that, within its system, CO₂ reductions can be achieved faster and at lower costs while still growing participating states’ economies.

Allowances should be auctioned or distributed so as not to reward excessive past reliance on fossil fuels. If permitted by law, CO₂ allowances should be auctioned. As demonstrated by RGGI, this would accelerate emissions reductions by sending immediate price signals to utilities to reduce emissions, while also providing funds that may be used to reduce energy customers’ bills through efficiency investments, support adaptation in vulnerable communities (such as Virginia’s coastal communities), and mitigate impacts to people in areas that are transitioning away from coal production. If an auction is not viable, then Virginia should allocate allowances among electricity distribution entities in a way that does not reward past or future overreliance on fossil fuels and incentivizes a rapid phase out of coal-fired generation. With or without an auction, the plan should use set-asides and other measures to promote wind, solar and energy efficiency, and to accelerate the phasing out of coal plants.

The plan should encourage early implementation of CO₂ reductions. Since CO₂ accumulates and persists, the sooner we reduce emissions the better off we will be.

The plan should not treat biomass-derived fuels or energy derived from biogenic wastes as “renewable” or “carbon neutral” fuels for co-firing or sole combustion in power plants for purposes of complying with the CPP. Rather, the full CO₂ emissions from combustion of the fuel should be counted unless the EGU can demonstrate that the

emissions are offset by net absorption of CO₂ from the atmosphere within a decade or less. We need to reduce CO₂ emissions rapidly to avoid severe harm, not continue emissions on the hope that the CO₂ may be recaptured in the distant future. Thus, for example, whole trees should not be cut for fuel.

The plan should address environmental justice concerns and disproportionate impacts to low-income, minority and other vulnerable communities from climate change, electricity-related pollution, and the transition from a coal economy. In order to ensure this, the state plan should include environmental justice analyses that (i) demonstrate emissions reductions affecting communities that are near or downstream of electricity generating units, particularly in pollution-burdened, low-income communities and predominately minority communities, as well as communities adjacent to coal mining, combustion, storage or transportation; (ii) demonstrate the prioritized promotion of energy efficiency and renewable energy within these communities; and (iii) recognize adverse health and other impacts facing these communities from fossil fuel pollution and climate change, and evaluate measures to mitigate those impacts.

Virginia's plan should put the legal responsibility for compliance fully on the owners and operators of regulated sources. This approach will allow for swift and straightforward enforcement of carbon reduction requirements as necessary, and avoids the necessity of the state preparing expensive and complicated modeling to demonstrate to EPA, in advance, that the state will meet its carbon reduction goal. A detailed plan should be submitted to EPA by September 6, 2016, without seeking an extension and without relying on new legislation. This will give generating companies more time to plan around and work toward compliance.

110. **COMMENTER:** Walton C. Shepherd, Natural Resources Defense Council (NRDC)

TEXT: On behalf of our over 7,000 members in the Commonwealth, NRDC applauds Governor McAuliffe's aspiration to meet and beat the CPP carbon pollution targets for the electric generating units of Virginia. We agree that this can be done, and we offer below the mechanisms by which DEQ should do so, while delivering economic growth in the clean energy sector and maximum benefits to state citizens.

In evaluating plan options for Virginia, two primary goals should be met. The state plan must both: deliver net carbon pollution reductions, rather than allow carbon pollution from the power sector to continue to rise; and promote the long-term health and economic well-being of all Virginians, including those in economically-disadvantaged communities. To meet these goals, the state plan should be mass-based, cover new and existing sources and allow trading among generators. As shown in Virginia's mass-based SO_x and NO_x programs, a mass-based state plan is inherently flexible when allowances are tradable among generators. With such allowance trading, power plant owners' economic incentives align to favor the most cost-effective carbon reductions available. However, a rate-based plan or a mass-based plan covering only existing

sources has the potential to increase pollution from fossil-fuel power plants, negatively impacting human health in Virginia's most vulnerable communities. Additionally, a plan that does not apply evenly to both new and existing power plants may significantly increase costs to Virginians by incentivizing the construction of new gas plants, at the expense of total emissions reductions. Thus, the plan must cover new and existing sources. Covering new sources also ensures existing generators do not become stranded assets, and is also the most straightforward means for addressing leakage.

The plan should also allow for pollution allowance trading with other states, while evaluating and avoiding environmental justice impacts. A mass-based plan that covers new and existing sources allows for simplified and transparent cross-state trading, in which Virginia allowance holders could sell allowances to parties in higher-carbon states that cannot so easily comply. Such interstate allowance sales would create a net benefit that accrues to Virginia's economy and electric bill-payers, while helping to drive growth in Virginia's now-modest clean energy sector. Just as important, with the correct design, the market value of allowances can flow to specific programs that most benefit Virginia's economy and its electric consumers. The plan should also keep customer bills low, invest in Virginia, and prevent utility windfalls. The best option to maximize benefits for Virginia is through open auction of 100% of mass-based allowances. This captures the full dollar value of the allowances as state revenue, which policymakers can then direct to its best uses (worker transition, resiliency investment, and energy efficiency).

Because under a mass-based standard, each tradable emissions allowance has an inherent dollar value. The dollar value of each allowance must be included by generators in all wholesale market bids to PJM, and that dollar value (potentially totaling millions of dollars) is automatically recouped by the generator when the electricity is sold. The primary question facing Virginia is whether to recover and reinvest the dollar value of allowances to benefit Virginians, or to allow that value to increase generators' profits. Clearly, the state plan should ensure that the dollar value of allowances is not a generator windfall but is instead reinvested in programs – such as energy efficiency – that minimize compliance costs and maximize benefits to Virginians.

Because revenues would accrue to the public purse in an open auction, enabling legislation would likely be necessary. In the event the legislature takes no action to authorize a revenue-generating auction of allowances, an administrative pathway exists that could achieve a similar outcome for consumers, wherein DEQ allocates allowances to electricity customers via electric distribution companies, with a requirement by the SCC that the distribution companies auction the allowances. SCC oversight (and oversight by the respective boards of co-ops and municipal utilities) should ensure that the revenues from allowances sold accrue not to the benefit of the distribution companies, but to customers. Such customer benefits might include cost-effective energy efficiency investment (to lower customer bills and further reduce Virginia's carbon emissions); direct bill crediting; and cost-effective zero-emissions resources deployment to further increase allowance revenue.

Lastly, the state plan should not provide a windfall reward to the most-polluting sources. The worst option for allocating allowances under a mass standard is to freely distribute them only to fossil fuel emitters, on the basis of their historical emissions, rather than their electricity generation. This is the least equitable method, because neither the state nor electric bill payers recovers any of the millions of dollars in value created by the allowances; that dollar value remains a windfall to generators and utilities, in particular to the highest polluting ones. While the value of allowances would be included in PJM wholesale bids and recouped by generators, no mechanism would exist to ensure that the recouped dollar value (or the dollar value of allowances sold) is returned to the final electricity customer. Indeed, this windfall would essentially create transfer payments from customers to generators and would reward past pollution rather than incentivizing the growth of a clean power sector for the New Virginia Economy.

111. **COMMENTS:** Erica L. Holloman, The Greater Southeast Development Corporation, Southeast CARE Coalition, Newport News, VA

TEXT: The community that I serve, the low-income, minority voices of the southeast community of Newport News, is one of several environmental justice communities in the Hampton Roads region that continues to bear the burden of exposure to toxic pollutants and greenhouse gas emissions. As the Project Coordinator for the Southeast CARE Coalition, I am responsible for communicating community-specific environmental information that educates, empowers, and supports community efforts to improve the environment and reduce toxic pollutant exposure and risk. The policy processes on the local, state and federal level is essential to the work I do which is why I am sharing my perspective with regard to the state's planning for the CPP. Improving the state's air quality and addressing the impacts of climate change is extremely important, especially in the Hampton Roads region. The Hampton Roads region is the second most vulnerable region in the U.S. with regard to climate change impacts. Within the region, my community, Southeast Community of Newport News, is one of the most socially vulnerable communities that will be impacted by such climate change impacts. Hence a strong state CPP is essential to the health and wellbeing of my community.

Over the course of the past year and half, the Southeast CARE Coalition has been advocating that the final CPP make environmental justice a priority at the federal level with colleagues and organizations across the nation through WE ACT for Environmental Justice's Leadership Forum on Climate Change (The EJ Forum). As you move forward in your planning process, there are 3 points that I bring up in solidarity with EJ colleagues throughout the state.

Meaningful Engagement: For me and the community in which I serve, meaningful engagement means moving beyond the "general public" to ensure that our voices, those most impacted, are speaking for ourselves and not the others speaking for us.

There are states leading the way in creating meaningful engagement such as South Carolina.

Expanding on the EPA EJ Analysis: It is my hope that the state will systematically consider how the options selected to implement the CPP will impact—directly or indirectly—overly burdened communities like the Southeast Community I serve. A sample method to begin an environmental justice analysis has been submitted by my colleague, Dr. Jalonne L. White-Newsome.

Creating an Environmental Justice Advisory Team for the entire process: Hearings are a start to inviting the public to the decisionmaking table. However, voices like the community I serve are typically left out of the conversation because of engagement issues previously mentioned. Thus, I strongly support and recommend setting up a specific team/table for EJ communities and advocates to insure we are at the table.

I look forward to working to ensure that achieving environmental, social and economic justice for all remains a key priority in the state's plan. I have included a summary of recommendations as to how to integrate Environmental Justice into CPP Planning developed by group of Environmental Justice stakeholders.

112. **COMMENTS**: Janet Trettner

TEXT: On September 16, 2015, I testified at the DEQ listening session in Harrisonburg on the issue of a clean power plan for Virginia. I support an energy plan for Virginia that relies on alternative energies, primarily solar and wind. One of our state senators has said that Virginia needs to move towards clean energy in 20 to 30 years. I strongly disagree. We cannot afford to postpone any longer our inevitable transition to clean energy. About half of Virginia's electricity is currently generated by coal because coal is an abundant and cheap source of energy. Ironically, we pay a high price for that cheap energy. The entire life cycle of coal production levies a huge toll on our environment and health. Among these impacts are the contamination of streams and rivers in mining areas, acid rain, mountain top removal disposal, and the problem of storing highly toxic coal ash waste containing heavy metals. There is an increased incident of birth defects in the vicinity of mountain top removal, and the resultant devastation of the mountain itself. In the burning of coal, there are also the well-documented health effects of asthma, lung and heart disease. There is much talk these days of "clean coal technology." However, as the air is "scrubbed" cleaner by this technology, the flue gas desulfurization sludge that is left behind contains an increased amount of carcinogenic chromiums. The air emitted by a "clean coal" plant is cleaner but the sludge is dirtier, thus exacerbating the waste storage issue and creating an even greater threat to our drinking water. There is no such thing as "clean coal technology".

Never has there been a better time to embrace clean energy, especially solar. Recent advances in technologies have brought down the cost of equipment. In Virginia, we

have further decreased costs by forming solar co-ops. As members of one of these co-ops, my husband and I were recently able to install solar in our home. All of our electricity is now derived from solar. Any excess that is generated is measured and recorded by the Shenandoah Valley Electrical Cooperative. On days when solar production is not optimal, we draw on the credited electricity we have already produced. We have found SVEC to be very cooperative and easy to work with during which is why I was very surprised to hear in its testimony on September 16, that adopting solar would cause electric costs to rise, adversely and disproportionately affecting the poor who already are having to make hard choices between food and medicine. In contrast may I say that with the installation of solar, our electric bill with SVEC has gone from hundreds of dollars per month to \$15.55. Yes, the equipment was expensive but perhaps the money currently put into cleaning the environment from coal and other fossil-fuel pollution, and from monies currently used to buy fossil-fuel-related prescriptions could be put into assisting low-income people with installation costs. I'm sure anyone having to choose between food and medicine would welcome an electric bill of \$15.55 a month.

We need to close existing coal-fired energy plants. We need to prohibit the building of new coal-fired plants and other fossil-fuel plants, including natural gas, which, though better than other fossil fuels, still brings with it a host of problems. We should not allow the Atlantic pipeline to cross Virginia. We need to embrace clean energy technology now, and not in the future.

113. **COMMENTS**: Ray Thomen

TEXT: I wish that people weren't so ignorant when it comes to climate change, i.e., global warming. It's the biggest scam on the face of the earth. If anyone believes otherwise than you're just totally clueless and foolish.

113. **COMMENTS**: Warren Darrell

TEXT: I strongly support Virginia's adoption of a state CPP, and hope you will take full advantage of this opportunity to reduce pollution from power plants. To insure future prosperity and health for people and our earth, we must greatly reduce carbon and methane emissions from hydrocarbon fuel life cycles, including extraction, processing, transportation, and energy conversion. The most cost effective and comprehensive policy is to tax pollution, including carbon dioxide and fugitive methane. Short of that, we must require a larger share of low pollution energy sources. The costs are local, and the benefits are global - this is a real challenge. However, we must start now, and doing so will put Virginia - our people, industries, and educational institutions in the lead for the future.

114. **COMMENTS**: Dennis Bussey, Richmond, VA

TEXT: The most curious part of the man-made global warming mania is how so few otherwise thoughtful and intelligent people continue to choose to not think for themselves and instead are persuaded by what others tell them they are to believe. If they did stop to think for themselves, they would soon come to realize there is nothing mankind can or will do to significantly reduce the Earth's temperature by minimizing the combustion of fossil fuels. This inconvenient truth is neither contestable nor controversial -- as every honest informed scientist and bureaucrat will attest. In other words, the entire enterprise of reducing our carbon footprint is a fool's mission. Further, those who continue to support government policies designed to reduce the Earth's temperature by reducing the combustion of fossil fuels are complicit in killing jobs and hope and perpetuating energy deprivation, poverty, malnutrition and diseases that kill millions. It is indeed a pity that all of this could be avoided if the population would simply think for themselves and muster the courage to speak up.

114. **COMMENTER:** Joe Cook, Sierra Club

TEXT: We are waiting for the state or city to act. DEQ needs to adopt CPP and quit stalling and quit fighting it. We need to accelerate the compliance timetable from 2030 to 2020. The General Assembly needs to admit that climate change is real. We should be getting rid of coal plants like the Chesapeake Energy Center. Harvard Medical School recently published a report indicating that the health costs of coal are about \$0.26/MW-hr. Virginia is still subsidizing coal when we should be subsidizing renewable energy.

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**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY**

SUMMARY OF PUBLIC COMMENT

**PUBLIC LISTENING SESSIONS AND COMMENT PERIOD,
FEDERAL CLEAN POWER PLAN FINAL RULE**

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**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY**

SUMMARY OF PUBLIC COMMENT

**PUBLIC LISTENING SESSIONS AND COMMENT PERIOD,
FEDERAL CLEAN POWER PLAN FINAL RULE**

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**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY**

SUMMARY OF PUBLIC COMMENT

**PUBLIC LISTENING SESSIONS AND COMMENT PERIOD,
FEDERAL CLEAN POWER PLAN FINAL RULE**

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**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY**

SUMMARY OF PUBLIC COMMENT

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FEDERAL CLEAN POWER PLAN FINAL RULE**

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