

Memo

Subject: Grounds for a “FOR” vote for a resolution that Dominion should conduct a study examining the climate and investment risks of biomass energy

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Shareholders are encouraged to vote FOR the following resolution:

***Resolved:** Shareholders request that the Board of Directors prepare a report by November 1, 2014, at reasonable cost and excluding proprietary information, evaluating the environmental and climate change impacts of the company using biomass as a key renewable energy and climate mitigation strategy, including an assessment of risks to the company's finances and operations posed by emerging public policies on biomass energy and climate change. The report should consider the impact that potential state or federal rejection of “carbon neutral” status for particular biomass energy facilities, fuel sources or categories of operations could have on subsidies, permitting processes, or existing facilities.*

Purpose of the resolution:

The purpose of the resolution is to improve Dominion’s disclosure of risks associated with its investments in carbon-intensive biomass energy (a technology that emits more carbon than fossil fuels). These material risks include risks to the climate from bioenergy, and risks to the company from emerging climate-change related policies and legislation that may affect the viability of investments in biomass energy. In this memo, we discuss what these risks are and explain why Dominion’s current disclosures are inadequate.

Rationale for a “For” vote: (an abstract of this memo)

SEC’s Required Disclosures on Material Climate Risks: The SEC requires disclosure of how companies’ activities affect the climate, and how emerging climate and greenhouse gas regulation can affect companies’ investments. Biomass power – in Dominion’s case, investments in wood burning power plants – presents risks to the climate, and such investments are themselves at risk due to emerging regulation of bioenergy.

Climate Risks of Biomass Power: Bioenergy is more carbon intensive than fossil fuels. Dominion’s investments in converting coal power plants to burn wood, as well as the company’s other investments in biomass power, will increase present-day greenhouse gas emissions above what they would be if the facilities continued to burn coal. While carbon dioxide emissions from biomass power plants can be offset over time, such offsetting takes several decades. The effect of biomass energy investments is thus to increase greenhouse gas emissions and worsen climate change.

Financial, Operational, and Reputational Risks of Biomass Power: The majority of Dominion’s investments in renewable energy consist of wood-burning power plants and the financial viability of these investments depends on continued subsidies and tax credits for biomass as renewable energy. In turn, these subsidies and investments in part depend on the continued

regulatory treatment of biomass energy as carbon neutral. Changes in policy occurring at the state and federal level suggest that biomass power may not maintain its favored status.

Dominion's Inadequate Disclosures of Climate and Financial Risks: Dominion's existing disclosures do not discuss the climate change-related risks of biomass investment. Dominion has even actively misrepresented the climate impacts of biomass power in its marketing materials.

- A detailed report submitted to the SEC on Dominion's failure to disclose climate and investment risks of biomass power is available at <http://www.pfpi.net/wp-content/uploads/2013/11/PFPI-report-to-SEC-on-bioenergy-Nov-20-2013.pdf>
- A letter from investors to the SEC asking that the SEC investigate Dominion and other companies' failures to disclose climate and investment risks of bioenergy is available at <http://www.pfpi.net/wp-content/uploads/2013/11/Investor-letter-to-SEC-on-bioenergy-Nov-20-2013.pdf>

The SEC's Required Disclosures on Material Climate Risks

The SEC's Climate Guidance says climate change-related risks are material and encourages disclosure of *both* climate risks caused by operations and risks to a company from climate-change related regulation and legislation.

The Commission formally recognized the materiality of climate change-related information in its 2010 Climate Guidance. *Commission Guidance Regarding Disclosure Related to Climate Change* (Release Nos. 33-9106; 34-61469; FR-82) February 2010. The Climate Guidance is an interpretive release that explains how existing disclosure requirements apply to climate change matters.

The Guidance says that the physical effects of global climate change and the legislation, regulations and policies developed to address it could all have a material effect on companies. Therefore, all publicly traded companies must assess the materiality of climate change matters to their business, determine what disclosures should be included in SEC filings with respect to climate change matters, and include those disclosures.

Climate Risks of Biomass Power

Biomass power plants burn wood and other biological materials that, like fossil fuels, contain carbon. However, biomass power plants emit about 150% as much carbon dioxide as coal plants, and 300 – 400% as much carbon dioxide as natural gas plants, per megawatt-hour of electricity generated, because biomass power plants are relatively inefficient.¹

Biopower also increases atmospheric carbon dioxide levels because biomass fuel harvesting depletes forest carbon sinks and biomass power plant emissions far outpace re-uptake of carbon dioxide by forests. Numerous scientific studies² have found that net carbon dioxide emissions from biomass power plants exceed emissions from fossil-fueled plants for 30-90 years³ due to this imbalance.

Dominion's public materials portray bioenergy as "carbon neutral" power, implying that emissions are less than from fossil fuel combustion and that bioenergy leads to a net reduction of greenhouse gas emissions. This representation is potentially false and misleading to investors,

given the demonstrated carbon intensity of this technology. This representation also hides the carbon impacts of bioenergy from investors as bioenergy carbon emissions are not quantified in Dominion's existing disclosures.

Financial, Operational, and Reputational Risks of Biomass Power

Dominion has put most of its eggs in the bioenergy basket. In its 2013 Integrated Resource Plan, Dominion describes its use of bioenergy as "extensive."⁴ Dominion's projections for energy generation from renewables in 2020 includes over 75% bioenergy, 3% solar, and 0% wind.⁵

Yet bioenergy investments bring significant financial, operational and reputational risks. Generating power by burning wood is relatively expensive – according to EPA, the levelized cost of generating electricity from biomass in 2011 dollars per megawatt-hour is \$97 - \$130, whereas the cost of onshore wind is \$70 - \$97 and the cost of natural gas combined cycle technologies is \$59 - \$86, depending on the cost of gas.⁶ Bioenergy is relatively subsidy-dependent, as Dominion admitted before the Virginia State Corporation Commission. Subsidies and tax credits for bioenergy depend on the technology delivering environmental benefits. As the greenhouse gas, forest cutting, and conventional pollutant impacts of bioenergy are increasingly understood, subsidies and incentives are starting to be removed.

Certain states are eliminating renewable energy incentives for biomass energy. Massachusetts has already done so, and both Maryland and Washington DC, markets where Dominion collects renewable energy subsidies, are considering eliminating subsidies for bioenergy. In Vermont, the Public Service Board recently denied a certificate of public good for a biomass plant, on the basis of its greenhouse gas emissions.⁷ At the federal level, EPA is considering how to regulate greenhouse gas emissions from biomass energy under the Clean Air Act, having been advised by its Science Advisory Board that bioenergy can not be automatically considered carbon neutral.⁸ EPA's proposed power plant rule for CO₂, although it does not regulate biomass power plants directly, counts CO₂ from biomass that is co-fired at a coal plant toward the total calculation of carbon dioxide emissions.⁹

Overall, this regulatory trend represents both current and future financial and operational risks to the bioenergy industry, and Dominion's bioenergy investments.

Reputational risk includes negative public reaction to Dominion's "carbon neutral" messaging and bioenergy investment choices as the public comes to understand the harmful environmental and greenhouse gas impacts of bioenergy.

Dominion's Inadequate Disclosure of Climate and Financial Risks

None of the materials Dominion describes in its opposing statement - integrated resource plans, renewable portfolio standard progress reports, or website materials - disclose bioenergy climate risk to investors; neither do current SEC reports. The company claims that the information requested by the Proposal is available in third-party state regulatory body records, but sending investors off to dig through regulatory records for this information simply does not constitute adequate disclosure. Based on Dominion's present public disclosures of information related to bioenergy, which erroneously portray bioenergy as "carbon neutral", investors are unable to assess how the company is managing bioenergy climate risks.

Existing disclosures by Dominion do not assess climate, financial, operational or reputational risks related to bioenergy.

Dominion's existing disclosures either state that bioenergy is "carbon neutral" (and therefore fail to quantify bioenergy carbon emissions and assess bioenergy climate risks), or they simply describe bioenergy's role in renewables development. For example:¹⁰

- Virginia 2013 Integrated Resource Plan and North Carolina 2013 Integrated Resource Plan, page 70. "The Company considers biomass to be carbon neutral from an emissions standpoint."¹¹
- The Annual Report to the Virginia State Corporation Commission on Renewable Energy describes the role of biomass in renewable energy development planning and does not address bioenergy carbon emissions.¹²
- 2012-2013 Citizenship & Sustainability Report, section on climate change, addressing the company's strategy for greenhouse gas reduction. "Expand our renewable energy portfolio including wind power, solar, fuel-cell and biomass to help diversify our fleet, meet state renewable energy targets and lower our carbon footprint."¹³

Preparation of the requested report would provide new information, and not duplicate existing disclosures, as the company claims.

Existing records maintained by third parties cannot satisfy Dominion's disclosure requirements. Dominion claims that analyses conducted for state regulatory proceedings that are posted to third party websites or are on file with state regulatory agencies contain the information requested by the Proposal, and therefore satisfy the company's obligations to inform its shareholders of material bioenergy risks.

However, third party recordkeeping cannot satisfy Dominion's disclosure requirements. Sending investors search through regulatory records for this information simply does not constitute adequate disclosure.

Additionally, even if records on file with the North Carolina Utilities Commission and the Virginia State Corporation Commission could satisfy Dominion's obligations, these records do not provide investors with the company's *assessment* of bioenergy climate risks or describe *how the company is managing these risks*. At best, the records flag serious risks and then dismiss them. For example, Dominion stated in testimony to the Virginia State Corporation Commission that the economic viability of its three coal-to-biomass power plant conversions depended upon a regulatory assumption of carbon neutrality, and that without this regulatory assumption the net present value of operation of the plants would be less than if the plants continued to burn coal.¹⁴ The company does not explain, in that venue, how it is managing that risk.

Dominion's discussion of its "balanced approach" to renewables development is irrelevant to the risk analysis requested by the Proposal.

Dominion's focus on the "balanced" nature of its renewables development and omission of any reference to carbon emissions in its opposing statement highlights the need for the report requested by the Proposal. All renewable energy is not created equal. Bioenergy is both "renewable" and carbon-intensive, and this latter characteristic creates risk. While Dominion

appears to be aware of this risk, the company has not disclosed it to shareholders, creating the need for this Proposal.

Conclusion

Bioenergy is not carbon neutral and investing in generation that is more carbon-intensive than fossil fuels is a risky business decision. We believe Dominion faces significant financial, operational and reputational risks as a result of its carbon-intensive bioenergy investments. Dominion's bioenergy investments also exacerbate climate change. SEC policy and precedent requires Dominion to disclose these material climate change-related risks to investors, but Dominion has not done so. Dominion should be directed to recognize, analyze and disclose these risks by a vote FOR this shareholder resolution.

¹ Dominion has admitted this fact in testimony, SCC Case No. PUE-2011-00073. Vol. III 01-12-2011.

² Studies described in the report include: Walker, T., et al. Massachusetts Biomass Sustainability and Carbon Policy Study: Report to the Commonwealth of Massachusetts Department of Energy. Manomet Center for Conservation Sciences. 2010; Searchinger, T., et al. 2009. Fixing a critical climate accounting error. *Science* 326: 527-528; Colnes, A., et al. 2012. Biomass supply and carbon accounting for Southeastern Forests. Biomass Energy Resource Center, Montpelier, VT; Mitchell, S., et al. 2012. Carbon debt and carbon sequestration parity in forest bioenergy production. *GCB Bioenergy* (2012) doi:10.1111/j.1757-1707.2012.01173.x; McKechnie, J. et al. 2011. Forest bioenergy or forest carbon? Assessing trade-offs in greenhouse gas mitigation with wood-based fuels. *Environmental Science and Technology*, 45: 789-795.

³ Though biomass has been considered "net carbon neutral" for some time - meaning that when the full lifecycle of biomass fuel is taken into account, biomass power plant carbon emissions would be balanced through atmospheric carbon sequestration by new tree regrowth - current science demonstrates that in fact biomass power increases atmospheric carbon levels for decades, compared to fossil fuel plants.

⁴ Dominion Virginia Power's and Dominion North Carolina Power's Report of Its Integrated Resource Plan. Before the Virginia State Corporation Commission and North Carolina Utilities Commission. Case No. PUE-2013-00088, Docket No. E-100, Sub 137. Filed August 30, 2013.

⁵ Virginia Electric and Power Company d/b/a Dominion Virginia Power. Annual report to the State Corporation Commission on renewable energy. November 1, 2012.

⁶ 40 CFR Parts 60, 70, 71, et al. Standards of Performance for Greenhouse Gas Emissions From New Stationary Sources: Electric Utility Generating Units; Proposed Rule. *Federal Register* Vol. 79, No. 5 Wednesday, January 8, 2014

⁷ State of Vermont Public Service Board, "Petition of North Springfield Sustainable Energy Project LLC, for itself and as agent for Winstanley Enterprises, LLC, for a certificate of public good", Docket No. 7833, order entered 2/11/14, petition denied.

⁸ In September 2011, the EPA submitted a draft of the Accounting Framework to the Science Advisory Board (SAB) Biogenic Carbon Emissions (BCE) Panel for peer review. The SAB BCE Panel delivered its Peer Review Advisory to the EPA on September 28, 2012. Letter from EPA's Science Advisory Board to the EPA, "SAB Review of EPA's Accounting Framework for Biogenic CO₂ Emissions from Stationary Sources," September 28, 2012, *available at* <http://yosemite.epa.gov/sab/sabproduct.nsf/0/2f9b572c712ac52e8525783100704886!OpenDocument&TableRow=2.3#>

⁹ Proposed Rule establishing Standards of Performance for Greenhouse Gas Emissions From New Stationary Sources: Electric Utility Generating Units. 79 Fed. Reg. 1,429 (Jan. 08, 2014).

¹⁰ See *PFPI Report* for description and analysis of additional disclosures *available at* <http://www.pfpi.net/wp-content/uploads/2013/11/PFPI-report-to-SEC-on-bioenergy-Nov-20-2013.pdf>.

¹¹ Virginia Plan, <https://www.dom.com/about/pdf/irp/va-irp-2013.pdf> North Carolina Plan, <https://www.dom.com/about/pdf/irp/nc-irp-2013.pdf>

¹² <https://www.dom.com/about/stations/renewable/pdf/renewable-energy-report-2013.pdf>

¹³ http://www.dominioncsr.com/environment/climate_change.php

¹⁴ SCC Case No. PUE-2011-00073. Vol. III 01-12-2011, Direct Testimony of Glenn A. Kelly, Director of Generation System Planning for Dominion. Vol. II 06-27-2011, p. 13, Figure 7.