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By Electronic Delivery: stallworth.holly@epa.gov
March 16, 2012

Dr. Holly Stallworth
Designated Federal Officer
EPA Science Advisory Board Staff Office
Mailcode 1400R
1200 Pennsylvania Ave., NW
Washington, DC 20460-4164

**Re: Comments to the Science Advisory Board Biogenic Carbon Emissions Panel
On Its Draft Advisory Report Regarding EPA's Accounting Framework for
Biogenic CO2 Emissions From Stationary Sources**

Dear Dr. Stallworth:

Virginia Electric and Power Company ("Dominion Virginia Power" or "Company") is pleased to respond to the Environmental Protection Agency's ("EPA's") Science Advisory Board ("SAB") Biogenic Carbon Emissions Panel ("Panel"), in advance of its March 20, 2012, conference call to discuss the Panel's *Draft Advisory* report of January 19, 2012 and March 8, 2012, regarding EPA's Accounting Framework for Biogenic CO2 Emissions From Stationary Sources dated September 2011 ("Accounting Framework"). As you may be aware, the Company is proposing modifications to convert three existing Virginia coal-burning electric generation facilities (Altavista, Hopewell and Southampton) to burn biomass, primarily waste wood (forest residues). These converted facilities are expected to commence commercial operation by the end of 2013 and will each have a net capacity of 51 MW. Dominion already burns 100% biomass at its Pittsylvania plant in Hurt, Virginia, which is an 83 MW wood-burning generating unit that began commercial service in 1994. Our 585-megawatt Virginia City Hybrid Energy Center (VCHEC) is currently under construction and will be one of the cleanest power stations of its kind when it comes on line later this year. VCHEC's circulating fluidized bed unit will use coal and up to 20 percent clean renewable biomass for its fuel.

In the context of this letter, we refer to waste wood, which to us means forest materials including residues (tree tops, non-merchantable sections of stem, branches, and bark), small trees and other low value materials that are biomass derived which are otherwise left on the ground after tree harvesting for forest products or other commercial or preventative¹ purposes. Unless re-purposed for other uses, such as energy production, this material is often left on-site after a harvesting operation is completed and will eventually be burned on-site or nearby, or will decompose, releasing carbon into the atmosphere and turned into organic matter on the forest floor and soil.²

Given the current economic assumptions for the stations to be converted to biomass mentioned above, they are expected to provide *significant customer value* under a broad range of future market conditions. The value of future biomass power facilities could be diminished while not actually reducing overall carbon emissions if EPA implements a policy which relies on an accounting framework which devalues the “carbon neutrality” of biogenic CO₂ emissions; particularly that of waste wood. Specifically, the SAB Panel, EPA, and other policymakers should consider the finding of the Intergovernmental Panel on Climate Change in its Fourth Assessment Report when it concluded that, “*In the long term, a sustainable forest management strategy aimed at maintaining or increasing carbon stocks, while producing an annual sustained yield of timber, fibre, or energy from the forest, will generate the largest sustained mitigation benefit.*” Additionally, as discussed in the Journal of Forestry³ Supplement (October/November 2011), “*Energy produced from forest biomass returns to the atmosphere carbon that plants absorbed in the relatively recent past; it essentially results in no net release of carbon as long as overall forest inventories are stable or increasing (as in the case with U.S. forests).*”

Therefore, we urge the SAB Panel to recommend to EPA that the agency apply a categorical exclusion to all forest-related biogenic CO₂ emissions at a national scale based on the determination that forests in the United States (1) are managed appropriately for the combustion of waste wood in energy production as well as other purposes, and (2) are not contributing net carbon to the atmosphere. In the alternative, if the SAB Panel cannot make an a priori determination that forest-related biogenic CO₂ emissions are carbon neutral, then it should make the determination that *waste wood (forest material) is carbon neutral a priori* and should recommend to EPA that it should

¹ Prevention of fires, pests, and disease infiltration into the forest.

² Evans, A.M., and M. Ducey. 2010. Carbon Accounting and Management of Lying Dead Wood. Sante Fe, NM: Climate Action Reserve. Forest Guild. http://www.climateactionreserve.org/wp-content/uploads/2010/12/Carbon_Accounting_and_Management_of_Lying_Dead_Wood-Forest_White_Paper.pdf.

³ Malmsheimer, R.W., J.L. Bowyer, J.S. Fried, E. Gee, R.L. Izlar, R.A. Miner, I.A. Munn, E. Oneil, and W.C. Stewart. 2011. Managing Forests because Carbon Matters: Integrating Energy, Products, and Land Management Policy. Journal of Forestry 109(7S):S7–S50.

be treated as such in EPA's Accounting Framework. Further details on these requests are discussed below.

Active Management of Forests Provide Societal Benefits of Energy Production and Overall GHG Emission Reductions

Managed forests not only store carbon in the living trees, but also store carbon in the wood products they produce. Conversion of wood into wood products can significantly reduce overall societal carbon emissions. Wood products store carbon for the life of the product. At the end of the life of the product, it can be reused, recycled, burned for energy recovery, or, although not the optimal option, land filled.

Forest products from managed forests also have lower embodied energy (the amount of energy it takes to make products) than comparable building products, so there is a substitution effect when wood is used in place of steel, aluminum, concrete, or plastic. That substitution effect varies by use and comparable product but on average, every 1 tonne (t) of wood used removes 2.1 t of carbon from the atmosphere. These climate benefits of active forest management are most useful when accounting policies include the substitution benefits that occur in the consumer sector. Then when evaluated from a national perspective, increasing net carbon sequestration rates in managed forests, using wood products rather than fossil fuel-intensive products coupled with using forest materials (waste wood) for energy will reduce GHG emissions overall.

Young healthy forests are carbon sinks. The more forests are managed for wood products; the more forest materials (waste wood) will be generated. Biomass energy projects such as those described above will utilize wood waste as fuel and therefore contribute to a robust market for managed forests and their forest products, creating incentives for forest owners to invest in forests rather than alternative land uses with more limited carbon storage potential.⁴

If tops and limbs from a biomass harvest of trees were left in the woods to decay, this "unharvested" carbon would delay recovery times of the forest, effectively penalizing wood biomass relative to fossil fuels⁵. Therefore, it is more beneficial for forest recovery after harvest to remove and utilize the waste wood. As stated above, the Company's three conversion projects to burn biomass will primarily use waste wood as a fuel source and will therefore contribute towards a market for managed forest products and use of wood waste which provides a societal benefit of energy production while also lowering GHG's overall.

⁴ Peter J. Ince, Global Sustainable Timber Supply and Demand, in Sustainable Development in the Forest Products industry, Chapter 2, 29-41 (2010).
http://www.fpl.fs.fed.us/documnts/pdf2010/fpl_2010_ince001.pdf

⁵ Manomet Center for Conservation Sciences. 2010. Massachusetts Biomass Sustainability and Carbon Policy Study: Report to the Commonwealth of Massachusetts Department of Energy Resources. Brunswick, Maine: Manomet Center for Conservation Sciences. NCI-2010-03. 109.

Unmanaged forests do not provide additional climate benefits indefinitely. Annual overall forest carbon storage increments tend to start declining in the first 100-150 years as tree mortality losses increase. Older forests have some of the largest carbon densities but typically low or near-zero rates of additional carbon sequestration and higher probability of loss. As forests mature, they generally become carbon cycle neutral or even carbon emissions sources because net primary productivity declines and the decay of trees killed by natural disturbances – windstorms, fire, ice storms, hurricanes, and insect and disease infestations – emits carbon without providing carbon benefits.

U.S. Environmental and Energy Policies Should Encourage Active Management of Forests and Energy Produced From Forest Biomass

As discussed above, focusing solely on forest's sequestration benefits misses the important carbon storage and substitution GHG benefits of harvested forest products, as well as other benefits from active forest management. We agree with the scientific conclusion contained in the Journal of Forestry supplement article⁶ which states that, "*US environmental and energy policies need to be linked or at least be based on mutual recognition and should be based on four basic premises grounded in the science summarized in this article:*

- 1. Sustainably managed forests can provide carbon storage and substitution benefits while delivering a range of environmental and social benefits, such as timber and biomass resources, clean water, wildlife habitat, and recreation.*
- 2. Energy produced from forest biomass returns to the atmosphere carbon that plants absorbed in the relatively recent past; it essentially results in no net release of carbon as long as overall forest inventories are stable or increasing (as is the case with US forests).*
- 3. Forest products used in place of energy intensive materials such as metals, concrete and plastics (a) reduce carbon emissions (because forest products require less fossil fuel-based energy to produce), (b) store carbon (for a length of time based on products' use and disposal), and (c) provide biomass residuals (i.e., waste wood) that can be substituted for fossil fuels to produce energy.*
- 4. Fossil fuel-produced energy releases carbon into the atmosphere that has resided in the Earth for millions of years; forest biomass-based*

⁶ Malmshiemer, R.W., J.L. Bowyer, J.S. Fried, E. Gee, R.L. Izlar, R.A. Miner, I.A. Munn, E. Oneil, and W.C. Stewart. 2011. Managing Forests because Carbon Matters: Integrating Energy, Products, and Land Management Policy. Journal of Forestry 109(7S):S7-S50.

energy uses far less of the carbon stored in the Earth thereby reducing the flow of fossil fuel-based carbon emissions to the atmosphere.”

Using the four basic premises discussed above, EPA's Accounting Framework and policies could and should encourage active management of forests not only for all the carbon and renewable energy benefits of forests and forest products, but also while sustaining ecosystem health and traditional forest biomass uses.

Categorical Exclusion is the Only Workable Accounting Framework

U.S forest carbon stocks are currently stable or increasing and are expected to remain so for the foreseeable future, notwithstanding anticipated increases in production of forest products, including renewable energy.⁷ We agree with the National Alliance of Forest Owners that, “[a] complex accounting framework cannot represent an improvement over a categorical exclusion unless it produces a better greenhouse gas reduction outcome and more accurate results in a cost-effective manner. As long as overall forest carbon stocks remain stable or increasing, it is neither necessary from a scientific perspective nor efficient from a cost-benefit perspective to go beyond a categorical exclusion for biomass⁸.” We also agree with the SAB Panel's assessment in its Draft Advisory report that EPA's Accounting Framework presents “*daunting technical and implementation challenges*” as a result of its complexity and believe that an alternative approach is necessary. The SAB Panel should seek to remove complexity and prepare recommendations to EPA through a straightforward approach that promotes rather than discourages biomass energy production. Therefore, we urge the SAB Panel to recommend to EPA to apply a categorical exclusion to all forest-related biogenic CO₂ emissions at a national scale based on the determination that forests in the United States (1) are managed appropriately for the combustion of wood waste in energy production as well as other purposes and (2) are not contributing net carbon to the atmosphere. In the alternative, if the SAB Panel cannot make an a priori determination that forest-related biogenic CO₂ emissions are carbon neutral, then it should make the determination that *waste wood (forest material) is carbon neutral a priori* and should recommend to EPA that it be treated as such in EPA's Accounting Framework.

⁷ Yude Pan *et al.*, A Large Persistent Carbon Sink in the World's Forests, *Science* 333(6054) 998-993 (Aug. 19, 2011) and Linda S. Heath, *et al.*, Managed Forest Carbon Estimates for the US Greenhouse Gas Inventory, 1990-2008, *Journal of Forestry* 109(3) 167-173 (April/May 2011).

⁸ David P. Tenny. National Alliance of Forest Owner's Comments to the Science Advisory Board Biogenic Carbon Emissions Panel. December 21, 2011. 4.

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Once again, we appreciate the opportunity to comment on the Panel's *Draft Advisory* report. If you have any questions, please contact Paula Hamel at 401-457-9234 or by e-mail at paula.a.hamel@dom.com.

Sincerely,

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Pamela F. Faggert

Cc:

Daniel Weekley