July 19, 2016

Brent J. Fields
Secretary
Securities and Exchange Commission,
100 F Street, NE,
Washington, DC 20549-1090

Via email to rule-comments@sec.gov

Re: File Number S7-06-16 - Regulation S-K Concept Release on Business and Financial Disclosure Required by Regulation S-K

Dear Mr. Fields:

The Partnership for Policy Integrity is a non-profit organization that provides science and legal support so that citizens and policymakers can better understand energy development impacts on air quality, water quality, ecosystems, and the climate. A large proportion of our work is focused on increasing transparency concerning the effects of the biomass power sector on forests, climate, and air pollution. As part of that work, we are working in close collaboration with numerous investors, from individuals to large institutional investment groups, to ensure that disclosure is improved to prevent the bioenergy industry from making false and misleading statements about the environmental attributes of their operations. Accordingly, we offer the following brief comments and two exhibits in response to the SEC's Concept Release regarding Regulation S-K.

We are writing in response to Questions 6 and 216 in the Concept Release – regarding which sustainability issues are important to investors, and whether to regulate disclosure through principles or prescriptive standards. We believe the SEC urgently needs to establish clear guidelines – prescriptive or principled – ensuring that companies do not tout climate benefits of bioenergy products or energy based on undisclosed, contingent and long-term carbon accounting assumptions. The rapidly growing bioenergy sector and the bio-based economy sector are increasingly promoted internationally as providing "low carbon" or "zero carbon" alternatives to fossil fuel energy and petroleum-based products. The multi-billion dollar U.S. bioenergy sector includes liquid biofuels, biomass power (the combustion of wood and other biomass as fuel in electricity-generating power plants), and wood pellet companies

that manufacture fuels from U.S. forests then ship them to Europe and Asia, where they are burned as a replacement for coal. We have previously documented for the Commission that the lack of effective enforcement on climate disclosure is currently allowing registrants in the bioenergy sector to exaggerate the environmental and therefore financial prospects of their operations. Misleading claims by the biomass power sector have been particularly notable. The biopower sector represents wood-burning power plants as a "clean" and "carbon neutral" energy source, even as they generate *more* carbon dioxide and often, conventional air pollutants, per megawatt-hour of electricity generated, compared to coal and natural gas plants.

As it is a physical and demonstrable fact that facilities burning biomass emit more carbon pollution than similar-sized facilities burning fossil fuels, claims that burning biomass "reduces" carbon pollution are essentially claims that carbon offsetting is occurring – that is, that new forests or crops are being grown that can take up an equivalent amount of carbon pollution as released by burning the biomass. To the extent that companies claim or imply bioenergy reduces carbon pollution instantaneously without disclosing that claims rely on unverified future offsetting, or that their carbon accounting simply excludes emissions from the actual combustion of the product, such claims are misleading.

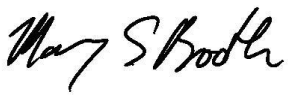
Without better disclosure of the assumptions behind company claims that bioenergy and bio-based products reduce carbon emissions, many investors reading companies' disclosure statements will be misled regarding the regulatory, operational, and financial risks associated with investments these sectors. Together with concerned investors we have previously submitted two reports on the bioenergy sector, both attached to this letter. In November 2013, we submitted "Analysis of risks and corporate disclosures regarding environmental and climate considerations in the biomass power sector," (Attachment A) to the Commission, a report that focused on apparent failures of companies developing domestic wood-burning power plants to provide accurate and non-misleading disclosure. In March 2016 we submitted "Carbon emissions and climate change disclosure by the wood pellet industry – a report to the SEC on Enviva Partners LP" (Attachment B). Enviva Partners LP (NYSE: EVA. IPO: April 2015; market cap $350 million, October 2015) is the largest U.S. producer of wood pellets burned by electricity generators in Europe and the United Kingdom. Enviva has made numerous claims that burning its product "reduces" carbon emissions, without disclosing that burning wood pellets actually increases carbon pollution at the smokestack compared to burning fossil fuels, and that that the company's claims of "reduced" carbon pollution rely on simply not reporting these stack emissions.

The assumptions that lie behind company claims that their products and services reduce carbon pollution are material issues for investors, especially investors intent on capitalizing on the "green" benefits of renewable energy technologies. To the extent that investors are misled by materially misleading or incomplete disclosures by registrants, the current operation of the Securities and Exchange Commission's disclosure system are failing to protect them.

In order to ensure that investors have the necessary and accurate information on the rapidly growing bioenergy and bio-based products sectors, we request that the SEC more closely monitor companies' climate benefit claims, and establish and enforce clear guidelines applicable to companies that may be claiming climate benefits. We recommend that any sustainability disclosure rules adopted by the Commission require adequate *substantiation* of claims that carbon emitting products or services are beneficial for the climate. The rules should be prescriptive enough to require registrants to (a) include requirements to disclose carbon accounting contingencies where they underlie statements in SEC filings and (b) include all assumptions going into such accounting that are necessary to ensure that such disclosures are not misleading.

We appreciate the work of the Commission to advance effective corporate disclosure on these important financial and operational risks.

Sincerely,



Mary S. Booth
President and Director
Partnership for Policy Integrity

ANALYSIS OF RISKS AND CORPORATE DISCLOSURES REGARDING ENVIRONMENTAL AND CLIMATE CONSIDERATIONS IN THE BIOMASS POWER SECTOR

PARTNERSHIP FOR POLICY INTEGRITY

NOVEMBER, 2013

PFPI
driven by data

PFPI AUTHORS

Dr. Mary Booth, PhD, is Director of the Partnership for Policy Integrity (PFPI). A former senior scientist at Environmental Working Group, she founded PFPI in 2010. By training an ecosystem scientist, Dr. Booth now specializes in analysis of bioenergy projects, including forest impacts and emissions of greenhouse gases and other air pollutants. Dr. Booth received her PhD in Ecology from Utah State University and her Masters and Bachelors degrees from the University of Massachusetts at Amherst.

Kelly Bitov is an attorney with PFPI specializing in environmental law. She has worked for the General Counsel to the Investors Environmental Health Network, the Sierra Club and, the U.S. Department of Justice Environmental Enforcement Section in Washington D.C. Bitov received her law degree from Northeastern University School of Law, and also holds a Masters Degree in Public Health from Tufts University School of Medicine and B.A. in Political Science from Barnard College.

CONSULTANT

Sanford Lewis is an attorney who represents investment and nongovernmental organizations. He is a leading advocate of improved SEC disclosure and accounting on environment and human rights. He was the lead author of The Rose Foundation's report, "Fooling Investors and Fooling Themselves: How Aggressive Corporate Accounting and Asset Management Tactics Can Lead to Environmental Accounting Fraud." Lewis has a BS in Environmental Studies and Urban Communications from Cook College, Rutgers University, and a JD from the University of Michigan Law School.

CONTENTS

SYNOPSIS

The Partnership for Policy Integrity (PFPI) is a Massachusetts-based environmental organization with expertise on biomass energy and its environmental and health impacts. We produce reports and provide scientific and legal expertise to citizens and policymakers on biomass energy facilities and on national, state and local biomass energy policies.

In early 2013, PFPI reviewed corporate disclosures by three energy companies with substantial biomass energy[1] holdings – Covanta Holding Corporation ("Covanta"), Dominion Resources Inc./Virginia Electric and Power Company ("Dominion") and Southern Company. All three are publicly traded companies that own and operate wood-fueled biomass power plants in the United States. We analyzed how company disclosures described the environmental risks associated with biopower, and their compliance with related Securities and Exchange Commission (SEC) disclosure requirements, including guidelines provided by the 2010 SEC Climate Guidance.

PFPI found that discussion of environmental risks of biopower was incomplete and misleading without inclusion of additional information.

Biomass energy generation is on the rise in the United States, in part driven by the availability of subsidies and tax credits for renewable energy. However, renewable energy technologies are not all equally effective at reducing greenhouse gas and pollutant emissions. Wind, solar, and hydropower are often characterized as "clean" and "carbon neutral" due to their lack of emissions of carbon dioxide (CO_2) and conventional air pollutants like particulate matter, nitrogen oxides and carbon monoxide. The terms "clean" and "carbon neutral" are also sometimes used to describe bioenergy, but in light of the actual emissions from biomass power plants, the terms are misleading. Biomass energy is much more akin to traditional fossil-fueled energy than no-emissions technologies like wind and solar energy.

On a day to day basis, wood-fueled power plants emit about 150% the CO_2 of a coal plant and 300 – 400% the CO_2 of a gas plant per megawatt-hour of electricity generated.

Biomass power plants emit more CO_2 than fossil-fueled plants, producing about 150% the CO_2 of a coal plant and 300 – 400% the CO_2 of a gas plant per megawatt-hour (MWh) of electricity generated. Biopower facilities also emit similar or greater amounts of key air pollutants per MWh as fossil fueled facilities, including particulate matter, nitrogen oxides, and carbon monoxide. The pollution emitted by any particular facility depends on the fuels burned and the emission controls employed, but in general, permitted emissions of key air pollutants are similar to or greater than those from modern coal plants, and are significantly greater than those from gas plants, even at bioenergy facilities that have employed "best available control technology."

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[1] "Biomass energy" or "bioenergy" as used in this letter refers to the generation of heat and electricity by burning wood and other biological materials as fuel in industrial, commercial, and utility boilers. Biomass power or "biopower" refers solely to the generation of electricity. As used here, the term "bioenergy" does not include the separate but related industry of producing refined liquid fuel products from biological sources. It is important to note at the outset that the vast majority of biomass energy facilities are wood-fueled, and much smaller portions are fueled with agricultural wastes or other biological materials. The present analysis focuses on the wood-fueled portion of these operations.

A renewable energy technology that emits more CO_2 on a day to day basis than the fossil fuels it is supposed to replace is not immediately effective in mitigating climate warming, but it is in theory possible for bioenergy CO_2 emissions to be offset and thus mitigated with the passage of time. There are two main ways this may occur. Either fuels are derived from waste wood that would decompose and emit CO_2 anyway, so that net emissions over time are equivalent whether the material is burned for energy or left to decompose; or, it is assumed that trees and other plants harvested for fuel will grow back and re-sequester an equivalent amount of CO_2 as was released by burning, thus drawing down net CO_2 emissions. However, both these processes take time, particularly when wood is burned as fuel. In fact, when whole trees are used as fuel, modeling studies show that it takes 30 – 90 years or even longer for the extra emissions emitted by a biopower facility to be offset so that net emissions are reduced to the *same level* as would have been emitted from a fossil-fueled power plant. Only after this point can a biopower facility be said to produce a net reduction in atmospheric CO_2 loading relative to a fossil fueled facility.

The regulatory and policy environment for bioenergy has changed significantly in recent years, and there are several developments that may impact the viability of bioenergy, or are already doing so. However, we found sparse discussion of material business risks that could arise due to changing regulation of biomass energy and biogenic carbon emissions. Instead, the companies we examined tended to represent biopower as a key component of corporate clean energy strategies intended to reduce CO_2 emissions – without acknowledging that climate benefits will only occur in the future, if they occur at all.

New regulations and policies are aimed at greenhouse gas emissions from biomass power plants

Federal regulation of biogenic CO_2 appears to be a significant possibility. When EPA initially began regulating CO_2 under the federal Clean Air Act's Prevention of Significant Deterioration (PSD) permitting program in early 2011, biomass power plants were regulated alongside fossil fueled power plants. In July 2011, EPA suspended regulation of bioenergy facilities under the program for a period of three years, and convened a Panel of its Science Advisory Board (SAB) to advise the agency on how to regulate biogenic CO_2 emissions. The permitting deferral ends in July 2014, and EPA seems poised to adopt the recommendations of the SAB that bioenergy can not be considered *a priori* carbon neutral, with net CO_2 emissions from bioenergy depending on a variety of factors. This suggests that EPA will come up with a regulatory scheme to account for bioenergy emissions that could, if the agency follows the SAB's recommendations, discriminate among fuels and power plant technologies when accounting for net CO_2 emissions.

In the meantime, a 2013 federal court ruling vacated EPA's regulatory deferral for biogenic CO_2 emissions (*Center for Biological Diversity v. EPA*, D.C. Cir. No. 11-1101, July 12, 2013). The court identified nothing in the Clean Air Act that would allow EPA to exempt biogenic CO_2 from being counted when determining whether a facility meets the emissions thresholds that trigger PSD permitting. If PSD permitting is resumed for bioenergy facilities, the great majority of biomass power plants now proposed would be "major" sources of CO_2 under the Clean Air Act (emitting over 100,000 tons of CO_2 per year) and thus would be required to go through PSD permitting, which is a more involved process than receiving a state-issued emissions permit. In other developments at EPA, the proposed federal New Source Performance Standard for fossil-fueled power plants does count CO_2 emitted by biomass co-firing in new coal plants when

determining a facility's emission rate, indicating there are circumstances when EPA does not distinguish between fossil-fuel and biogenic CO_2 emissions.

Although the companies examined in this letter offered comments to EPA on what regulation of biogenic CO_2 emissions could mean for their businesses, there was very little disclosure of these matters to the SEC. Based on the bioenergy industry's own comments, the avoidance of Clean Air Act regulation of CO_2 seems to have been a pivotally important legal matter. Yet the important federal court decision and other developments which could portend materially significant regulation of biogenic CO_2 emissions have not been disclosed in SEC filings.

Companies have not disclosed important information to investors

Meanwhile, at the state level, there has been increasing recognition of the greenhouse gas and forest impacts of biomass energy. In Massachusetts, state regulations eliminated subsidies for low-efficiency, high emissions bioenergy facilities like the ones owned and operated by the three companies named in this letter, a development that directly affects two of Covanta's bioenergy facilities in Maine. Legislation proposed in Maryland and Washington, DC would also eliminate renewable energy subsidies for low-efficiency biopower facilities, and would directly affect Dominion's biopower investments. However, none of the companies disclosed these policy developments to investors, even though they had in some cases submitted letters on proposed legislation stating that elimination of subsidies would reduce the financial viability of their biopower facilities.

The three companies we reviewed all have significant bioenergy holdings, specifically, wood-burning power plants, and all have promoted bioenergy as providing environmental benefits.

Dominion

Dominion operates one of the largest biomass power stations in the United States, the 83 MW Pittsylvania station in Virginia. In addition to Pittsylvania, Dominion began operation of the 585 MW Virginia City Hybrid Energy Center in July 2012, which will co-fire up to 60 MW biomass by 2020. Dominion is also converting three coal-fired power plants to burn biomass, and announced the completion of the Altavista plant conversion on July 15, 2013. Dominion's projected renewables mix for 2020 is more than 75% wood fueled biomass, 3% solar, and 0% wind energy.

Dominion refers to bioenergy as "clean" and "carbon neutral" in promotional materials, including on its website where those claims may be viewed by investors. However, emissions of CO_2 from Dominion's facilities are significant. Once Dominion's bioenergy capacity is all online (Pittsylvania plus the new facilities) these facilities at fulltime operation will represent about a 4.1% increase in electricity generation in Virginia, but will cause an 11.7% increase in day to day power sector CO_2 emissions over the 2011 baseline. Emissions of conventional pollutants will also be significant. For instance, construction permits for the Altavista, Southampton and Hopewell plants (combined capacity 153 MW) reveal that their permitted emissions will be 253.2 tpy of $PM_{2.5}$, 114.6 tpy sulfur dioxide, 1,237 tpy nitrogen oxides, 2,748 tpy carbon monoxide, and 129.4 tpy volatile organic compounds. Wood use at each plant will be

about 785,000 tons per year.

The company admitted in testimony to the State Corporation Commission (but not in SEC disclosures) that their coal-to-biomass conversions will emit more CO_2 on a day to day basis than facilities that simply burn coal. They also stated that the value of their investments in converting the coal plants to burn biomass depends on regulatory treatment of biomass energy as carbon neutral.

Concern about climate change and greenhouse gas emissions led to legislation being offered in Maryland in 2013 that would eliminate renewable energy subsidies for low-efficiency biopower plants like those owned by Dominion. Testifying against the bill, Dominion stated that subsidies are a "key revenue stream" that is critical to the economic viability of the projects. In a letter to the EPA, Dominion also stated that the value of biomass power facilities depends on bioenergy being treated as carbon neutral. Yet Dominion's disclosures to investors do not reflect these vulnerabilities, or other developments relevant to regulation of biogenic carbon.

Dominion, Southern, and Covanta have all represented bioenergy as "clean" and "carbon neutral"

<u>Southern Company</u>

Southern Company directly owns one biomass facility, the Nacogdoches plant near Sacul, Texas. Using about 1 million tons of wood per year and with 116 MW capacity, the Nacogdoches facility is one of the largest biomass power stations in the United States (although the facility was idled a few months after it went online, due to the high cost of its power relative to other available sources, including wind and natural gas). Southern Company subsidiaries (Alabama Power, Mississippi Power, and Georgia Power) are co-firing biomass in coal plants, have contracted with other smaller companies for biomass power, or are planning and investigating future bioenergy projects.

Southern Company's promotional materials claim that bioenergy is clean and carbon neutral, but in a letter to the EPA on regulation of biogenic CO_2, the company states that such regulation would impact future bioenergy projects. While Southern's SEC filings discuss the risks that regulation of coal plant CO_2 may pose, potential regulation of biogenic CO_2 is not discussed.

<u>Covanta</u>

Covanta Holding Corporation owns eight wood-fueled biomass power plants – six in California and two in Maine. The company's website makes several statements on the environmental benefits of bioenergy, asserting bioenergy produces "significant reductions in greenhouse gas missions." Of the companies we reviewed, Covanta was the only one to state (in its sustainability report) that bioenergy is not always carbon neutral.

Covanta also had the most complete set of disclosures regarding developments in regulation of bioenergy CO_2 emissions at the EPA. However, the company does not disclose in SEC filings that its two wood-burning power plants in Maine will no longer

qualify for the financially generous Class I renewable energy credits in Massachusetts as of 2016, as the facilities are not efficient enough to comply with the state's new requirements. Covanta commented on the Massachusetts rules when they were proposed, arguing that its facilities should be exempted from the regulations, but has not disclosed the loss of subsidies to investors.

The three registrants whose filings we reviewed represent biomass power as "clean" and "carbon neutral" and largely do not disclose to investors the threats posed by potential regulation of bioenergy and biogenic CO_2 emissions. Our analysis suggests the companies are omitting adequate discussion of regulatory, reputational and litigation risks. The companies' continued failure to adequately disclose the material risks related to biomass investment is potentially harmful to investors.

Along with the investors who have signed the letter that accompanies this report, we are asking that the Securities and Exchange Commission evaluate, consistent with the SEC Climate Guidance, evidence that these companies named in this document are failing to live up to the requirements of the securities laws when it comes to disclosure of the financial and operational risks and impacts on each company due to its investments in biopower. We are further requesting that the Commission clarify the disclosure obligations of these companies by directing corrective disclosures and issuing an additional Staff guidance on the duty of companies to accurately disclose material risks from biopower.

I. BIOENERGY: THE DILEMMA OF DISCLOSURE

The question of how to reduce use of fossil fuels for electricity generation is a growing preoccupation of policy-makers. The generation of "renewable" energy is thus frequently incentivized at the state level with ratepayer-funded subsidies, known as renewable energy credits (RECs), as well as with taxpayer-funded federal and state tax credits. To meet the growing demand for renewable energy, and to benefit from these incentives, a number of companies are proposing to increase the use of bioenergy, the combustion of wood and other biological materials of recent origin to produce heat and power.

The vast majority of new utility operations generating electricity from biomass are wood-fueled. Thus as used in this document, "bioenergy" refers to energy produced by wood combustion in industrial, commercial, and utility boilers, including thermal energy used for heat or electricity generation; "biopower" is used in this document to refer solely to the generation of electricity by burning wood as fuel. Neither term as used here includes other forms of bioenergy, such as that derived from landfill gas or liquid biofuels. Also, this document exclusively analyzes wood-fueled bioenergy, because currently biopower facilities burning other materials such as agricultural wastes or crops like switchgrass reflect a very small portion of existing or proposed biomass electricity generation.

Certain renewable energy technologies, like wind and solar power, are characterized as "carbon neutral" because they do not rely on fossil fuels and thus eliminate emissions of greenhouse gases produced by fuel combustion. These technologies also do not emit conventional air

pollutants like nitrogen oxides (NO_x) and particulate matter (PM). Such zero-emissions energy technologies are often referred to as "clean."
In contrast, bioenergy facilities, which burn biomass in power plants using technology nearly identical to that of a coal plant, emit more of the greenhouse gas carbon dioxide (CO_2), and as much or more of key "conventional" air pollutants[2] as power plants fueled by coal and gas. Despite the fact that bioenergy CO_2 and air pollutant emissions equal or exceed those from fossil-fueled facilities, companies frequently refer to bioenergy as "clean," "low emissions," and "carbon neutral." Such representations can be seen as misleading not only to consumers, who may pay extra on their utility bill to support renewable energy, but also to investors in publically traded companies with bioenergy holdings.

In addition to actively representing bioenergy as clean and carbon neutral, companies with bioenergy holdings often *omit* information from company literature and filings to the Securities and Exchange Commission that would assist investors in accurately assessing the risks and opportunities associated with bioenergy. Companies are making significant investments in bioenergy in order to generate more renewable power and to benefit from renewable energy subsidies and tax credits, but some of those of subsidies are at risk due to changing scientific understanding of the viability of bioenergy as a climate strategy. Furthermore, the companies face undisclosed regulatory risks associated with their greenhouse gas and air pollutant emissions and the potential for emerging regulation of these emissions.

Claiming that bioenergy is clean and carbon neutral is misleading to consumers and investors

To inform the Securities and Exchange Commission (SEC) about this trend, we reviewed publically available information and corporate disclosures by three large companies with bioenergy holdings – Covanta Holding Corporation ("Covanta"), Dominion Resources Inc./Virginia Electric and Power Company ("Dominion") and Southern Company (together, "the Companies"). All three are publicly traded companies that own and operate biomass power plants in the United States. We found that all three companies advertised their bioenergy investments to varying degrees as clean and carbon neutral, and all three failed to disclose key judicial, regulatory, and legislative developments that indicate a strong potential for bioenergy to face regulation that could significantly reduce the value of bioenergy investments.

In the following sections, we describe common claims made about bioenergy emissions, and analyze whether they are accurate. We describe policy and regulatory developments, and how these may jeopardize investments in bioenergy generally. We then assess the disclosures of the three companies in light of these issues.

II. Analysis of Common Bioenergy Industry Representations

In this section we address claims that bioenergy is clean and carbon neutral.

[2] Depending on the emission control technologies employed.

A. Representations of Biopower as "Clean" Are Misleading

Biomass power producers often market biopower as "clean" power, which might reasonably be understood to imply that emissions are less than from fossil fuel combustion, and that biopower has a net positive effect on air pollution, greenhouse gas emissions, and public health. Disclosure-related comments representing biomass as "clean" could in some cases cause readers to assume the term means the same as for other renewable energy technologies such as wind, solar and hydropower.

However, on a day-to-day basis, biopower facilities emit as much or more particulate matter, carbon monoxide, and nitrogen oxides[3] as modern coal and gas plants per unit energy generated. Replacing coal with biomass can lead to a reduction in sulfur dioxide emissions, but biomass plants have higher sulfur dioxide emissions relative to modern natural gas plants, which are the most common type of new power plants being built in the U.S. today.

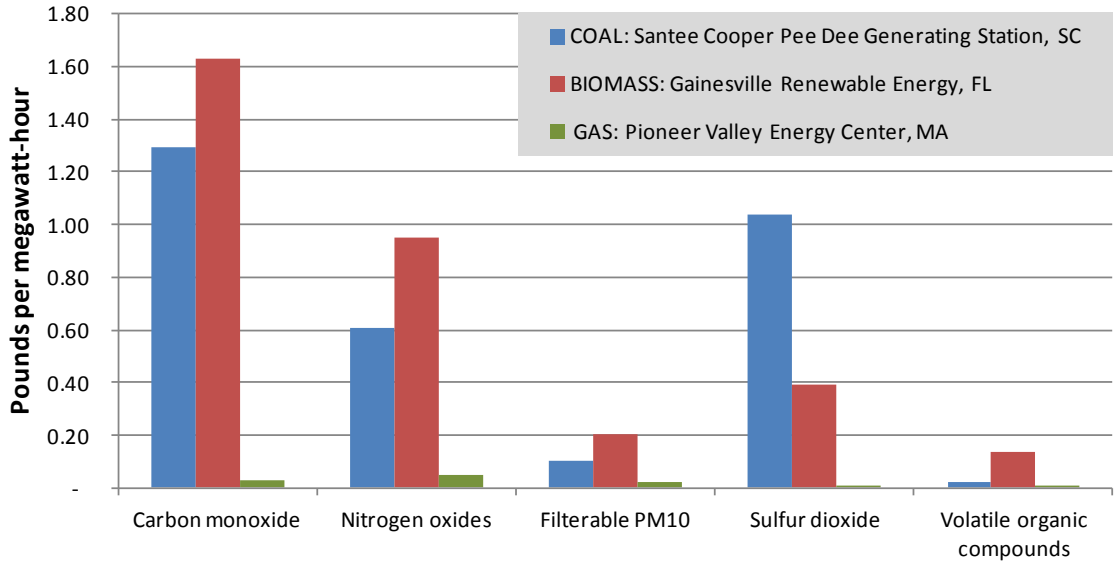

Figure 1. Permitted emission rates (in pounds per megawatt-hour of electricity generated) from three recently permitted facilities. Emissions from the biomass facility are higher than from the coal or gas-burning facilities in all cases except for sulfur dioxide, where emissions exceed those from natural gas but not from coal.[4]

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[3] The amount of pollution emitted by a particular facility and how it compares to any other facility depends on the fuels burned and the pollution control technologies employed. Data on permitted emissions from different facilities are available at EPA's BACT clearinghouse, http://cfpub.epa.gov/RBLC/. The best-performing (lowest-emitting) biomass power plants included in the database have emissions rates that are no lower than the best-performing coal plants, except for sulfur dioxide. However, emission rates of bioenergy for sulfur dioxide exceed those from natural gas considerably.

[4] South Carolina Bureau of Air Quality. December 16, 2008. PSD, NSPS (40CFR60), NESHAP (40CFR63) Construction Permit for Santee Cooper Pee Dee Generating Station (1,320 MW). Florida Department of Environmental Protection. December 28, 2010. Final air construction permit for Gainesville Renewable Energy Center (100 MW). Massachusetts Department of Environmental Protection. June, 2010. Conditional permit to construct issued to Pioneer Valley Energy Center. Emissions rates from the three permits were converted from

A comparison of three recently permitted facilities (Figure 1) shows that for day-to-day operations, permitted emissions rates for the biopower facility (pounds per megawatt-hour) compared to the natural gas facility are 56 times higher for carbon monoxide, 20 times higher for nitrogen oxides, 9 times higher for filterable particulate matter, 35 times higher for sulfur dioxide, and 15 times higher for volatile organic compounds. All three facilities went through a "Best Available Control Technology" analysis and can therefore be assumed to have relatively low permitted emissions compared to other facilities of their type.

Biomass power plants emit as much or more of certain harmful air pollutants as coal- and gas-fired facilities

There are real health consequences associated with emissions from biopower, which is why the American Lung Association opposes biomass energy in general and especially its classification as "renewable" energy that is eligible for subsidies and tax breaks.[5] Pollutant emissions from biomass combustion, similar to pollutant emissions from fossil fuel technologies, worsen air quality and are linked to respiratory and cardiac disease, as well as cancer. To the extent that states meet their renewable energy goals by building biomass power plants rather than wind or solar facilities, they are increasing air pollution. To the extent that biopower displaces natural gas, this also increases direct stack emissions of air pollution from power plants. Therefore, the unqualified use of the word "clean" in SEC disclosures appears to be misleading.

B. Claims That Wood-fueled Biopower is "Carbon Neutral" Can Be Misleading

Burning one ton of "green" woodchips in a biomass power plant emits about one ton of CO_2. Thus, compared to the negligible lifecycle carbon emissions from wind and solar power, claims of carbon "neutrality" by bioenergy merit a great deal of qualification to avoid creating a misleading perception that these "renewables" are environmentally comparable. Most fundamentally, on a day-to-day basis biomass power plants emit more CO_2 per MWh of electricity than traditional fossil-fueled power plants. Typical emission rates for power plants are as follows:

Gas combined cycle	883 lb CO_2/MWh
Gas steam turbine	1,218 lb CO_2/MWh
Coal steam turbine	2,086 lb CO_2/MWh
Biomass steam turbine	3,029 lb CO_2/MWh

Table 1. Stack emissions of CO_2 from fossil-fueled and biomass-fueled power plants.[6]

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units of lb/MMBtu to units of lb/MWh.

[5] From ALA's Letter to Representatives Waxman and Markey on the American Clean Energy and Security Act, June 24, 2009: "*The legislation should promote clean renewable electricity, including wind, solar and geothermal. The Lung Association urges that the legislation not promote the combustion of biomass. Burning biomass could lead to significant increases in emissions of nitrogen oxides, particulate matter and sulfur dioxide and have severe impacts on the health of children, older adults, and people with lung diseases*."

[6] Fuel CO_2 per heat content data are from EIA, Electric Power Annual, 2009: Carbon Dioxide Uncontrolled Emission Factors. Efficiency for fossil fuel facilities calculated using EIA heat rate data (http://www.eia.gov/cneaf/electricity/epa/epat5p4.html); biomass efficiency value is common value for utility-scale facilities.

Biomass power plants have higher emissions than coal-fired or natural gas-fired plants, partly because they are less efficient and also because biomass has significantly lower energy content per unit carbon than natural gas. Converting a power plant from coal to biomass generally *decreases* the amount of power the facility can produce, and *increases* the amount of CO_2 emitted per megawatt-hour of electricity generated. If society uses more wood-fired biopower facilities to meet next year's energy needs, next year's atmospheric CO_2 will go up, not down.

The assumption of bioenergy carbon neutrality can lead to deeply flawed policies, exemplified by the American Clean Energy and Security Act (the "Waxman Markey" climate bill) of 2009. Energy Information Administration modeling projected a decline in power sector CO_2 emissions from new renewable energy capacity under that bill. However, close examination of the assumptions revealed that most of the "decline" in CO_2 emissions consisted of replacing coal with biomass, and *then simply not counting the biopower CO_2 emissions on the presumption they were carbon neutral.* When the biomass emissions are added back in, however, it is apparent that nearly the entire greenhouse gas reduction strategy of this flagship piece of climate legislation was based on an accounting trick (the legislation also assumed carbon capture and sequestration – CCS – would be playing a significant role by 2016). Power sector emissions would only show a marginal decline when biogenic CO_2 is counted.

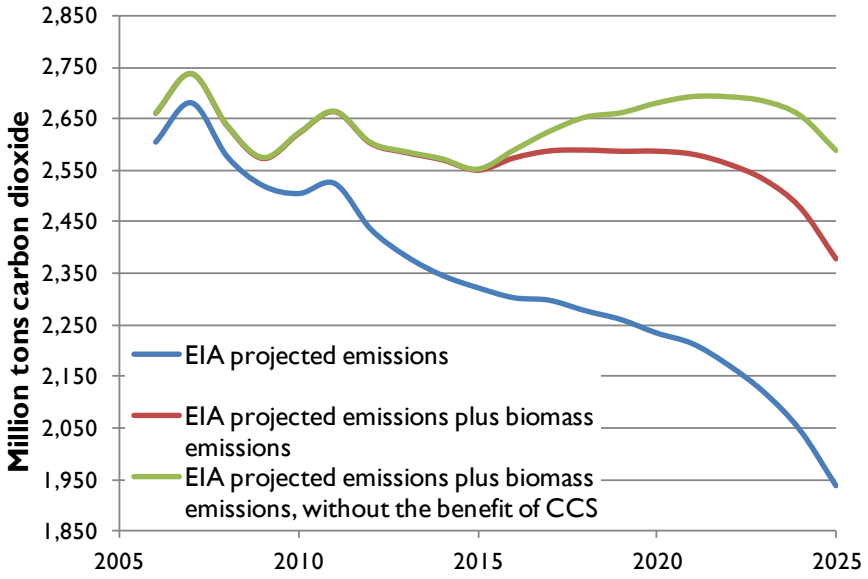

Figure 2. Projections for GHG emissions under the American Clean Energy and Security Act, 2009.[7]

1. Biomass combustion occurs quickly, but offsetting CO_2 emissions takes time

When a company claims that their biopower facilities are carbon neutral, they are typically implicitly or explicitly relying on two key principles:

[7] Mary Booth and Richard Wiles, 2010, "Clearcut Disaster," Environmental Working Group, Washington, DC.

1. Forest regrowth offsets. This argument is based on the idea that net carbon emissions from burning wood will be offset as trees regrow and take up an equivalent amount of CO_2 as was released by burning. (From the outset, this argument is significantly complicated by the reality that in the *absence* of burning trees for fuel, ongoing forest growth would already offset CO_2 emissions from fossil-fuel burning. Thus to be accurate, calculations of the time required for net CO_2 resequestration must take account of lost sequestration following biomass harvesting, as well as regrowth.)

2. Waste wood decomposition offsets. Where waste wood or wood-derived materials are used as fuel (such as lumber mill shavings, pulping liquors, and forestry residues – the tops and limbs left over after saw-timber harvesting), it is argued that burning these materials emits no more CO_2 than letting them decompose naturally. It is also sometimes argued that burning wood waste instead of allowing it to decompose prevents the production of methane, a greenhouse gas with greater potency than CO_2.

Importantly, as Figure 3 illustrates, neither of these justifications for biopower carbon neutrality acknowledges the amount of time it takes to offset the immediate emission of CO_2 from burning wood as fuel. This time-lag is critical for determining the effect of biopower emissions on net atmospheric CO_2 loading.

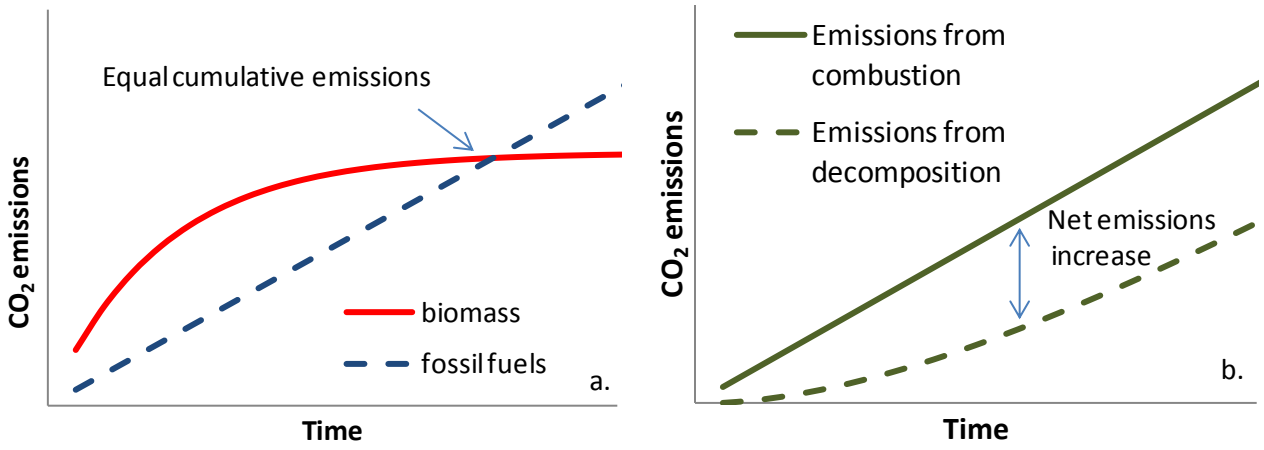

Figure 3. Offsetting bioenergy CO_2 emissions takes time. Panel (a) illustrates that time is required for forests cut for biomass fuel to regrow and draw down net biogenic CO_2 emissions to the point where cumulative emissions match those from fossil fuels; only after this point will net emissions from bioenergy be less than from fossil fuels.[8] Achieving full carbon neutrality takes significantly longer. Panel (b) illustrates that cumulative emissions from burning waste wood exceed those from letting that wood decompose; the net emissions increase from burning such materials for fuel is equal to the difference between the curves. Cumulative emissions from decomposition always lag emissions from burning.

[8] Figure after Walker, T., et al. 2012. Carbon accounting for woody biomass from Massachusetts (USA) managed forests: a framework for determining the temporal impacts of wood biomass energy on atmospheric greenhouse gas levels. Journal of Sustainable Forestry, 32:1-2, 130 – 158.

It is also important for calculating net CO_2 emissions from bioenergy to account for the pulse of CO_2 from decomposing root material that is emitted when trees are cut for fuel. While emissions from the aboveground portion of the tree are accompanied by energy generation, the decomposition of belowground biomass simply emits additional CO_2 with no energy gain.

2. Offsetting biopower CO_2 emissions with forest regrowth takes decades

The framework for determining net emissions from bioenergy was most clearly articulated by a study conducted in Massachusetts, where three large biomass power plants were proposed in the mid-2000's. Policymakers were concerned that the significant CO_2 emissions from biopower facilities were incompatible with the state's mandate to reduce CO_2 emissions under the Global Warming Solutions Act, and thus commissioned a study to determine the net CO_2 emissions impact of biopower.

In assessing net CO_2 emissions from bioenergy, the "Manomet study," as it came to be known, took into account the critical role that forests currently play in sequestering CO_2 from the power sector, whether it arises from fossil fuel or biomass combustion. Concluding that there were not enough forestry residues from sawtimber harvesting in the region to meet potential fuel needs, the study evaluated how increasing forest harvesting would affect net CO_2 emissions.[9] It considered whether and when increased forest regrowth following harvesting of biomass today would result in a breakeven point, when the CO_2 sequestered by re-growing forests would not only offset the CO_2 emitted from harvesting and burning forest wood for fuel, but also compensate for the CO_2 that *would* have been sequestered by those forests had they continued to be managed without additional harvesting for biomass fuel (the "business-as-usual" scenario employed by the Manomet study assumed that fossil fuels continue to be burned for energy).

Manomet found that net CO_2 emissions from a biomass power plant would exceed those from coal for more than 40 years

The main and most newsworthy conclusion of the Manomet study was that a biomass power plant could operate for more than 40 years, all the while allowing forests cut for fuel to regrow and resequester CO_2 undisturbed, and cumulative CO_2 emissions would still exceed emissions from a same-sized coal facility operating over the same period (during which forests had been harvested for sawtimber only). It would take more than 90 years for forest regrowth to draw CO_2 emissions from a biopower facility down to the level of a similarly sized gas facility. Whether this offset would ever *actually* be achieved depends on whether forests are left alone to regrow without additional harvests, and whether ecological conditions, including the effect of climate warming, favor regrowth.

Cutting and burning trees that would otherwise have a future of carbon sequestration ahead of them degrades the forest carbon sink that is *currently* preventing atmospheric CO_2 levels from being even higher than they already are. The potential effects on forest cover are significant – for instance, a single 50 MW biomass power plant can consume about 650,000 tons of wood a

[9] 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.

year, or the equivalent wood that would be yielded by clear-cutting 6,500 acres of medium-aged Northeastern forests annually. Figure 4 shows a real-life example of how slowly forests regrow, compared to the speed with which they can be cut and burned. The clearcut shown in this satellite imagery taken from Google Earth had barely begun to grow back after almost ten years.

Figure 4. Repeat satellite imagery of a 25-acre clearcut in Maine, showing little regrowth after almost ten years. Assuming standard values for forest biomass in Maine,[10] the amount of wood generated by this harvest would be about 950 tons, sufficient to fuel a 50-MW biomass power plant for about 21 hours.

The Manomet study is only one of several scientific studies in recent years that have come to similar conclusions regarding how long it takes for the extra CO_2 emitted by biopower facilities to be offset by forest regrowth.

- A 2009 paper published in the journal Nature demonstrated the theoretical impossibility for biopower emissions to be carbon neutral where forests are cut for fuel.[11]

- A study conducted in the Southeast[12] examined how long it would take for fast-growing pine plantations to offset biopower emissions. The study concluded that even under these seemingly favorable conditions, it would take 30 – 50 years for biopower emissions to be drawn down to a level comparable to net emissions from fossil fuels.

- A 2012 modeling study determined that under a wide variety of land use histories and harvesting regimes in the United States, forests store more carbon than using them for energy "saves."[13]

- Another study assessing biopower fueled with forest wood found that for all scenarios

[10] Smith, W.B., et al. 2007. Forest Resources of the United States, 2007. United States Forest Service, Gen.Tech Report WO-78. December, 2008.
[11] Searchinger, T., et al. 2009. Fixing a critical climate accounting error. Science 326: 527-528.
[12] Colnes, A., et al. 2012. Biomass supply and carbon accounting for Southeastern Forests. Biomass Energy Resource Center, Montpelier, VT.
[13] 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.

compared, biopower reduced forest carbon and increased atmospheric CO_2 emissions.[14]

In the face of this science, policymaking bodies are coming to important conclusions that undermine the prospects for bioenergy to continue to be treated as a climate-friendly renewable energy technology. Internationally, the current Intergovernmental Panel on Climate Change Guidelines do not consider biomass used for energy to be automatically carbon neutral even where the biomass is thought to be produced sustainably.[15] Here in the United States, the Environmental Protection Agency (EPA) convened a panel of the Science Advisory Board (SAB) to advise the agency on how to regulate biogenic CO_2 emissions, which concluded that "biomass energy cannot be considered *a priori* carbon neutral."[16] EPA's official position on the net carbon impact of bioenergy is still evolving, but a recent rulemaking cited the SAB position.[17] We discuss these developments in greater detail below.

C. Burning "Waste" Wood Does Not Mitigate Climate Warming

Bioenergy industry statements regarding climate benefits of burning of waste wood for energy are also not supported by current science.

1. Combustion emits CO_2 faster than decomposition

The bioenergy industry often argues that burning forestry residues and other waste wood emits no more CO_2 than allowing these materials to decompose. While this may be true eventually, as shown in Figure 3(b), burning emits CO_2 immediately while decomposition takes years to decades, while building soil carbon in the process. In fact, assuming a decomposition rate typical for New England forests, after 20 years of facility operation, cumulative net emissions from combustion are still *double* the amount that has been emitted by decomposition. This means that a 50 MW biopower plant where emissions are not counted because it burns forestry residues actually emits about 4.6 million more tons of CO_2 than what would be emitted if residues were left in the forest to decompose.[18]

Even when biopower is fueled by "waste" wood, cumulative CO_2 still exceeds emissions from coal and gas

The Manomet Study, which assumed that forestry residues break down fairly quickly in nature,

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[14] 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

[15] Intergovernmental Panel on Climate Change (IPCC), Task Force on National Greenhouse Gas Inventories, Frequently Asked Questions. (http://www.ipcc-nggip.iges.or.jp/faq/faq.html).

[16] United States Environmental Protection Agency. SAB review of EPA's Accounting Framework for Biogenic CO_2 Emissions From Stationary Sources. EPA-SAB-12-011. September 28, 2012. Washington, DC. (http://yosemite.epa.gov/sab/SABPRODUCT.NSF/57B7A4F1987D7F7385257A87007977F6/$File/EPA-SAB-12-011-unsigned.pdf).

[17] Standards of performance for greenhouse gas emissions from new stationary sources: electric generating units. 40 CFR Part 60, [EPA-HQ-OAR-2013-0495; FRL-9839-4] RIN 2060-AQ91. September 20, 2013.

[18] This calculation employs the decomposition rate assumed for the net CO_2 emissions calculator provided by the State of Massachusetts in the carbon accounting spreadsheet that accompanies the new bioenergy rules. (http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/biomass/renewable-portfolio-standard-biomass-policy.html)

nonetheless determined that net emissions from a biopower facility would exceed those from a coal plant for more than ten years, and would exceed those from a gas plant for more than 30 years – even if the facility was fueled with forestry residues from sawtimber harvesting that would decompose anyway and there was no increase in whole-tree harvesting to provide fuel.[19]

2. The definition of "waste" wood is in the eye of the beholder

Claims that biopower facilities only burn forestry residues that are generated by sawtimber harvesting are used to justify the argument that net emissions are no more than leaving those materials in the woods to decompose. Beyond the flawed logic as shown above, such claims have a high probability of being false because large bioenergy facilities require more fuel, and higher quality fuel, than forestry residues are likely to provide. For instance, in testimony before the North Carolina Utilities Commission, a representative for Duke Energy stated that the company required whole tree chips for co-firing at their Buck and Lee coal plants, as forestry residues are mostly "left at the harvest site because they are considered uneconomic to transport and have low quality for utilization due to size, dirt, and bark content." The Duke witness also stated that forestry residues were quite limited in quantity.[20] Such blunt admissions are never found in companies' public pronouncements about what they burn for fuel, however.

Additionally, it is not uncommon for bioenergy companies to treat whole trees as "waste." Two of the companies we examine in this letter provide examples. A letter from Dominion to EPA's Science Advisory Board on biogenic carbon states that waste wood "to us means forest materials including residues (tree tops, non-merchantable sections of stem, branches, and bark), small trees and other low value materials."[21] Covanta Energy distinguishes residues from whole tree chips but nonetheless treats whole tree chips as waste wood, stating that their Burney Mountain Power facility burns "waste" comprised of "forest residue, mill residue and whole tree chips."[22] Their website additionally states that they use "logs from forest thinning" for fuel.[23]

Bioenergy companies cut and burn whole trees for fuel

Such broad definitions of waste wood that include whole trees create economic incentives for additional tree harvesting for fuel, significantly increasing net greenhouse gas emissions as trees are cut. It is likely that but for a bioenergy fuel market, trees cut for fuel would continue to grow and sequester atmospheric CO_2. Further, when biomass harvesting displaces other economic uses of wood (such as for the pulp and paper industry) these older industries may expand harvesting

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[19] 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.

[20] Testimony of Peter Stewart before the North Carolina Utilities Commission, Docket No. E-7, Sub 939 and Sub 940. In the matter of the registration statements of Buck and Lee Steam Stations as Renewable Energy Facilities pursuant to Commission Rule R8-66.

[21] Pamela F. Faggert, Dominion Resources Services, Inc. Comments to the Science Advisory Board biogenic carbon emissions panel on its draft advisory report regarding EPA's accounting framework for biogenic CO_2 emissions from stationary sources. March 16, 2012.

[22] Other Renewable Energy Projects, Covanta website, (http://www.covantaenergy.com/what-we-do/our-services/other-renewable-energy.aspx).

[23] http://www.covantaenergy.com/what-we-do/our-services/other-renewable-energy.aspx

elsewhere. Such "leakage" is a recognized source of increased greenhouse gas emissions at the national and international scale.

3. Combustion does not reduce greenhouse gas emissions from waste wood

Methane (CH_4) can be generated in extremely low oxygen conditions during waste decomposition, such as in a landfill. As it is a more powerful greenhouse gas than CO_2, companies sometimes claim that by burning waste wood as fuel, and thus emitting biomass carbon as CO_2 rather than CH_4, methane emissions from decomposition are avoided, and that such avoidance reduces net greenhouse gas emissions.

However, this argument is misleading. Methane can be emitted in nature, but only in environments where oxygen is extremely low or non-existent, like saturated wetland soils. In upland areas where well-aerated logging residues are decomposing, forest soils contain bacteria that consume methane, so that these forested systems are net consumers, not producers, of methane.[24] In fact, a recent review by the Environmental Protection Agency reports that the Intergovernmental Panel on Climate Change concluded that "dry upland soils serve as one of the primary global methane sinks," removing about 30 million metric tons of methane from the atmosphere each year.[25] Harvesting biomass may actually reduce this sink, as some studies show that logging activities can reduce forest soil uptake of methane.[26]

As for methane production from decomposing wood in landfills, EPA data and modeling show the rates are relatively low, and where landfill gas is captured, net emissions are negligible.[27] Because most forestry materials used as biomass fuel would never be disposed of in a landfill to begin with, the question of "avoiding" these emissions is mostly irrelevant. In any case, the resistance of wood and wood products to anaerobic decomposition in landfills is significant. A review of several studies on methane production from landfilled wood found wide agreement that methane emission rates were relatively low, estimating that at maximum only 30% of the carbon from paper and 0 – 3% of the carbon from landfilled wood are ever emitted as landfill gas. The study concluded that "US landfills serve as a tremendous carbon sink, effectively preventing major quantities of carbon from being released back into the atmosphere."[28]

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[24] EPA's page at http://epa.gov/climatechange/ghgemissions/gases/ch4.html points out that while wetlands can be a source of methane, natural systems actually take it up: "Methane is emitted by natural sources such as wetlands, as well as human activities such as leakage from natural gas systems and the raising of livestock. Natural processes in soil and chemical reactions in the atmosphere help remove CH_4 from the atmosphere."

[25] U.S. EPA, Office of Atmospheric Programs. 2010. Methane and nitrous oxide emissions from natural sources. EPA 430-R-10-001. April, 2010.

[26] Wu, X. et al. 2011. Long-term effects of clear-cutting and selective cutting on soil methane fluxes in a temperate spruce forest in southern Germany. Environmental Pollution, 159:2467-2475; Bradford, M.A. et al. 2000. Soil CH4 oxidation: response to forest clearcutting and thinning. Soil Biology and Biogeochemistry, 32:1035-1038.

[27] EPA's Waste Reduction Model (WARM) shows that landfilled wood generally represents a carbon sink, and not a source of greenhouse gases, for years to decades. Net methane emissions are relatively low from this recalcitrant material.

[28] Micales, J.A. and Skog, K.E. 1997. The decomposition of forest products in landfills. International Biodeterioration and Biodegradation 39:145-15.

D. Wood-fueled Biopower Is Incompatible With the Need to Reduce CO_2 Emissions Immediately

Far from "reducing" greenhouse gas emissions from power generation as companies sometimes claim, burning wood clearly increases emissions compared to fossil fuels. This occurs not only because smokestack CO_2 emissions from biopower facilities are higher than emissions from fossil-fueled plants, but also because any emission offsets that occur take several years to several decades to be realized. These simple physical facts, and resulting vulnerabilities of this renewable energy strategy, are seldom if ever acknowledged in investor disclosures by the bioenergy industry, even as bioenergy is promoted as a technology that can reduce greenhouse gas emissions.

In light of what we know about climate warming, misrepresentations by the bioenergy industry should be taken very seriously. Scientists warn us that we may be at the tipping point now, so that there is a critical need to reduce CO_2 emissions, not 30 or 90 years from now, but *immediately*, to slow a cascading series of catastrophic climate events that are already being observed. These include rising temperatures connected with drought, fire, and intense storms; sea level rise, connected with flooding of the coastal areas where a majority of the world's population lives; melting of the ice caps and mountain glaciers, connected with accelerating feedbacks on warming and disruption of regional water cycles; and ocean acidification, connected to dissolution of the carbonate-forming organisms that form the base of the oceanic foodchain.

The findings of the latest Intergovernmental Panel on Climate Change (IPCC) are sobering. Concentrations of the greenhouse gases carbon dioxide, methane, and nitrous oxide (N_2O) now substantially exceed the highest concentrations recorded in ice cores during the past 800,000 years. The avearge rates of increase in atmospheric concentrations over the past century are, with very high confidence, unprecedented in the last 22,000 years. Increasing atmospheric CO_2 concentrations do not just drive climate warming, but also ocean acidification, which is quantified by decreases in pH. The pH of ocean surface water has decreased by 0.1 since the beginning of the industrial era, which corresponds to a 26% increase in hydrogen ion concentration.[29] Increasing acidification is a threat to the base of the oceanic foodchain and the productivity of the world's oceans.

Atmospheric CO_2 concentrations are now the highest they have been in 800,000 years

In three out of four IPCC modeled greenhouse gas emissions scenarios, global temperatures continue to increase beyond 2100. Only IPCC's "mitigation" scenario, where CO_2 emissions are constrained *immediately*, projects that temperature increases level off around 2100. Burning woody biomass increases CO_2 emissions immediately and over a period of decades, meaning that promises of carbon neutrality of wood-fueled biopower, even if eventually fulfilled in future decades, come at the cost of increased risk to the climate and ocean acidification in the near

[29] Intergovernmental Panel on Climate Change, Fifth Assessment Report. Summary for policymakers, September 27, 2013. www.ipcc.ch

term, especially when biomass harvesting reduces forest cover, our most important terrestrial carbon sink. It makes a critical difference from the standpoint of reducing the total amount of carbon in the atmosphere this year, next year, and for the critical years ahead, to not add additional CO_2 to the atmosphere. Discussions about CO_2 that might be withdrawn from the atmosphere 90 years from now are not germane to meeting immediate carbon reduction goals.

III. POLICY DEVELOPMENTS THAT MAY JEOPARDIZE BIOENERGY INVESTMENTS

In this section we discuss developments concerning regulation of bioenergy emissions, and how these developments may present material risks to companies with bioenergy holdings.

A. EPA Is Likely To Resume Regulating Biogenic CO_2 After July 2014

EPA regulates CO_2 from large stationary sources like power plants under the Clean Air Act. Biogenic CO_2 has been temporarily exempted from regulation, but this exemption is expected to end in July 2014 or before, by one means or another, as we explain below. Any companies that are materially affected should be disclosing this change in regulatory status, but none of the companies whose disclosures that we reviewed have done so. It is unclear to us whether this is because these companies believe their facilities and plans are not materially affected by this court decision, or whether this is an omission of disclosure of material information.

The history of biogenic CO_2 regulation is as follows. Under the Clean Air Act, if EPA determines that an "air pollutant . . . may reasonably be anticipated to endanger public health or welfare,"[30] it must regulate that air pollutant under the Prevention of Significant Deterioration of Air Quality (PSD) and Title V permitting programs, which are part of the Clean Air Act. The PSD program requires certain specified "major emitting facilit[ies]," such as iron and steel mills, to obtain state-issued construction permits if they have the potential to emit over 100 tons per year (tpy) of "any air pollutant," and other covered sources (including biomass power plants) to obtain such permits if they have the potential to emit over 250 tpy.[31] Under the PSD program, sources need permits before starting construction or modification of a facility.[32] To obtain a PSD permit, covered sources must undergo a "best available control technology" (BACT) analysis for all regulated air pollutants.[33]

In response to the Supreme Court decision in Massachusetts v. EPA, 549 U.S. 497 (2007), the EPA published an Endangerment Finding for greenhouse gases—a "well-mixed" and "aggregate" group of six gases that includes CO_2. As a result, the EPA issued rules phasing in stationary source greenhouse gas regulation under the Clean Air Act, starting with the largest greenhouse gas emitters. Major stationary emitters of greenhouse gases became subject to the

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[30] 42 U.S.C. § 7521(a)(1).
[31] Id. §§ 7475, 7479(1)
[32] 42 U.S.C §§ 7411(a)(4), 7475, 7479(2)(C).
[33] This requirement extends to air pollutants that emit over a certain significance level but where emissions are insufficient to trigger the PSD permitting requirement on their own. In other words, if a source emits two regulated air pollutants—for instance, sulfur dioxide and particulate matter—but triggers the PSD permitting requirement only because it emits 500 tpy of sulfur dioxide, it must install BACT for both. Id. § 7475(a)(4).

PSD and Title V permitting requirements on January 2, 2011. To restrict regulation to the largest emitters, EPA had developed the "Tailoring Rule," which initially defined a major source for CO_2 as one that emitted at least 75,000 tons of CO_2 equivalent[34] per year as well as being a major source for conventional pollutants. During this first phase, EPA initially regulated sources of biogenic CO_2[35] under the rule, alongside sources of fossil fuel CO_2. However, in July of 2011, when EPA expanded the rule to cover facilities that emit at least 100,000 tons of CO_2 equivalent per year, whether or not the source is "major" for conventional pollutants, the agency announced that biogenic CO_2 would no longer be counted. [36]

EPA's "Deferral Rule" exempted biogenic CO_2 from regulation under the Clean Air Act for a period of three years, to end in July 2014. Justifying this action, the agency stated that most biomass fuels were comprised of residues (such as sawdust from milling operations) and as such, would otherwise decompose within 10 – 15 years, rendering only a trivial gain from regulating such emissions.[37] Environmental groups submitted comments during this rulemaking presenting evidence that this is not the case, and that many existing and planned biopower facilities use forest materials, including whole trees, as fuel.[38] The comments observed that whatever the source of biomass, the exemption of biogenic CO_2 from regulation would cause harm by increasing greenhouse gas emissions from the power sector.

When EPA enacted the deferral as proposed, environmental groups sued the agency. The U.S. Court of Appeals for the D.C. Circuit heard the case as *Center for Biological Diversity, et al. v. U.S. EPA*, (decided July 12, 2013). The environmental groups argued that nothing in the Clean Air Act allows EPA to exempt a class of sources from regulation. The court agreed and vacated the Deferral Rule, but there has been a delay in the Court issuing the mandate to EPA that would compel the Agency to begin regulating biogenic CO_2 immediately, as we discuss below.

Once EPA begins regulating biogenic CO_2, this will mean that any new or reconstructed biomass energy facility with the potential to emit 100,000 tons of CO_2 per year[39] will be considered a "major" source for CO_2. As any facility of about 8 MW and above has the potential to emit 100,000 tons of CO_2, the majority of biomass power facilities now being proposed and built would be major sources. As a result of the court ruling, some facilities permitted during the deferral could become subject to PSD regulation, which could impose material costs and

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[34] The common currency for expressing greenhouse gases is in terms of CO_2 equivalency, with all greenhouse gases converted to CO_2 equivalents based on their global warming potential.

[35] EPA defines biogenic CO_2 as emissions "directly resulting from the combustion or decomposition of biologically-based materials other than fossil fuels and mineral sources of carbon."

[36] Deferral for CO_2 Emissions from Bioenergy and Other Biogenic Sources Under the Prevention of Significant Deterioration (PSD) and Title V Programs ("Deferral Rule"), 76 Fed. Reg. 43,490, 43,493 (July 20, 2011).

[37] United States Environmental Protection Agency. Deferral for CO_2 emission from bioenergy and other biogenic sources under the prevention of significant deterioration (PSD) and Title V Programs: Proposed rule. Federal Register Vol. 76, No. 54, p. 15261.

[38] Comments of Center for Biological Diversity e al on "Deferral for CO2 Emissions from Bioenergy and Other Biogenic Sources Under the Prevention of Significant Deterioration (PSD) and Title V Programs," 76 Fed. Reg. 15,249 (March 21, 2011). Docket no. EPA-HQ-OAR-2011-0083

[39] Facilities making modifications trigger the requirement to implement BACT if they have the potential to increase GHG emissions by at least 75,000 tpy CO2e and also exceed 100/250 tpy of GHGs on a mass basis.

operational impacts on certain operations if the Court issues the mandate to compel EPA to reverse the deferral.

As major sources for CO_2, biopower facilities will have to undergo several processes that are intended to reduce their environmental and health impacts:

- Major source facilities undergo a Best Available Control Technology (BACT) analysis for both CO_2 and criteria air pollutants, which identifies the technologies, fuels, and processes that will best reduce emissions.
- Facilities are required to undergo air quality modeling, which uses a computer model to simulate the facility's emissions in the context of existing air quality, and assesses whether the facility will increase ambient air pollution to unhealthy levels.
- Permits issued under the federal PSD program contain rigorous and enforceable emission limits, whereas most permits for biomass power plants issued by the states simply contain yearly caps (in tons per year) of allowable emissions, with few limits on how much pollution can be emitted in a given time period.

Many bioenergy facilities seek to avoid Clean Air Act permitting and emission restrictions

- The PSD process also provides formal opportunities for public comment and involvement during the permitting process, and review of the air permit by the EPA, instead of just the state issuing authority.
- The cost of obtaining a PSD permit is reported by the EPA to be around $85,000,[40] and the process can take over two years.

Given the additional trouble, time, and expense associated with federal permitting, many biopower companies already seek to avoid PSD permitting for criteria pollutants. In our review of 87 air permits for biomass power plants issued since 2009, we found that 35 (40%) had avoided PSD by taking "synthetic minor" status, where a facility promises that it will not exceed the triggering threshold 250 tons of emissions for each criteria pollutant, and thus obtains a permit from the state, instead of going through the federal PSD program. Permitted emissions of particulate matter, nitrogen oxides, and carbon monoxide tend to be about two times higher at facilities that just get a state-level emissions permit compared to facilities that go through the PSD process.

Once biogenic CO_2 is fully regulated under the Clean Air Act, some "synthetic minor" facilities (including those that received permits during the deferral, but have not yet started construction) will likely be pulled into the PSD program on the basis of their CO_2 emissions alone. This impending regulation of CO_2 from biopower facilities will increase the difficulty and expense of

[40] Carrie Wheeler. Information collection request for Prevention of Significant Deterioration and Nonattainment New Source Review (40 CFR Part 51 and 52). United States Environmental Protection Agency, 2010. This estimate is taken from Table 6-1 and does not include preconstruction air quality monitoring. There are few available estimates of the cost of obtaining a state-only construction permit, making comparison difficult.

building or modifying a biomass energy facility, which given the marginal nature of the bioenergy industry, could further compromise these facilities' financial viability.

It is important to note that as is the case for CO_2, per megawatt-hour emissions of the conventional pollutants – particulate matter, carbon monoxide, and nitrogen oxides –tend to be significantly higher from biomass facilities than coal- or gas-fired facilities. As biomass facilities become subject to the PSD program because of their emissions of CO_2, the imposition of BACT for conventional pollutants could trigger requirements to switch to cleaner fuels and technologies, possibly including natural gas.[41]

B. EPA's Science Advisory Board Has Concluded that Bioenergy Is Not *A Priori* Carbon Neutral

When EPA does enact regulations for how biogenic CO_2 should be counted under the Clean Air Act, it is very likely that the Agency will follow recommendations of its advisory board and will not treat all bioenergy as carbon neutral.

The background is as follows. When the EPA decided to defer regulating biogenic CO_2 in 2011, it convened a panel of the Science Advisory Board (SAB) to advise the agency on how to regulate biogenic CO_2 emissions in the future. That panel issued a final report in September 2012. The SAB's report unequivocally concluded that biomass energy cannot be considered *a priori* carbon neutral. The SAB recommended:

> "To accurately capture the carbon outcome, an anticipated baseline approach and landscape level perspective are needed. An anticipated baseline requires selecting a time period and determining what would have happened anyway without the harvesting and comparing that impact with the carbon trajectory associated with harvesting of biomass for bioenergy.
>
> For logging residues and other feedstocks that decay over longer periods, decomposition cannot be assumed to be instantaneous… For residues, consider alternate fates (e.g., some forest residues may be burned if not used for bioenergy) and information about decay. An appropriate analysis using decay functions would yield information on the storage of ecosystem carbon in forest residues."[42]

EPA's Science Advisory Board found that biomass, including logging residues, can not be assumed carbon neutral

The SAB's recommended approach, which compares net CO_2 emissions under the bioenergy scenario with an alternative, "business as usual" scenario, is the same analytical framework as

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[41] United States Environmental Protection Agency. PSD and Title V Permitting Guidance for Greenhouse Gases. EPA-457/B-11-001. March, 2011. Washington, DC.

[42] United States Environmental Protection Agency. SAB review of EPA's Accounting Framework for Biogenic CO_2 Emissions From Stationary Sources. EPA-SAB-12-011. September 28, 2012. Washington, DC. (http://yosemite.epa.gov/sab/SABPRODUCT.NSF/57B7A4F1987D7F7385257A87007977F6/$File/EPA-SAB-12-011-unsigned.pdf).

employed by the Manomet study in Massachusetts. The Manomet study included the recommended modeling and concluded that if forest harvesting is increased to provide biomass fuel, net emissions from biopower exceed those from coal-fired power for more than 40 years. (It should be noted that when comparing possible futures and the type of energy to be displaced by bioenergy, the alternative scenario need not assume that fossil fuels continue to be burned; the comparison could be made between bioenergy and wind energy, for instance, in which case the increase in emissions from the bioenergy scenario would be even more significant).

Subsequently, the EPA appears to have adopted its SAB's reasoning, stating in the recently issued rulemaking on New Source Performance Standards (NSPS) for fossil fueled power plants that "In general, the overall net atmospheric loading of CO_2 resulting from the use of a biogenic feedstock by a stationary source will ultimately depend on the stationary source process and the type of feedstock used, as well as the conditions under which that feedstock is grown and harvested."[43] It seems likely that EPA's final framework for biogenic CO_2 accounting will formalize the SAB's recommended approach.

A further relevant development at EPA is that the NSPS for new fossil fueled power plants, which sets an emissions limit of around 1,000 lb CO_2 per megawatt-hour for new facilities, *does* count CO_2 from biomass that is co-fired at fossil-fueled plants when calculating total emissions.[44] This development demonstrates that EPA is capable of regulating biogenic CO_2 stack emissions directly.

As a result of EPA's likely impending regulation of biogenic CO_2, and in light of the SAB's recommendations that bioenergy not be assumed to be carbon neutral, it seems likely that the bioenergy industry's strategy has become much more complicated. Now, controversy about how biogenic CO_2 emissions can be offset is inevitable – encompassing source materials, commitments related to regrowth of trees, and assurances that regrown trees will not be reharvested in a manner that forgoes their calculated (offsetting) role in carbon sequestration. Investors in bioenergy would surely find it relevant to understand how much more complicated the "carbon offset" part of their regulatory environment has become.

Despite the notoriety of the EPA's initial deferral of biogenic CO_2 accounting and the SAB's proceedings subsequently, none of the companies we reviewed mentioned the SAB's recommendation to EPA that bioenergy not be considered *a priori* carbon neutral.

C. Federal Court Opinion Has Stated Biogenic CO_2 Emissions Should be Regulated

An important federal court case, *Center for Biological Diversity, et al. v. U.S. EPA*, (decided July 12, 2013), is central to the regulatory treatment of greenhouse gas emissions from biomass power plants, because the Court determined that EPA does not have the authority to exempt biopower CO_2 emissions from regulation. However, this case was not mentioned in any of the materials from Covanta, Dominion, and Southern Company published as of September 18, 2013.

[43] Standards of performance for greenhouse gas emissions from new stationary sources: electric generating units. 40 CFR Part 60, [EPA-HQ-OAR-2013-0495; FRL-9839-4] RIN 2060-AQ91. September 20, 2013.
[44] *Id.*

After EPA announced in 2011 that it would hold off from regulating biogenic CO_2 emissions for three years, a coalition of environmental groups sued the Agency. The Court decided in the groups' favor and against EPA in July 2012, finding that the EPA's justifications for the Rule were not legally sufficient and did not meet "fundamental" obligations "that EPA set forth the reasons for its actions."[45] The court's decision noted that the atmosphere makes no distinction between carbon dioxide emitted by biogenic and fossil-fuel sources.[46]

The Federal Court noted that the atmosphere makes no distinction between carbon dioxide emitted by biogenic and fossil-fuel sources

Much of the court's reasoning for ruling against EPA's deferral of biogenic CO_2 regulation turned on the plain meaning of the word "emit," and the fact that the Clean Air Act regulates pollutants emitted by power plants and other stationary sources. A concurrent opinion explained that the Clean Air Act forecloses any "offsetting" approach – i.e., taking off-site carbon sequestration into account as a compensating factor that can mitigate a power plant's emissions – because "The statute does not allow EPA to exempt those sources' emissions of a covered air pollutant just because the effects of those sources' emissions on the atmosphere might be offset in some other way."[47]

This is, however, exactly the argument that companies use to justify claims that stack emissions of bioenergy CO_2 should be ignored, and that bioenergy should be treated as carbon neutral – that emissions are offset by forest regrowth, or are offset because emissions would "occur anyway" from decomposition. The "waste decomposition" argument was how EPA justified the deferral when it was initially proposed, but the Court's decision rejects this logic.

As of November 2013, the enactment of the Court's decision leading to the full reversal of EPA's deferral rule has been postponed, pending a Supreme Court decision in a separate case concerning the overall authority of EPA to regulate CO_2 emissions from stationary sources.[48] However, in the event that no decision is reached, EPA's three-year deferral of PSD regulation will lapse in June 2014, and CO_2 emissions from biopower facilities will again become subject to PSD regulation in the absence of further action by the EPA or the courts.

D. Biomass Power is Beginning to Lose Eligibility For Subsidies at the State Level

At the state and local level, there is growing opposition to subsidizing biopower as renewable energy alongside technologies like wind and solar energy that generate no local air emissions. Proposals to build biomass power plants are often greeted with intense opposition and legal action including appeals of air permits and water withdrawal permits. The negative public response to burning wood for power was illustrated in 2009, when over 75,000 people signed a

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[45] Opinion p. 18, *citing Northeast Maryland Waste Disposal Authority v. EPA*, 358 F.3d 936, 949 (D.C. Cir. 2004) (*per curiam*).
[46] Opinion page 7.
[47] Concurrence page 3.
[48] Utility Air Regulatory Group v. EPA, S. Ct. No 12-1146, and consolidated cases.

petition in Massachusetts that would have taken state renewable energy subsidies away from any technology that emitted more than minimal amounts of CO_2.[49]

Environmental groups are also increasingly opposing large-scale bioenergy. Demonstrating that opposition to wood-burning power plants has become a mainstream environmental issue, the website of the Natural Resources Defense Council, one of the largest environmental groups in the country, features a page entitled "Our Forests Aren't Fuel,"[50] which characterizes biopower as "an emerging environmental disaster."

The problems presented by large-scale bioenergy are beginning to be addressed by state-level policy. In Massachusetts, following the publication of the Manomet study and its finding that net biopower CO_2 emissions exceed those from coal for more than 40 years, the state eliminated renewable energy subsidies for electric-only biopower plants,[51] finding their low efficiency and high net CO_2 emissions are incompatible with state mandates to reduce greenhouse gas emissions from the power sector.[52] In Maryland and Washington DC, legislation is being considered that would also make low-efficiency biomass power plants ineligible for renewable energy subsidies, like Massachusetts restricting them to high-efficiency combined heat and power facilities (in Maryland, the Governor himself spoke in support of the bill. While it narrowly did not pass, partly due to lobbying by Dominion Resources, it will be reconsidered next year). Other states, including Vermont, are studying the question of what role bioenergy should play in the state's renewable energy portfolio. For states that have not yet taken on this question, the growing recognition and imminent regulation of biogenic CO_2 at the federal level could prompt greater scrutiny of whether bioenergy deserves to be subsidized alongside no-emissions renewable energy.

Massachusetts has eliminated subsidies for low-efficiency biopower, and other states are following suit

Although the Massachusetts regulations were well known, and companies named in this letter submitted comments and lobbied against the passage of the Massachusetts and Maryland legislation, none of the companies have disclosed to investors that state-level legislation has already and may further erode the subsidies available to biopower.

E. These Regulatory Developments Are A Known Trend That Is Material to This Industry

As documented above, a significant body of scientific literature demonstrates that wood-burning biomass power plants are net sources of greenhouse gases even after decades of forest regrowth. This scientific information is already having an impact on the regulatory and subsidy/tax policy environment within which the biopower industry operates.

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[49] Press release from the Stop Spewing Carbon campaign, December 1, 2009.
[50] http://www.nrdc.org/energy/forestsnotfuel/.
[51] The new regulations pertain to 225 CMR §14.00, and are available at http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/biomass/renewable-portfolio-standard-biomass-policy.html.
[52] Massachusetts' Global Warming Solutions Act mandates significant reductions in greenhouse gas emissions by 2020 and 2050.

We believe this is a "known trend" within the meaning of Regulation S-K that obligates a company to assess and disclose regulatory implications. The fact that this trend is known to these companies is demonstrated by their participation in state and federal rulemaking processes regarding the regulation of CO_2 from biomass power plants, where they have submitted comment letters that argue for biopower to be considered carbon neutral. For example, both Dominion and Southern Company submitted comments to the federal docket in response to EPA's calls for information and rulemaking on emissions regulation of biogenic CO_2.[53] The Companies' comments clearly state that regulation of biogenic CO_2 would impact their operations. Southern Company notes in particular, "Future biomass projects will be impacted if biogenic CO_2 emissions are not provided a permanent applicability exemption from the PSD and Title V Programs."[54] (We discuss company-specific evidence in more detail below).

Given that companies have acknowledged that new emission regulations of biogenic CO_2 could affect their businesses, the trend is known to the companies.

F. SEC's Climate Guidance Requires Companies to Disclose These Developments

The Securities Exchange Act requires publicly traded companies registered with the SEC to disclose certain information to assist investors in making informed investment decisions (see the Appendix for a discussion of these requirements). The SEC formally recognized the materiality of climate change-related information in its 2010 Climate Guidance,[55] which advises companies on existing disclosure requirements as they apply to climate change. The Guidance explains 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 the company's business, determine what disclosures should be included in SEC filings with respect to climate change matters, and include required disclosures. Companies must also monitor legislative and regulatory developments on greenhouse gas and climate change matters at the international, Federal, state, and regional levels on an ongoing basis and assess the potential impact of developments on the company's business.[56]

The SEC reiterated the long-standing disclosure principles for dealing with uncertainty when it issued its guidance on climate change disclosures:

> "In the case of a known uncertainty, such as pending legislation or regulation, the

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[53] Environmental Protection Agency. Call for Information: Information on Greenhouse Gas Emissions Associated with Bioenergy and Other Biogenic Sources (75 Fed. Reg. 41173 (July 15, 2010) and Proposed Rule: Deferral for CO2 Emissions from Bioenergy and Other Biogenic Sources Under the Prevention of Significant Deterioration (PSD) and Title V Programs (76 Fed. Reg. 15249 (March 21, 2011).

[54] Southern Company's Response to EPA's Call for Information: Information on Greenhouse Gas Emissions Associated with Bioenergy and Other Biogenic Sources (75 Fed. Reg. 41173 (July 15, 2010)), Docket ID No. EPA-HQ-OAR-2010-0560, page 3.

[55] Commission Guidance Regarding Disclosure Related to Climate Change (Release Nos. 33-9106; 34-61469; FR-82) February 2010.

[56] "SEC Issues Interpretive Guidance On Climate Change Disclosures", Gibson, Dunn & Crutcher, LLP, February 4, 2010. Available online at http://www.gibsondunn.com/publications.

> analysis of whether disclosure is required in MD&A consists of two steps. First, management must evaluate whether the pending legislation or regulation is reasonably likely to be enacted. Unless management determines that it is not reasonably likely to be enacted, it must proceed on the assumption that the legislation or regulation will be enacted. Second, management must determine whether the legislation or regulation, if enacted, is reasonably likely to have a material effect on the registrant, its financial condition or results of operations. Unless management determines that a material effect is not reasonably likely, MD&A disclosure is required. In addition to disclosing the potential effect of pending legislation or regulation, the registrant would also have to consider disclosure, if material, of the difficulties involved in assessing the timing and effect of the pending legislation or regulation." (Emphasis added)

The Climate Guidance also states (footnote 71):

> "Management should ensure that it has sufficient information regarding the registrant's greenhouse gas emissions and other operational matters to evaluate the likelihood of a material effect arising from the subject legislation or regulation."

With regard to bioenergy, the Climate Guidance would require companies to disclose:

> 1) Specific risks arising from existing or pending climate change-related legislation or regulation, such as the potential for climate change legislation or regulation of emissions from bioenergy facilities to materially increase the company's costs to operate its biomass power facilities.
>
> 2) The potential reduction in value of various renewable and "green" energy subsidies and tax credits from which the companies currently benefit.
>
> 3) The risk of decreased consumer demand for energy that produces significant greenhouse gas emissions or services, compared to solar and wind energy.
>
> 4) Risks arising from reputational damage related to climate change, such as possible negative public reaction as the public comes to understand the speculative and potentially misleading presentation of the environmental and greenhouse gas benefits of the company's bioenergy investments.

The SEC's Climate Guidance requires companies to disclose material risk from potential future regulations concerned with climate change

IV. Analysis of Disclosures by Dominion, Southern Company, and Covanta

In this section we describe the statements and formal disclosures of material risk that Dominion, Southern Company and Covanta have made concerning their biopower investments. These fall into two main categories:

- First, companies assert that bioenergy facilities "reduce" CO_2 emissions, or that emissions are "clean," in some instances without clarifying that the day-to-day CO_2 emissions of these facilities exceed those of competing combustion technologies, and that conventional air pollutant emissions are similar or greater.
- Second, companies make statements about bioenergy as a climate warming mitigation measure, and as carbon neutral, without qualification or disclosure of emerging science that refutes these claims, and the resulting prospects for adverse policy developments, legislation, and legal action that could materially impact operations or finances.

A. Dominion - Virginia Electric and Power Company

Dominion is a large U.S. energy company with diverse holdings across the Eastern United States. Dominion operates one of the largest biomass power stations in the United States, the 83 MW Pittsylvania station in Virginia.[57] In addition to Pittsylvania, Dominion began operation of the 585 MW Virginia City Hybrid Energy Center in July 2012, which will co-fire up to 60 MW biomass by 2020.[58] Dominion is also converting three coal-fired power plants to burn biomass (Altavista, Southampton, and Hopewell), and announced the completion of the Altavista plant conversion on July 15, 2013.[59] Dominion also plans to purchase another 20 MW of bioenergy from a non-utility generator. [60] Dominion's projections for energy generation from renewables in 2020 includes over 75% bioenergy, 3% solar, and 0% wind.

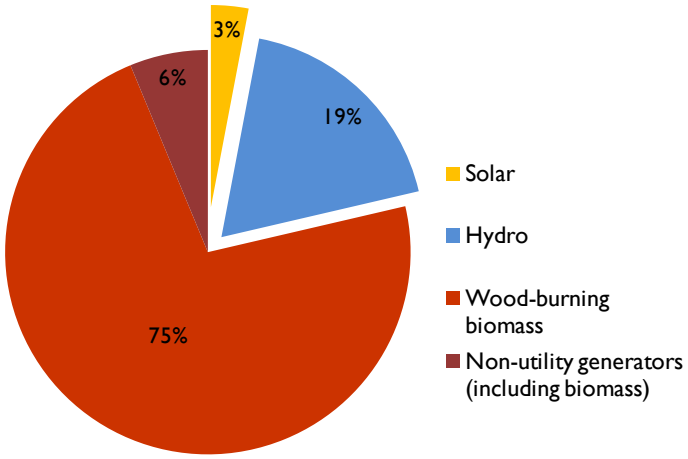

Figure 5. Dominion's anticipated mix of renewable energy generation in 2020.[61]

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[57] Dominion 2011-2012 Citizenship & Sustainability Report, page 85 (http://www.dominioncsr.com/assets/pdf/2011-12-DominionCSR.pdf).

[58] 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.

[59] Announcement of Altavista conversion completion, (http://dom.mediaroom.com/2013-07-15-Dominion-Virginia-Power-Completes-Biomass-Conversion-At-Altavista-Power-Station).

[60] *See supra* footnote 60

[61] Virginia Electric and Power Company d/b/a Dominion Virginia Power. Annual report to the State Corporation

In its Integrated Resource Plan for 2013, Dominion describes its use of bioenergy as "extensive," and states that the Company "considers biomass to be carbon neutral from an emissions standpoint."[62] Once Dominion's new bioenergy capacity comes online, the Company's total wood demand will likely be about 3.6 million tons per year.

Dominion meets renewable energy goals both by generating renewable energy and purchasing renewable energy credits from non-Dominion owned generating facilities. Dominion has a Green Power Program that offers Dominion customers the chance to voluntarily pay extra on their monthly electric bills to support alternative energy, including biopower. All the RECs that Dominion purchases with these funds are from non-Dominion owned facilities and are separate from the RECs that Dominion uses to meet state-level renewable portfolio standard goals.

Biopower is an important component of Dominion's Green Power program. In 2011, 9% of the RECs that Dominion purchased for the program came from biomass energy facilities, but this increased to 25% in 2012, an increase of 277 percent from the previous year.[63] We do not know what proportion of the RECs purchased by Dominion for this program come from combustion biopower facilities burning wood (and wood-derived products like pulping liquors from the paper industry), and what proportion comes from facilities that generate power by burning methane from animal waste or sewage facilities.

1. Claims about biopower made on Dominion's website and in its marketing materials

Dominion's website materials assert that biopower is "clean," that it "reduces" greenhouse gas emissions, and that it is "carbon neutral," but the website provides no background to explain the controversy underlying the question of bioenergy carbon neutrality.

Dominion asserts its bioenergy holdings are clean and carbon neutral

- The Company's web materials assert, "Although biomass burned as a fuel emits carbon dioxide, scientists consider the process to be 'carbon neutral' because an equal amount of carbon is released into the atmosphere that would have been returned to it when the trees decayed as part of their natural life cycle."[64]

  This statement omits the fact that burning biomass dramatically increases day to day emissions over fossil fuels. According to the Energy information Administration, Virginia's fossil-fueled electricity sector[65] generated 61.5 million megawatt-hours of electricity in

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Commission on renewable energy. November 1, 2012.

[62] 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.

[63] "The Facts about Dominion Green Power Renewable Energy Certificates (RECs)," Dominion Green Power, (https://www.dom.com/dominion-virginia-power/customer-service/energy-conservation/pdf/gp-facts-about-recs.pdf), pages 1-2.

[64] Dominion website, (https://www.dom.com/about/stations/renewable/biomass-stations.jsp).

[65] Virginia's fossil-fueled electricity sector includes electric utilities and independent power producers.

2011,[66] and emitted 31.4 million tons of CO_2.[67] Once Dominion's bioenergy capacity is all online (Pittsylvania plus the new facilities) these facilities at fulltime operation will represent a 4.1% bump in electricity generation, but will cause an 11.7% increase in day to day power sector CO_2 emissions over the 2011 baseline.

- A promotional video for the Pittsylvania Power Station states,[68] "In addition to being renewable, biomass is also a source of low carbon energy… As Dominion works to further increase its renewable energy portfolio, Pittsylvania Power Station will remain the foundation on which the company's efforts are based. Clean, reliable, and renewable." (Emphasis added).

  However, permitted emissions from the 83 MW Pittsylvania plant, according to its Title V emissions permit,[69] are 96.4 tons per year (tpy) particulate matter, 77.1 tpy sulfur dioxide, 482.1 tpy nitrogen oxides, 1,687.3 tpy carbon monoxide, and 337.5 tpy volatile organic compounds. (See Figure 1 above for a comparison of how much lower emissions from a modern gas plant would be. Pittsylvania's CO_2 emission rate is not set in the permit but the plant's emissions at nearly full-time operation are around 1 million tons per year, based on standard assumptions about facility efficiency. A gas plant would emit about one-third as much).

- Literature on Dominion's "Green Power" program assures ratepayers that new energy investments, including biopower, "reduce greenhouse gas emissions."[70] Referring to the company's conversion of three Virginia coal plants to burn wood, the brochure states "These renewable generation facilities are expected to begin burning clean biomass in 2013."[71]

  Dominion's coal-to-biomass conversions will emit almost two million tons of CO_2 per year, and thousands of tons of particulate matter, nitrogen oxides, and carbon monoxide

  Combined capacity of the Altavista, Southampton and Hopewell plants will be 153 MW. Construction permits[72] for the facilities reveal that their combined permitted emissions will be 253.2 tpy of $PM_{2.5}$, 114.6 tpy sulfur dioxide, 1,237 tpy nitrogen oxides, 2,748 tpy carbon monoxide, and 129.4 tpy volatile organic compounds. Wood use at each plant will be about 785,000 tons per year. Whereas EPA data show that combined CO_2 emissions from the three plants

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[66] Energy Information Administration. Annual generation, State historical tables for 2011, released November 2012. Washington, DC.
[67] Energy Information Administration. Annual emissions, State historical tables for 2011, released November 2012. Washington, DC.
[68] Available at http://www.youtube.com/watch?feature=player_embedded&v=UdVbknG7WNk#!.
[69] Available at http://www.deq.state.va.us/Portals/0/DEQ/Air/Permitting/TitleVPermits/30871tvada.pdf
[70] Dominion's "Green Power" brochure (https://www.dom.com/dominion-virginia-power/customer-service/energy-conservation/pdf/gp-brochure.pdf) states, "*Your participation in Dominion Green Power supports renewable energy and creates environmental benefits*". One benefit listed is "*reduce greenhouse gas emissions*".
[71] "Biomass Power," Dominion Website (https://www.dom.com/about/stations/renewable/biomass-stations.jsp).
[72] Available at http://www.deq.state.va.us/Programs/Air/PermittingCompliance/Permitting/PowerPlants/BiomassPermits.aspx

burning coal were 0.69 million tons in 2010, once converted to wood, CO_2 emissions from the three plants will be around 1.8 million tons per year.

2. Claims about biopower made to the Virginia State Corporation Commission

In its application and testimony to the Virginia State Corporation Commission (SCC) supporting the Biomass Conversions at Hopewell, Altavista and Southampton Power Stations,[73] Dominion made numerous claims regarding biopower. A notable exchange that highlights the incredulity with which certain claims are sometimes met occurred between a Dominion witness and a Commissioner:

> COMMISSIONER CHRISTIE: Before you leave that. This has always fascinated me. Walk me through again -
> THE WITNESS: Yes.
> COMMISSIONER CHRISTIE: -- why a commodity that when you burn it produces twice as much carbon as coal is considered carbon neutral. Just walk me through that again.

The witness then went on to describe that residues would decompose in 10 to 15 years, or 25 years for large logs, and that burning these residues should therefore be considered carbon neutral.[74] However, this argument is invalid. It might be valid if Dominion's converted coal plants operated for a single year and then shut down, but for facilities in continuous operation for a period of 20 years, based on the methodology used in the Manomet study, the net cumulative atmospheric CO_2 loading over this period would be about 14 million tons *more* than if the residues had simply decomposed. Further, this would be the case only if Dominion were solely burning forestry residues generated in the course of sawtimber harvesting. However, as Dominion has stated in testimony to EPA and highlighted above, the Company includes whole trees in its definition of "waste" wood.[75] Such whole trees may or may not include trees which would not have been cut down but for the market created by Dominion's biomass facilities.

3. Dominion's disclosures to the SEC

a) Disclosures concerning federal regulation of bioenergy

While Dominion has significant bioenergy investments, we were only able to locate a few, vague statements disclosing risks to the Company's bioenergy holdings in the company's SEC filings. They are:

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[73] 2011 Testimony Before the State Corporation Commission of Virginia Regarding Dominion's Applications for Approval of Major Unit Modification and Approval of Rate Adjustment for the Biomass Conversions (Switching from Coal to Biomass at Hopewell, Altavista, and Southampton Power Stations).

[74] Commonwealth of Virginia, State Corporation Commission. Transcript of hearings held January 12, 2011. Case No. PUE-2011-00073, Vol. III 01-12-2012. Page 693.

[75] Pamela F. Faggert, Dominion Resources Services, Inc. Comments to the Science Advisory Board biogenic carbon emissions panel on its draft advisory report regarding EPA's accounting framework for biogenic CO_2 emissions from stationary sources. March 16, 2012.

- "Below are some of the Companies' efforts that have or are expected to reduce the Companies' overall carbon emissions or intensity: . . . Virginia Power added 83 MW of renewable biomass and is converting three coal-fired power stations to biomass, which is anticipated to be considered carbon neutral by regulatory agencies."[76] (emphasis added)

- "While Virginia Power's new Virginia City Hybrid Energy Center, which started commercial operations in July 2012, is a new source of GHG emissions, Virginia Power has taken steps to minimize the impact on the environment. The new plant is expected to use at least 10% biomass for fuel…."[77]

The company also made a general disclosure about potential effects of climate policy:

> "There are other legislative proposals that may be considered that would have an indirect impact on GHG emissions. There is the potential for the U.S. Congress to consider a mandatory Clean Energy Standard. In addition to possible federal action, some regions and states in which Dominion and Virginia Power operate have already adopted or may adopt GHG emission reduction programs. Any of these new or contemplated regulations may affect capital costs, or create significant permitting delays, for new or modified facilities that emit GHGs."[78]

However, this general disclosure was notably lacking in specifics regarding the known emerging risks associated with the company's substantial biopower investments.

b) Other disclosures

Despite the lack of disclosure in SEC filings, testimony by Dominion on state-level legislation and in state-level regulatory proceedings shows that the company is well aware that should biogenic CO_2 be increasingly regulated, this could undercut their biopower investments.

Dominion admits that losing renewable energy subsidies would hurt their bioenergy business, but has not disclosed this to investors

Dominion wants to collect renewable energy subsidies in Maryland for the three coal plants that it is converting to biomass in Virginia. Testifying against the bill in Maryland that would eliminate subsidies for low-efficiency biopower, Dominion wrote:

> "When Dominion made the decision to convert these coal units to biomass, Maryland law classified biomass as a Tier I renewable resource. The classification was a significant factor in making a business case to invest over $165 million to convert these facilities. Now, with these plants approved and

[76] Dominion Resources, 2012 10-K, page 30.
[77] *Id*. at page 32.
[78] *Id*. at page 48.

> currently under construction, this bill would eliminate a key revenue stream that is considered critical to their economic viability."[79] (Emphasis added)

However, there is no mention of the Maryland legislation in any of Dominion's SEC filings.

In its letter to the Maryland Legislature, Dominion also reveals how marginal bioenergy investments are in light of natural gas prices, an observation that is likely of interest to investors. The Company states,

> "In an era of very low natural gas prices, new biomass units, although they play an important role in renewable energy policy, are simply not cost competitive. However, biomass conversions of coal units are cost competitive, when the value of both the energy produced, the air quality benefits compared to coal, and the value of the renewable energy credits produced are considered." [80]

In testimony to the State Corporation Commission, Dominion representatives stated that the three coal plant conversions will save customers approximately $388 million over the next 25 years compared to continued operation of the units on coal.[81] However, the testimony also states that this assessment depends on continuing tax credits and state subsidies for biopower and continued non-regulation of biogenic CO_2. Dominion representatives testified[82] that at an expected annual capacity factor of 92% for all three converted facilities, the value of federal renewable energy Production Tax Credits (PTC) earned by the plants is expected to produce a Net Present Value (NPV) to customers of approximately $120 million.[83] Dominion stated that the converted power stations would remain economical after the PTC expired[84] due to lower emissions costs and the value of the RECs produced by the facilities.[85] However, Dominion's written testimony to the SCC acknowledges that under a scenario where biomass is not considered carbon neutral, the value of converting the

The viability of Dominion's coal plant conversions depends on treating bioenergy as if it has zero CO_2 emissions

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[79] Letter from Carolyn Moss, Dominion Resources, to Thomas Middleton, Chair of the Senate Finance Committee of the Maryland Legislature. March 5, 2013.

[80] *Id.*

[81] Dominion states that the conversions will save customers approximately $388 million net present value ("NPV") over the entire 25-year lives of the converted power stations when compared to continued operation of the units on coal. Application of Virginia Electric and Power Company for approval and certification of the proposed Major Unit Modification of the Altavista Power Station under sec. 56-580D and 56-46.1 of the Code of Virginia and for approval of rate adjustment under sec. 56-585.1 A 6 of the Code of Virginia, Case No. PUE-2011-00073, June 27, 2011, page 5.

[82] *Id.* at page 11.

[83] Dominion states that the fuel used will meet the definition of eligible biomass set in Section 45 of the United States Internal Revenue Code, which governs the PTC. In making these calculations, Dominion assumed that 95% of the electricity generated from the converted facilities would be eligible for the federal PTC, because at least 95% of the fuel used at each of the power stations would qualify as eligible biomass.

[84] The PTC is granted for a period of ten years.

[85] Direct Testimony of Diane Leopold on behalf of Virginia Electric and Power Company Before the State Corporation Commission, Case No. PUE-2011-00073, -74, -75, page 14.

power plants to biomass would be significantly less than the Net Present Value of continued operation on coal.[86]

However, this admission may only be discovered by reading hundreds of pages of company testimony in this case, and is therefore not available to ordinary investors. It does not appear in the company's shareholder disclosures.

Dominion also admits that regulation of biogenic CO_2 would threaten its investments in its comment letters to EPA. Dominion wrote to EPA's Science Advisory Board during deliberations about Clean Air Act regulation of biogenic CO_2, referencing Dominion's several biopower facilities, including the three coal plants it is converting to burn biomass. The letter acknowledges that regulating biopower emissions would present a financial risk to the company:

> "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 CO_2 emissions; particularly that of waste wood."[87] (Emphasis added)

The Company asked the SAB to either treat all wood-based biogenic energy as categorically excluded from CO_2 emission regulation, or alternatively to treat the materials as *a priori* carbon neutral. The SAB's report did not support either such position.

c) Summary of Dominion's disclosures

Dominion's disclosures in SEC filings make the concrete risks facing the Company sound vague and nonspecific. The Company has not disclosed that EPA's deadline for regulating biogenic CO_2 emissions is approaching, or that EPA's Science Advisory Board has stated that bioenergy can not be assumed to be carbon neutral and that EPA seems likely to adopt the SAB approach for carbon accounting. The Company has not disclosed that EPA's deferral for counting biogenic CO_2 toward PSD applicability was deemed illegal by the Court. Finally, there is no disclosure that there is a strenuous effort in Dominion's own service territory to eliminate renewable energy subsidies for biopower, including for Dominion's coal plant conversions, which by Dominion's own admission would "eliminate a key revenue stream that is considered critical to their economic viability."

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[86] Direct Testimony of Glenn A. Kelly on behalf of Virginia Electric and Power Company Before the State Corporation Commission, Case No. PUE-2011-00073, -74, -75, page 13.

[87] Pamela F. Faggert, Dominion Resources Services, Inc. Comments to the Science Advisory Board biogenic carbon emissions panel on its draft advisory report regarding EPA's accounting framework for biogenic CO_2 emissions from stationary sources. March 16, 2012.

4. Associated Potential Material Harms

a) Financial Impacts

Virginia and North Carolina have both set Renewable Portfolio Standards (RPS) to ensure a certain amount of electricity is produced from renewable sources. Dominion has committed to meeting Virginia's voluntary goals of 12% of base year electric energy sales from renewable power sources by 2022, and 15% by 2025, and North Carolina's RPS of 12.5% by 2021.[88] The company has stated that the coal plant conversions to biomass will generate 1.2 million Tier I RECs per year, of which 80.69% will be available toward meeting Dominion's RPS requirements in Virginia.

However, the company has stated that it is likely to sell its Tier I biomass RECs in another state where prices are higher, and purchase back less expensive Tier II RECs to meet its obligations in-state, using the difference in price to defray the costs of converting the coal plants to biomass.[89] Maryland Tier I RECs are currently around $14/MWh, suggesting that the company could collect around $13.5 million per year from sale of biomass RECs in that state, with the net gain being the cost of those RECs, minus whatever Virginia Tier II RECs cost. Dominion lobbied against the 2013 bill that would have made low-efficiency, high-emissions biopower ineligible to receive RECs in Maryland.[90] The bill did not pass, but is likely to be offered again. If the bill passes, and Dominion loses access to bioenergy RECs in Maryland, the company would further face additional costs in paying for the coal plant conversions.

Dominion may face further permitting costs for its coal-to-biomass conversions. The facilities all "avoided" PSD permitting, but all are major sources for CO_2 that received permits during the period that EPA's deferral for biogenic CO_2 was in place. As a result of the *Center for Biological Diversity* decision, these facilities may be compelled to apply for new permits under the PSD program. This process would incur additional costs for the coal plant conversions.

b) Reputational Damage

As the greenhouse gas impacts of bioenergy are increasingly recognized and regulated, Dominion's heavy emphasis on biopower to meet its renewable energy generation goals could expose the company to reputational damage. Dominion portrays biomass energy as an investment that reduces greenhouse gas emissions, marketing it to individual customers who voluntarily pay extra for "renewable" power through the Company's Green Power Program. Dominion brands itself as an ethical and environmentally responsible company. As the company states in its 2011-2012 Citizenship and Sustainability Report, "Integrity, individual responsibility and accountability go hand-in-hand with bottom-line results. We cannot and will not take shortcuts to achieve our goals and fulfill our obligations to stakeholders."[91] Contrary to this statement, however, it can be argued that keeping old coal plants operating by converting them to

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[88] Dominion 2012 10-K, page 30.
[89] Altavista Biomass Application Vol. 1, Page 15, Section J.40.
[90] Letter from Carolyn Moss, Dominion Resources, to Thomas Middleton, Chair of the Senate Finance Committee of the Maryland Legislature. March 5, 2013.
[91] Dominion 2011-2012 Citizenship & Sustainability Report, page. 10 (http://www.dominioncsr.com/assets/pdf/2011-12-DominionCSR.pdf).

burn biomass, instead of developing no-emissions renewable energy resources, is actually a significant shortcut.

B. Southern Company

Southern Company is one of the largest electric utilities in the nation, providing electricity service to over 4.4 million retail customers through its subsidiaries Alabama Power, Georgia Power, Gulf Power, Southern Power, and Mississippi Power. At the end of 2012, the company directly owned one biomass facility, the Nacogdoches plant near Sacul, Texas. Using 1 million tons of wood per year and with 116 MW capacity, the Nacogdoches facility is one of the largest biomass power stations in the United States (although the facility was idled a few months after it went online, due to the high cost of its power relative to other available sources, including wind and natural gas).[92]

Southern Company's 116 MW Nacogdoches biomass power plant in Texas was idled after startup due to high costs compared to natural gas and wind

Southern Company subsidiaries own biomass power facilities or interest in biomass energy facilities across the United States. Alabama Power has been co-firing biomass as part of normal operations at its Plant Gadsden for nine years and is planning to add another 22.5 MW of biopower to its generation mix.[93] Mississippi Power is actively researching the use of biomass for re-powering and co-firing its existing plants and is currently working with the U.S. Forest Service to evaluate co-firing biomass from the Talladega National Forest with pulverized coal (wood harvesting is already under way).[94] Georgia Power has a 20-year agreement for power from woody biomass with Yellow Pine Energy Co. LLC in Fort Gaines, GA, a 110 MW biomass plant, and a 15-year contract for biomass power from Greenway Renewable Power LLC near Franklin, GA.[95] Georgia Power was in the process of converting its Plant Mitchell coal boiler to biomass, but put this project on hold in 2011, requesting a delay of 2 - 4 years while the company determines costs associated with new pollutant emission regulations.[96]

1. Claims Made in Southern Company's Website and Marketing Materials

Southern Company's website claims biopower is carbon neutral, clean, and "good for the community."

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[92] O'Grady, Eileen. Top US biomass plant largely idle; Austin Energy cuts purchases. Reuters. December 2, 2012. http://www.reuters.com/article/2012/12/06/utilities-southern-biomass-idUSL1E8N5CAD20121206

93 Corporate Responsibility, Building Renewable Resources, (http://www.southerncompany.com/corporate-responsibility/energy-innovation/building.aspx).

[94] Biomass Energy, Mississippi Power website, http://www.mississippipower.com/topic_renewable/biomass.asp

[95] Georgia Farm Bureau, "Georgia's Largest Biomass Power Plant Under Development," 8/16/2011 (by Biomass Magazine) (http://www.gfb.org/gfbnews/GFBNewsMoreInfo.asp?RecordID=1993).

[96] Georgia Power notes in a recent petition to the Georgia Public Service Corporation that the Industrial Boiler MACT, new coal combustion residuals rule and biogenic GHG considerations may make the conversion economically unfeasible. "Georgia Power's Petition for Approval of the First Construction Monitoring Report for the Mitchell Project and Request for a Delay in Construction", GPSC Docket No. 28158, page 6.

- It states, "Southern Company continues to develop and deploy smarter and cleaner energy technologies, including increased energy efficiency, nuclear power, clean coal and renewables." Referencing the 100 MW wood-burning plant the Company built in Texas, the website states, "Nacogdoches represents another step in developing a diverse portfolio to meet the nation's growing energy demands."[97]

- A promotional video claims, "Using a renewable resource [biomass] to produce electricity is clean and environmentally responsible, and good for the community."[98]

- The website states, "Benefits of Biomass Energy. In Georgia, trees are an abundant, renewable natural resource when properly managed as part of a balanced energy program. Georgia Power is investing in the research and technology required to convert coal-burning plants to biomass. Processing wood as biomass is considered carbon-neutral since the resultant emissions equal the carbon dioxide absorbed by the trees as they matured."[99]

2. Southern Company's disclosures to the SEC

a) Disclosures concerning federal regulation of bioenergy

Southern Company appears to be aware of the risk that federal regulation of biogenic CO_2 would present to the Company's bioenergy holdings – for instance, the Company's comments to EPA on the deferral rule stated, "By not properly exempting biogenic CO_2 emissions, the PSD and Title V Programs potentially create disincentives to proceed with bioenergy projects" and that "Future biomass projects will be impacted if biogenic CO_2 emissions are not provided a permanent applicability exemption from the PSD and Title V Programs."[100] In its SEC filings, however, Southern only notes that there is uncertainty surrounding environmental regulation and that future regulation of greenhouse gases could negatively impact the company, but does not give any hint that biogenic CO_2 emissions may present a special risk.

Southern Company told EPA that regulating biogenic CO_2 would impact bioenergy projects, but has not disclosed this to investors

The only relevant statements we were able to locate in the company's 2012 10-K were the following, which specifically mention coal, but not bioenergy:

(1) "The Southern Company system's costs of compliance with environmental laws are significant. The costs of compliance with current and future environmental laws,

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[97] Nacogdoches Generating Facility, Southern Company Website (http://www.southerncompany.com/about-us/our-business/southern-power/nacogdoches.cshtml).

[98] "Nacogdoches Facility Video Update July 2012," located on Nacogdoches Facility page of company website, and separately: (http://www.youtube.com/watch?v=KbX6uPBVC2g).

99 Biomass Energy Sources, Georgia Power Website (http://www.georgiapower.com/about-energy/energy-sources/biomass.cshtml).

[100] Southern Company's Response to EPA's Call for Information: Information on Greenhouse Gas Emissions Associated with Bioenergy and Other Biogenic Sources (75 Fed. Reg. 41173 (July 15, 2010)), Docket ID No. EPA-HQ-OAR-2010-0560, page 3.

including laws and regulations designed to address air quality, water, coal combustion byproducts, global climate change, renewable energy standards, and other matters and the incurrence of environmental liabilities could negatively impact the net income, cash flows, and financial condition of Southern Company, the traditional operating companies, and/or Southern Power."[101]

(2) "The Southern Company system's ultimate environmental compliance strategy, including potential unit retirement and replacement decisions, and future environmental capital expenditures will be affected by the final requirements of new or revised environmental regulations and regulations relating to global climate change that are promulgated; the outcome of any legal challenges to the environmental rules; the cost, availability, and existing inventory of emissions allowances; and the fuel mix of the electric utilities. Compliance costs may arise from existing unit retirements, installation of additional environmental controls, upgrades to the transmission system, and adding or changing fuel sources for certain existing units."[102]

(3) "Although the outcome of federal, state, and international initiatives cannot be determined at this time, additional restrictions on the Southern Company system's greenhouse gas emissions or requirements relating to renewable energy or energy efficiency at the federal or state level could result in significant additional compliance costs, including capital expenditures. These costs could affect future unit retirement and replacement decisions and could result in the retirement of a significant number of coal-fired generating units. Also, additional compliance costs and costs related to unit retirements could affect results of operations, cash flows, and financial condition if such costs are not recovered through regulated rates or through PPAs. Further, higher costs that are recovered through regulated rates could contribute to reduced demand for electricity, which could negatively impact results of operations, cash flows, and financial condition."[103] (Emphasis added)

b) Other disclosures

Southern Company's SEC filings from 2012 state that the Company received renewable energy tax incentives for its Nacogdoches biomass plant and three solar facilities as part of the American Recovery and Reinvestment Act of 2009. These incentives had "a material impact on cash flows and net income."[104] The company's disclosure explicitly references the Act's extension of investment tax credits for biomass projects which begin construction before January 1, 2014.

c) Summary of Southern Company's disclosures

Southern Company's disclosures about the potential risks of CO_2 regulation refer to coal, not biomass. The Company does not disclose that EPA will likely resume regulating biogenic CO_2 in July 2014, if not before. There is no mention of how EPA's Science Advisory Board has recommended that EPA carefully consider the factors that affect net CO_2 emissions, and no

[101] Southern Company 2012 10-K, page I-14.
[102] *Id*. at page I-15.
[103] *Id*. at page II-27.
[104] *Id*. at page II-454.

mention of the Court decision that EPA's deferral of regulation was never legal to begin with. There is also no mention that some states are eliminating subsidies for low-efficiency biopower, or the effect that federal regulation might have on willingness to continue subsidizing biopower.

3. Associated Potential Material Harms

a) Financial Impacts

The Company's disclosure regarding the materiality of renewable energy tax incentives demonstrates what is at stake if tax incentive programs end. Southern's subsidiaries are co-firing biomass at some coal plants, but it is unclear that this strategy will continue to be viable, particularly given that EPA's New Source Performance Standards for new coal plants include biomass CO_2 in total emissions. It is possible that performance standards for existing facilities, if they are issued, will also count CO_2 from biomass co-firing. Potential new limits on greenhouse gas emissions could also require substantial capital expenditures for existing facilities, and the loss of the PSD permitting deferral for new and modified facilities could also involve significant financial impacts. However, Company has not provided investors with adequate information about these relevant issues.

b) Reputational Damage

Southern Company brands itself as a company that cares about the environment. For example, its website states, "We work at all levels from the grass roots in field offices and power plants up through corporate channels at each of our subsidiaries and headquarters to support communities and ecologies within our service territory."[105] The Company seeks a green reputation through its donations of land for conservation and support of various ecosystems and endangered species. The company also supports its environmental-steward reputation through green power programs offered through its subsidiaries. Georgia Power's Earth Cents program allows customers to voluntarily pay extra on their monthly electric bills to support alternative energy. The portfolio of technologies supported by Georgia Power's Earth Cents program includes biomass energy. Earth Cents is advertised as a way to "show your commitment to the environment,"[106] and the company claims that participation in its green energy programs "help improve our communities" because "Green Energy sources have a reduced impact on the environment."[107] However, as the public comes to understand the negative environmental impacts of biomass power generation, especially the fact that on a day-to-day basis it emits more CO_2 than coal per megawatt-hour, these issues could prove damaging to the company's reputation.

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[105] Economic Stewardship, Corporate Responsibility, Southern Company website (http://www.southerncompany.com/corporate-responsibility/economic-stewardship/).

[106] Green Energy, Georgia Power website (http://www.georgiapower.com/earthcents/green/home.cshtml).

[107] Green Energy Special Purchase Event Option, Georgia Power (http://www.georgiapower.com/earthcents/green/pdfs/Special%20Event%20Purchase.pdf).

C. Covanta

Covanta Holding Corporation (Covanta) is an international company with biomass energy and "energy-from-waste" facilities in 16 U.S. states.[108] Covanta owns eight biomass power plants – six in California and two in Maine – with a gross energy output of 191MW (about 11% of total generating capacity across the company's "Americas" sector). In 2012, 2011, and 2010, revenue from Covanta's biomass projects represented approximately 4%, 4%, and 5%, respectively, of the company's Americas' segment revenue.[109]

1. Claims made in Covanta's Sustainability Report and on its website

Covanta's website makes several statements on the environmental benefits of bioenergy, asserting bioenergy produces "significant reductions in greenhouse gas missions," that it is "clean" energy, and that "waste" wood is used as fuel. As discussed above, however, this "waste" wood includes whole trees.[110]

Covanta claims bioenergy is "clean" and that it achieves "significant reductions" in greenhouse gas emissions

The inclusion of whole trees as fuel is significant because the Company is familiar with the Manomet Study and the net increase in CO_2 emissions when whole tree are cut for fuel. In comments submitted to the EPA's Science Advisory Board on biogenic carbon accounting,[111] Covanta stated that the Manomet study "properly recognized that certain sources of standing timber used for bioenergy in Massachusetts are not carbon neutral over the short term." What they do not state, however, is that the "short term" period they are referring to is the time required not for carbon neutrality, but simply the time required for emissions to be drawn down so that they *equal* net emissions from fossil fuels. This is at least 40 years (if the comparison of net biopower emissions is made to coal) and at least 90 years (if biopower is compared to gas).[112]

Covanta's sustainability report from 2009/2010 does acknowledge that bioenergy is sometimes climate-unfriendly:

> "Not all biomass-based (biogenic) carbon is carbon neutral. For example, the use of biomass for energy that results in land-use change, such as the conversion of tropical rainforests to cropland or clear cutting of old growth forests, has serious negative climate impacts. Conversely, waste sources of biomass, such as forestry residues and MSW, do not result in land-use change, and are widely recognized as

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[108] Covanta Corporate Sustainability Report 2010-2011, page 11. (http://www.covantaenergy.com/pdf/Covanta_2012_CSR.pdf).

[109] Covanta 2012 10-K, page 11 (http://www.sec.gov/Archives/edgar/data/225648/000022564813000007/cva-123112x10k.htm).

[110] http://www.covantaenergy.com/what-we-do/our-services/other-renewable-energy.aspx

[111] Letter from Michael E. Van Brunt, Covanta Energy, re: May 9, 2012 SAB review of EPA's draft accounting framework for biogenic CO_2 emissions from stationary sources. May 18, 2012.

[112] 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.

> a sustainable source of biogenic carbon that can play a significant role in reducing global GHG emissions."[113]

However, the Company never reveals that the day to day emissions from their wood-burning power plants exceed emissions from coal plants of equivalent size, and does not explain how the prospects for these facilities to "reduce" greenhouse gas emissions is a long term endeavor that is rendered speculative by numerous assumptions and complicating factors.

2. Covanta's disclosures to the SEC

a) Disclosures concerning federal regulation of bioenergy

Out of the three companies analyzed, Covanta had the most complete set of disclosures to the SEC. For instance, in its 2012 10-K the Company disclosed that EPA had deferred regulation of biogenic CO_2, but that regulation might be coming in the future:

> "In 2011, GHG emissions became subject to the Prevention of Significant Deterioration ("PSD") and Title V programs of the CAA. While the inclusion of GHGs under the Title V program does not introduce new requirements for existing facilities other than additional reporting requirements, the inclusion of GHGs under PSD will impact new facilities and potentially expansions of existing facilities. In 2011, the EPA also finalized a three year deferral of CAA requirements for biogenic CO_2 emissions (CO_2 emissions that result from the combustion of naturally-occurring materials, e.g. paper, cardboard, food, cotton, wood, and leaves)… However, significant rule development is still required in advance of the 2014 expiration of the deferral."

The 2012 10K implies, however, that the Company expects regulations to be favorable:

> "As required by the deferral regulation, EPA drafted an accounting methodology for biogenic CO_2 emissions in response to growing questions regarding the carbon neutrality of certain types of biomass, for example, the use of standing timber for energy generation. In 2012, the EPA Science Advisory Board ("SAB") completed a review of the EPA's draft methodology. Both the draft methodology and the subsequent review were generally favorable to the waste sources of biomass managed at our facilities, including the biogenic portion of municipal solid waste and forestry and agricultural residues."

This disclosure is misleading because it fails to reveal that the SAB concluded that "For logging residues and other feedstocks that decay over longer periods, decomposition cannot be assumed to be instantaneous and the Framework could be modified to incorporate the time path of decay of these residues if they are not used for bioenergy."[114]

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[113] Covanta Corporate Sustainability Report 2010-2011, page 11. (http://www.covantaenergy.com/pdf/Covanta_2012_CSR.pdf).

[114] United States Environmental Protection Agency. SAB review of EPA's Accounting Framework for Biogenic CO_2 Emissions From Stationary Sources. EPA-SAB-12-011. September 28, 2012. Washington, DC. (http://yosemite.epa.gov/sab/SABPRODUCT.NSF/57B7A4F1987D7F7385257A87007977F6/$File/EPA-SAB-12-011-unsigned.pdf).

Covanta's disclosure also omits what we believe is likely to prove the most impactful finding of the SAB: that bioenergy sources can not be considered *a priori* carbon neutral, which means that review of the particular materials and sources, as well as offset strategies, would be necessary to determine net carbon impacts.

Covanta discloses that its "business and future prospects could be adversely affected if renewable technologies we use were not included among those technologies identified in any final law as being clean or renewable or greenhouse gas reducing," but the Company does not disclose to investors the growing body of scientific literature documenting the large greenhouse gas impacts of bioenergy.

The Company includes this closing statement on regulatory issues affecting bioenergy:

> "We cannot predict at this time the potential impact to our business of the EPA's regulatory initiatives under the CAA, or whether EPA's regulation will be impacted or superseded by any future climate change legislation. "

Importantly, this 2012 10-K was filed February 15, 2013, but there is no disclosure in this or any preceding filing of the *Center for Biological Diversity* case that challenged EPA's deferral, which was filed in 2011. The case was decided in July 2013, but as of September 18, 2013 Covanta still had never disclosed this case and the Court's finding that EPA's deferral was not legal.

b) Other disclosures

Covanta's biopower facilities already appear to be struggling financially due to relatively low natural gas prices driving down electricity prices. The Company notes in its 2013 10-K that "electricity and steam sales decreased in 2012 due to lower pricing and lower energy revenue related to our biomass facilities,"[115] and according to the Covanta website,[116] three of Covanta's eight biomass power plants are currently offline.

Covanta's two 27 MW biomass plants in Maine will no longer qualify for renewable energy credits in Massachusetts

The somewhat marginal nature of the bioenergy industry makes it relatively dependent on subsidies, and Covanta's comment letters to regulatory dockets demonstrate that the company is aware of the potential financial risks from regulation. When Massachusetts invited comment on proposed regulations that would eliminate renewable energy subsidies for low-efficiency biomass power plants in that state, Covanta submitted multiple comments to regulators arguing for exclusion of existing plants from the regulations. In one letter to the Massachusetts regulators they noted that such regulatory changes could result in major facility investments having been "made in vain."[117]

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[115] Covanta 2012 10-K, page 46.

[116] See Covanta website, (http://www.covantaenergy.com/en/what-we-do/our-services/other-renewable-energy.aspx).

[117] Letter from Paula Soos, Vice President of Government Relations for Covanta, to the Massachusetts Department of Environmental Resources Commissioner, "Comments on DOER Biomass RPS Rulemaking Process," August

Because of the regional nature of the energy market, companies often sell power and obtain renewable energy credits (RECs) in multiple states. Covanta's Jonesboro (ME) plant is qualified to receive Class I RECs in Maine, and both the Jonesboro and West Enfield (ME) facilities are qualified to receive Class II RECs in Connecticut, and Class I RECs in Massachusetts. Of these subsidies, the Massachusetts Class I RECs are by far the most lucrative. Nonetheless, following enactment of the Massachusetts regulations, the company has made no disclosure that beginning in 2016, Covanta's two 27 MW plants in Maine will no longer be eligible to receive RECs in Massachusetts, as both plants fail to meet that state's new requirement that biomass facilities be 50% efficient to obtain one-half REC per megawatt-hour. Far from disclosing this, as of November 2013, Covanta's website still stated that its Jonesboro facility in Maine "qualifies for Massachusetts Class I renewable energy certificates."

c) Summary of Covanta's disclosures

Covanta has disclosed that EPA exempted biogenic CO_2 from regulation, and that the exemption would end in three years. However, the disclosure misrepresents the conclusions of EPA's SAB regarding the carbon neutrality of forestry residues, making statements which could be read to imply that the SAB "signed off" on these fuels when this is not the case. Covanta has not disclosed the significant Court decision finding that EPA can not exempt biogenic CO_2 from regulation under the Clean Air Act. Finally, despite having commented in opposition to the Massachusetts bioenergy regulations that are poised to take subsidies away from Covanta's two wood-burning plants in Maine, Covanta has not disclosed the existence of these regulations nor revealed the impending loss of these subsidies.

3. Associated Potential Material Harms

a) Financial Impacts

Even before Massachusetts enacted its new bioenergy regulations, Covanta had already been materially affected by policy changes that reduce subsidies for biopower. The Company's Jonesboro plant in Maine was acquired in 2008 but was switched from full-time operation to dispatch-only operation in 2010, partially in response to the cessation of fuel payments from the Biomass Crop Assistance Program, a federal financial incentive that produced matching payments for biomass fuel, including wood chips and bark.[118]

The loss of Massachusetts RECs may have an impact on the Company. The value of RECs fluctuates over time, but at 2012 prices of around $63 per megawatt-hour for Massachusetts Class I RECs,[119] Covanta's two Maine biomass plants would have the potential for generating over $25 million per year in RECs at close to full-time operation. Actual operation of the two Maine plants appears to have been at about 32% of capacity in 2012,[120] thus REC revenues may

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12, 2010.

[118] The Biomass Crop Assistance Program (BCAP) is a Farm Bill program. One component of the program, now ended, matched payments of up to $45/dry ton or $22.50/green ton for wood used as boiler fuel. See Lora Whelan, "Jobs and biomass market lost with Jonesboro plant cutback", *The Quoddy Tides*, Vol. 42, No. 21, October 8, 2010, (http://quoddytides.com/jonesboro10-8-10.html).

[119] Skystream REC price report from 4/15/2013 shows 2012 Massachusetts Class I RECs at $63.40/MWh.

[120] Energy Information Administration. EIA-923 monthly generation and fuel consumption time series file, 2012

have been around $9.6 million that year, a significant portion of the $61 million[121] in total revenues from biopower holdings in Covanta's Americas Segment in 2012. Qualification of Covanta's facilities for Connecticut Class II RECs will not make up for this loss in revenue, as these RECs are worth less than 1 percent of what Massachusetts Class I RECs are worth. Federal policy changes, including the reversal of EPA's deferral for biogenic CO_2 from PSD applicability, may also affect the profitability of Covanta's wood-burning facilities. Regulation of biogenic CO_2 would mean that new facilities and existing facilities undergoing major modifications that would significantly increase emissions of CO_2 will have to go through PSD permitting, entailing significant time and cost investments.

b) Reputational Damage

Covanta's stated goal is to "grow so that it can expand its positive impact on the environment and deliver benefits to shareholders, employees, and the communities where it operates."[122] The company's business model is based on its image as an environmentally responsible, innovative company that is primarily focused on waste disposal and energy recovery. In the opening words of a message to the company's shareholders, Covanta emphasizes in its most recent corporate sustainability report that it is looking for "opportunities to become an even more sustainable company." In the same report, Covanta states that its Clean World Initiative (CWI) "represents a continuing investment in our future that enhances stockholder value by making our business more sustainable; economically, environmentally, and socially."[123] Covanta's wood-burning biomass facilities are presented as another "sustainable"[124] method of generating energy from waste materials.

As public awareness of CO_2 emissions from bioenergy becomes more widespread, and as new regulations compel companies to acknowledge and mitigate emissions of CO_2 and other pollutants from bioenergy, this could damage Covanta's quest for a reputation built on producing "clean," "sustainable," and "carbon neutral" power from biomass.

V. OUR REQUESTS TO THE SEC

A. Evaluate Bioenergy Disclosures Regarding Climate Change and Environmental Impacts

We request that the Commission evaluate the disclosures of Covanta, Dominion, Southern Company and other publicly traded companies investing in bioenergy, to ensure that their disclosures on environmental impact and on regulation of greenhouse gas emissions sufficiently inform investors of related risks and trends.

The SEC should evaluate the materiality of the omissions based on the existing legal standards

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early release. Net generation at the two facilities in 2012 was 152,940 megawatt-hours.

[121] Covanta 2012 10-K, page 43.

[122] Covanta Corporate Sustainability Report 2010-2011, page 7.

[123] *Id*. at page 3.

[124] *Id*. at pages 11, 25.

set forth in *TSC Industries Inc. v. Northway, Inc.* [125] which states that an item is material if there is "a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the 'total mix' of information available." We believe that many of the issues raised in this analysis could well rise to that level.

The obligation to disclose exists even when there is uncertainty about the ultimate impacts of emerging scientific information. The Supreme Court decision in *Matrixx Initiatives, Inc. v. Siracusano*[126] No. 09-1156 (U.S. March 22, 2011) demonstrated that whether or not a particular set of facts rises to the level of materiality that necessitates disclosure requires review of the source, content, and context.

We believe that the source, content and context of information on the following issues merits close examination by the SEC:

- Specific risks to biomass power investments arising from the vacatur of EPA's deferral of biogenic CO_2 emissions by U.S. Court of Appeals for the DC Circuit in July 2013, and EPA's pending regulation of biogenic CO_2, including the potential for PSD regulation to materially affect the companies operationally and financially including the costs of compliance for permitting of biomass power facilities. The SEC should consider and inquire for each of the companies, whether resumption of regulation of biogenic CO_2 under the Clean Air Act could impose new permitting and operational requirements for existing or new biomass facilities;

- Specific risks to biomass power investments from existing or pending climate change-related legislation or regulation, arising as a result of scientific findings adverse to bioenergy as a technology that mitigates CO_2 emissions, such as the loss of subsidies and special tax treatment, loss of preferential treatment and permitting exemptions;

- The risk of decreased consumer demand for biomass power in renewable energy portfolios due to increasing concern about greenhouse gas emissions and conventional pollutant emissions, as well as competition from true low-emission renewable energy options such as wind and solar power;

- Risks arising from reputational damage related to climate change, such as possible negative public reaction to data on companies' bioenergy greenhouse gas emissions;

- Risks arising from the dependence of biomass power plant profitability upon federal and state subsidies and tax credits that are limited in duration and in some cases are dependent on the treatment of bioenergy as carbon neutral.

We further request that the Commission direct the companies named in this letter to immediately stop making any materially misleading statements about "clean" biomass, bioenergy as a means

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[125] TSC Industries, Inc v Northway, Inc, 426 US 438, 449 (1976).
[126] *Matrixx Initiatives, Inc. v. Siracusano*, 563 US ____ (2011).

of mitigating climate warming, and other unqualified statements about bioenergy carbon neutrality. To make these disclosures not misleading, companies should disclose additional information including:

- That per unit of power generated, biomass power plants emit more CO_2 on a day-to-day basis than fossil-fueled plants, and may also emit substantial quantities of other air pollutants;

- That addition of bioenergy assets therefore generally increases company-wide greenhouse gas emissions;

- That carbon neutrality at wood-burning power plants, if at all achievable, is shown by current science to require decades to more than a century to realize;

- That claims for bioenergy carbon neutrality rely on the assumption that forests not owned or managed by the companies themselves will continue to exhibit net growth and offset emissions;

- That policymakers are likely to consider such issues in assessing subsidies and tax relief, regulatory deferrals and exemptions, and favorable treatment of biomass energy operations.

B. Establish Carbon Accounting Principles Relevant to SEC Filings

The 2010 Commission guidance on climate disclosures touched upon some of the issues that may be involved in accounting for costs and offsets related to carbon. However, the guidance did not provide specificity, for instance regarding what level of substantiation of carbon offsets is needed for a company to refer to its biomass-based energy facilities as "carbon neutral" or as an effective climate mitigation measure.

As detailed in this letter, claims of carbon neutrality often rest on the presumption that burning waste wood is not a net source of CO_2 over timeframe of years to decades, and the idea that bioenergy stack emissions are offset by eventual regrowth of forests and the restoration and maintenance of their carbon sequestration capacity. If these events occur at all, they will occur in future decades. The effectiveness of the promised offsets are neither guaranteed nor substantiated. For example, companies that do not own or control the land where their biomass fuel was sourced, or any other forest resources, cannot guarantee that trees will be replanted, or that regrowth will occur at a rate adequate to offset emissions.

This is obviously an issue of prime interest to environmental and energy policymakers. Without any demonstration that carbon offsets are actually occurring at the appropriate rate, the asserted carbon neutrality of biomass power may yet prove to be a carbon Ponzi scheme which will eventually collapse, harming the environment. Investors are also at risk, because the companies stand to lose materially important subsidies and regulatory exemptions.

We urge the Commission to provide guidance on appropriate disclosures in this context, and to

foster the development of accounting principles that will help ensure sufficient investor protection in this marketplace. Such clarifications can be made through an additional Commission guidance, staff bulletins, or correspondence with the relevant companies.

VI. CONCLUSION

Three of the leading companies with biopower holdings, Covanta, Dominion and Southern Company, are not disclosing adequate information related to risks of their biomass operations and investments – information that we believe a reasonable investor would want to know when making decisions about buying or selling securities.

It is vital that energy companies make complete disclosure available to investors on climate change-related risks associated with biomass power, both to help individual investors make informed decisions, and to help institutional investors fulfill their fiduciary duties to examine how effectively companies are managing environmental risks.

With persistent attention and enforcement by the Commission and its staff, the Climate Guidance has great potential to ensure that companies with biomass energy holdings meet their disclosure obligations under federal securities laws and regulations.

VII. APPENDIX: LEGAL STANDARD FOR DISCLOSURE OF INFORMATION TO INVESTORS

A. Key Disclosure Requirements

The Securities Exchange Act ("the Act") requires publicly traded companies registered with the Commission to disclose certain information to assist investors in making informed investment decisions. Regulation S-K, in particular, requires various qualitative and quantitative disclosures that are relevant to biomass energy and its environmental impacts.

Item 101, governing the company's general description of business operations, requires disclosure of the material effects that complying with federal, state, and local environmental provisions may have upon the capital expenditures, earnings, and competitive position of the registrant and its subsidiaries. The company is required to disclose any "material estimated capital expenditures for environmental control facilities for the remainder of its current fiscal year and its succeeding fiscal year and for such further periods as the registrant may deem material."

Item 103, governing the disclosure of legal proceedings, requires a company to disclose material environmentally-related administrative or judicial proceedings. The SEC provides two specific materiality thresholds which require disclosure if the proceeding involves a claim, sanction or expenditure that exceeds 10% of current assets, or if the proceeding involves a governmental authority seeking potential sanctions over $100,000.

Item 303, governing disclosure in the Management Discussion and Analysis section of a

financial report, requires a registrant to disclose "where a trend, demand, commitment, event or uncertainty is both presently known to management and reasonably likely to have material effects on the registrant's financial condition or results of operation." Such trends can include environmental issues such as impending environmental regulation.

Companies' environmental disclosures are also subject to the anti-fraud provisions of SEC Rule 10b-5, which prohibits a company from making false or misleading statements in SEC filings. The Rule also prohibits a company from under-reporting or omitting information that a reasonable investor would likely consider material given the total amount of information available to the investor.

Where a Company has published information which is later materially affected by subsequent events, it must publish a Form 8-K, updating that information.

In addition to information expressly required by Commission regulations, Securities Act Rule 408 and Exchange Act Rule 12b-20 require a registrant to disclose in registration statements "such further material information, if any, as may be necessary to make the required statements, in light of the circumstances under which they are made, not misleading."[127] The "further material information" should include "known trends, events, demands, commitments and uncertainties that are reasonably likely to have a material effect on financial condition or operating performance," or cause the reported financial information to be non-indicative of future operating performance or financial condition.[128]

B. Materiality

Many registrants and auditors use as a rule of thumb a quantitative definition that defines as material any data with financial impact exceeding 5%-10% of net income. Although the 5% threshold is widely used, the SEC points out that this materiality definition has no basis in accounting literature or law.[52] On the contrary, under the SEC's pronouncement on materiality, Staff Accounting Bulletin 99 (SAB 99) clarified that qualitative information can be material, and that "exclusive reliance on certain quantitative benchmarks to assess materiality in preparing financial statements and performing audits of those financial statements is inappropriate; misstatements are not immaterial simply because they fall beneath a numerical threshold." The Bulletin provided several cases in which disclosures that fall beneath the 5% threshold can in fact be material, such as when the disclosure refers to a company's regulatory compliance, or if it relates to an important portion of the registrant's business operations. Both of these criteria are relevant to bioenergy, and to the companies we evaluated in this analysis.

The Financial Accounting Standards Board provided another definition of materiality in its Statement of Financial Accounting Concepts No. 2 (FAS 2), which takes a relatively expansive view. The FAS 2 states that a disclosure should be made if its omission or correction would probably change or influence "the judgment of a reasonable person relying upon the report."

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[127] 17 CFR 230.408 and 17 CFR 240.12-b.20.
[128] Release No. 33-8350 (December 19, 2003) [68 FR 75055] (the "2003 Release").

In 1976, the Supreme Court, in *TSC Industries Inc. v. Northway, Inc.* [129] mirrored the FAS 2's definition by concluding that a disclosure is material if there is "a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the 'total mix' of information available." In addition, the Court maintained that a disclosure is material if "there is a substantial likelihood that a reasonable shareholder would consider it important in deciding how to vote."[57] In *Basic, Inc. v. Levinson*, the Court concluded that materiality must be based on "delicate assessments of the inferences a 'reasonable shareholder' would draw from a given set of facts and the significance of those inferences to him."[130]

The obligation to disclose exists even when there is uncertainty about ultimate significance of emerging scientific information. The Supreme Court decision in Matrixx Initiatives, Inc. v. Siracusano[131] No. 09-1156 (U.S. March 22, 2011) demonstrated that there is an obligation under the federal securities laws to reveal details of the observed side effects of a drug to investors even though the information did not rise to the level of statistically significant data. Matrixx sought a "bright-line rule that reports of adverse events associated with a pharmaceutical company's products cannot be material absent a sufficient number of such reports to establish a statistically significant risk that the product is in fact causing the events." Without such scientific reliability, Matrixx argued, any adverse event reports would be merely anecdotal. But the Supreme Court ruled that such a "categorical rule would 'artificially exclude' information that 'would otherwise be considered significant to the trading decision of a reasonable investor.'… "not to say that statistical significance (or the lack thereof) is irrelevant—only that it is not dispositive of every case." The determination of whether or not a particular set of facts rises to the level of materiality that necessitates disclosure requires review of the source, content, and context.

C. Presumption in favor of disclosure

The Securities Laws have a goal of ensuring that information known to the management of a company is made available to investors through mandatory corporate financial reporting. Scientific information adverse to a company's position in regulatory and subsidy-seeking settings presents a classic example of the need for such regulated corporate disclosure, because the amount of "inside" information on these issues available to corporate managers is much greater than that available to "outside" investors.

The energy companies have demonstrated knowledge of the scientific debates concerning bioenergy emissions by participating in them in regulatory forms as shown in this report. Emerging scientific findings casting doubt upon effectiveness of bioenergy as a climate solution seems to be "material" information, i.e., information that might affect investors' decision to buy or sell a stock.

Although disclosures are affected by management interpretation, the SEC has established a

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[129] TSC Industries, Inc v Northway, Inc, 426 US 438, 449 (1976).
[130] Basic Inc. v Levinson, 485 US 224 (1988).
[131] *Matrixx Initiatives, Inc. v. Siracusano*, 563 US ____ (2011).

presumption in favor of disclosure. According to a Commission Statement issued January 2002,[132] a matter should be disclosed in the management's discussion and analysis (MD&A) of an annual report, unless the management has concluded that such item cannot reasonably impose a material impact on the company:

> "Two assessments management must make where a trend, demand, commitment, event or uncertainty is known:
>
> 1. Is the known trend, demand, commitment, event or uncertainty likely to come to fruition? If management determines that it is not reasonably likely to occur, no disclosure is required.
> 2. If management cannot make that determination, it must evaluate objectively the consequences of the known trend, demand, commitment, event or uncertainty, on the assumption that it will come to fruition. Disclosure is then required unless management determines that a material effect on the registrant's financial condition or results of operations is not reasonably likely to occur."[133]

It seems unlikely at this point that the management of energy companies is in a position to have determined that the issues being raised regarding bioenergy's effectiveness for climate warming mitigation are unlikely to affect financial and operational considerations. Quite to the contrary, the evidence presented shows that these issues are squarely facing this industry.

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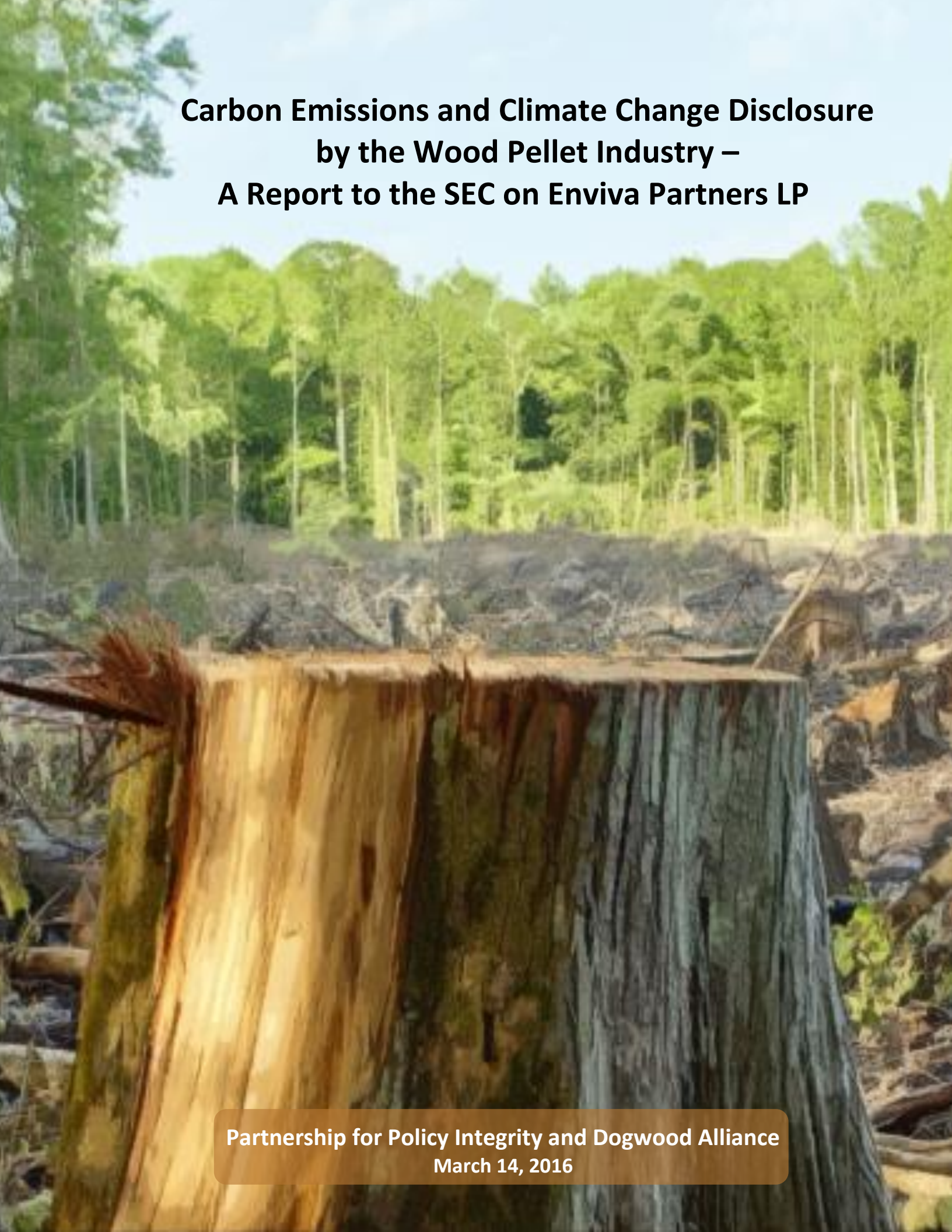
[132] Securities and Exchange Commission,"Commission Statement About Management's Discussion and Analysis of Financial Condition and Results of Operations," Release No. 33-8056 (Jan. 22, 2002) [67 FR 3746] at 3748, available online at http://www.sec.gov/rules/other/33-8056.htm.

[133] From the Securities and Exchange Commission: "Commission Statement About Management's Discussion and Analysis of Financial Condition and Results of Operations," Release No. 33-8056 (Jan. 22, 2002) [67 FR 3746] at 3748, available online at http://www.sec.gov/rules/other/33-8056.htm.

Carbon Emissions and Climate Change Disclosure by the Wood Pellet Industry – A Report to the SEC on Enviva Partners LP



Partnership for Policy Integrity and Dogwood Alliance

March 14, 2016

Carbon Emissions and Climate Change Disclosure by the Wood Pellet Industry – A Report to the SEC on Enviva Partners LP

Partnership for Policy Integrity and Dogwood Alliance
March 14, 2016

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I. Synopsis

The electric power sector is a massive source of climate-forcing carbon dioxide emissions. Accordingly, global efforts to mitigate climate change have focused on promoting and subsidizing zero-emissions renewable energy technologies like wind and solar energy to replace fossil fuels. However, many countries also subsidize wood-burning power plants as renewable energy generators, despite the fact that these facilities actually emit more carbon dioxide per megawatt-hour on a day-to-day basis than modern coal-burning plants. While the carbon intensity of biomass power would seem to stand in stark contrast with the need to reduce greenhouse gas emissions, support for bioenergy has persisted in Europe (EU) and the United Kingdom (UK) based in part on a poorly understood European carbon accounting convention that counts carbon losses from forest harvesting as a loss in land-based carbon, rather than as an emission from the power plants that burn wood as fuel. This convention has contributed to confusion about actual emissions from wood-burning power plants.

Generous subsidies for bioenergy offered in the EU and UK have driven several large-scale coal-to-wood power plant conversions, as well as development of new wood-burning power plants. These facilities burn millions of tons of wood per year, a large proportion of which is imported as wood pellets manufactured from forests of Canada and the United States. Lifecycle greenhouse gas impacts of wood pellets are significant, encompassing carbon emitted during wood harvesting, pellet manufacturing, product shipping, and finally, consumption as fuel.

In light of the global urgency of reducing GHG emissions, utilities, wood pellet manufacturing companies, and others benefiting financially from the promotion of bioenergy may be tempted to downplay carbon emissions associated with their product and exaggerate environmental or regulatory benefits in order to promote customer interest or investment. Thus, to investors and consumers concerned with climate change-related risks and opportunities, an understanding of the emissions and other environmental impacts of wood pellets as compared with non-combustion technologies like solar and wind energy could be material to decisions on where to invest. Inaccurate disclosures, and omissions of relevant information, could mislead investors and cause them to misdirect their investments.

Enviva Partners, LP

With six wood pellet-manufacturing plants in the Southeastern US, Enviva Partners, LP (New York Stock Exchange: EVA) is the biggest wood pellet manufacturer in the United States. Enviva primarily sells to overseas customers; to date, its biggest customer has been Drax, operator of the largest power plant in the UK. Initially operating as a privately held company, Enviva went public in April 2015 to fund its expansion and cover the costs of a recent acquisition of a large competitor in Florida. Enviva Partners LP had a market capitalization of $350 million as of October 27, 2015.

The Securities and Exchange Commission, New York Stock Exchange, and Federal Trade Commission require US companies to meet standards of disclosure and transparency and to avoid misleading communications to shareholders and consumers. We examined Enviva's prospectus and the registration statement the company filed in conjunction with its Initial Public Offering of April, 2015.

We also examined disclosure documents Enviva has filed with the SEC since then, including its October 14, 2015 “Business Overview,” as well as information posted on the Company’s website.
Our review identified misleading statements and omissions by Enviva about its emissions and environmental impacts. These fall into three categories:

1. Assertions that burning wood pellets reduces emissions compared to coal, without disclosure of the carbon accounting protocols upon which these assertions depend, including the non-inclusion of greenhouse gases emitted when the fuel is actually burned.
2. Inaccurate and misleading portrayals of current US and European policy developments, including incorrect statements that EPA does not currently regulate carbon emissions from wood-burning power plants.
3. Complex and self-contradicting discussions that in our opinion exaggerate the sustainability of feedstock sources and downplay the use of whole trees as pellet feedstock.

Throughout, the Company has made similar claims and assertions based on inaccurate, out-of-date or misleading information, and has failed to provide additional context needed to avoid misleading investors. In our opinion, the aggregate effect is to present a misleadingly optimistic view of environmental benefits and financial prospects for growth of the wood pellet industry.

The Securities and Exchange Commission issued a guideline in 2010 on disclosures related to climate change. In addition, the New York State Attorney General has recently brought attention to disclosure of environmental and climate related issues. We call for examination and oversight of wood pellet and other bioenergy industry claims by the Securities and Exchange Commission, the New York Stock Exchange and the New York State Attorney General. We ask that securities regulators examine, in particular, statements from companies that their products "reduce" carbon emissions, to ensure that such disclosures are accompanied by the clarification, where applicable, of carbon accounting protocols, including whether emissions from fuel combustion are excluded. In each instance, we request that the regulators assess whether the disclosures, such as they are, constitute materially misleading communications, whether each such communication involved an intent to mislead, and whether corrective or enforcement action is appropriate.

II. Executive Summary

Biomass power generation – the combustion of wood, agricultural residues, and other biological materials as fuel in electrical generating plants – has increased significantly in the EU and UK in recent years, driven by the eligibility of bioenergy to meet mandated renewable energy targets and generous renewable subsidies available for renewable technologies. However, emerging demand for biomass is too large to be met with local sources, thus power companies in the EU and UK import millions of tons of biomass each year, a large proportion as wood pellets from a new and fast-growing wood pellet industry in North America. The growth in international biomass supply and consumption has been controversial, however. Unlike wind and solar energy, burning biomass emits carbon dioxide, a major greenhouse gas, and in fact, burning wood and other biomass fuels actually increases the amount of carbon dioxide that a power plant emits per megawatt-hour of electricity generated, compared to burning coal or gas. Treatment of biomass power as a renewable energy technology worthy of subsidization has been based in part on a carbon-counting protocol in the EU and UK that ignores these stack emissions and the considerable time-lag that exists between emissions and their eventual offsetting through new forest growth, and the lack of any institutional or legal mechanism for determining whether forest regrowth is actually sufficient to offset emissions.

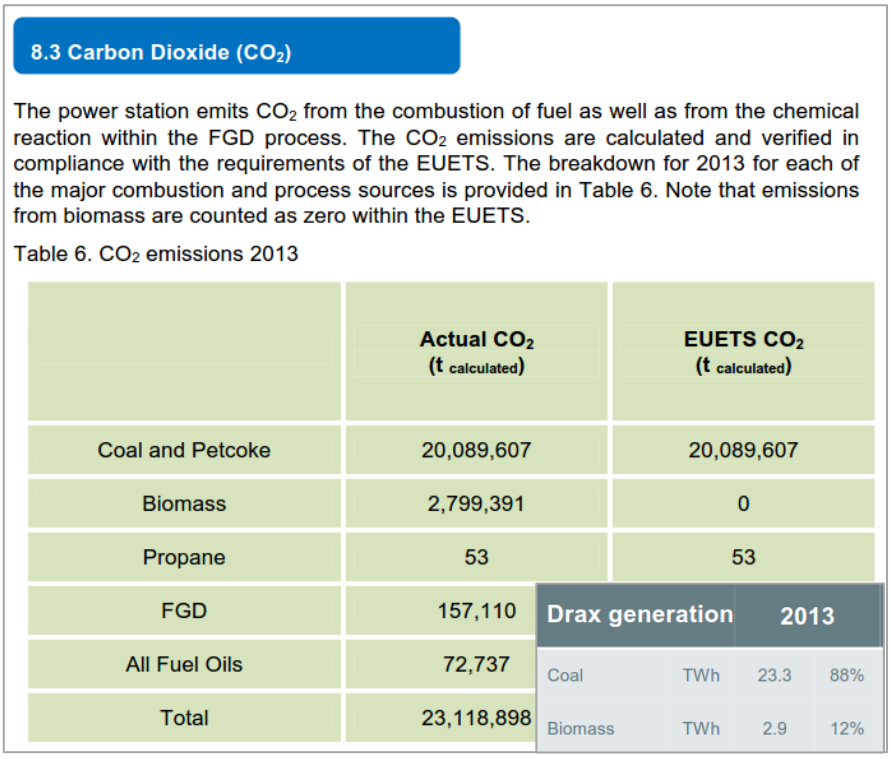
Figure ES-1. Picture from a Washington Post article,[1] showing an area where trees were harvested and sold to Enviva for pellet manufacture. The paper's caption reads, "*Little remains but stumps and puddles in what was once a bottomland hardwood forest on the banks of the Roanoke River in northeastern North Carolina. Many of the trees were turned into wood pellets for burning in power plants in Europe. Others were sold for high-value uses such as furniture." (Joby Warrick/The Washington Post).*

Further, the demand for biomass is growing rapidly, and already requires harvesting millions of tons of wood from forests each year. Impacts are being particularly noted in the Southeastern United States,

[1] Joby Warrick. How Europe's climate policies led to more U.S. trees being cut down. Washington Post, June 2, 2015. At https://www.washingtonpost.com/national/health-science/how-europes-climate-policies-have-led-to-more-trees-cut-down-in-the-us/2015/06/01/ab1a2d9e-060e-11e5-bc72-f3e16bf50bb6_story.html

where the wood pellet manufacturing industry harvests wood from both pine plantations and native lowland hardwood forests that are valued for their exceptional biodiversity and high carbon storage value (Figure ES-1).

With six pellet manufacturing facilities, the publically traded company Enviva Partners LP is the largest wood pellet manufacturing and exporting company in the United States. Enviva exports pellets to companies in the EU, the UK, and Asia; currently, an important customer for the Company's pellets is the Drax power plant in the UK, a 3,000 MW coal-burning facility that is converting part of its generation capacity to be fueled by wood. Enviva has made a variety of statements, both in filings to the Securities and Exchange Commission (SEC) and in public-facing materials from its website, that burning wood as fuel in power plants reduces carbon emissions compared to coal. However, data on use of the biomass as fuel at the Drax power station in UK demonstrates that per megawatt-hour, emissions are actually higher from burning wood than from burning coal (Figure ES-2).



8.3 Carbon Dioxide (CO_2)

The power station emits CO_2 from the combustion of fuel as well as from the chemical reaction within the FGD process. The CO_2 emissions are calculated and verified in compliance with the requirements of the EUETS. The breakdown for 2013 for each of the major combustion and process sources is provided in Table 6. Note that emissions from biomass are counted as zero within the EUETS.

Table 6. CO_2 emissions 2013

	Actual CO_2 (t calculated)	EUETS CO_2 (t calculated)
Coal and Petcoke	20,089,607	20,089,607
Biomass	2,799,391	0
Propane	53	53
FGD	157,110	
All Fuel Oils	72,737	
Total	23,118,898	

Drax generation		2013	
Coal	TWh	23.3	88%
Biomass	TWh	2.9	12%

Figure ES-2. Drax data on CO_2 emissions from burning fossil fuels and biomass in 2013. Inset shows electricity generated by coal and biomass. By combining these data sources, it is apparent that in 2013, the CO_2 emissions rate for coal at Drax was 1,901 lb/MWh ("pounds per megawatt-hour), while the emissions rate for biomass was higher, at 2,128 lb/MWh. See main text for details.

As a company doing business in the US, Enviva is subject to disclosure and transparency requirements of the Securities and Exchange Commission (SEC) and the Federal Trade Commission (FTC). The SEC's rules require companies to disclose certain information to investors, with a focus on "material" information where there is a "*substantial likelihood that a reasonable investor would consider it important in deciding how to vote or make an investment decision, or, put another way, if the information would alter the total mix of available information.*"[2] For companies engaging in marketing, the Federal Trade Commission labels a "*representation, omission, or practice*" as deceptive

[2] Securities and Exchange Commission. Commission Guidance Regarding Disclosure Related to Climate Change, 17 CFR Parts 211, 231 and 241 [Release Nos. 33-9106; 34-61469; FR-82]. Page 11.

"*if it is likely to mislead consumers acting reasonably under the circumstances and is material to consumers' decisions*." [3]

Given the substantial greenhouse gas emissions from burning wood as fuel, the subsidization of biomass energy as "renewable" alongside zero-emissions technologies like wind and solar has proved controversial. In some cases, where policymakers have understood and acknowledged the magnitude of bioenergy emissions and the uncertainty that emissions will eventually be offset, they have removed or restricted these subsidies, as for instance in Massachusetts, where low-efficiency wood-burning power plants no longer qualify for renewable energy credits under the state's Renewable Portfolio Standard (combined heat and power plants that meet an efficiency standard still qualify).

Given the potentially large greenhouse gas and forest impacts of Enviva's wood use, we evaluated the Company's filings with the SEC, as well as the Company's public statements, to determine whether Enviva is meeting FTC and SEC disclosure requirements, particularly those set forth in a 2010 SEC guidance on disclosure of climate change-related matters. Our evaluation found evidence that Enviva is misrepresenting actual emissions from burning wood pellets as fuel by widely representing their product as "reducing" carbon emissions compared to burning coal without providing necessary context for understanding the limitations of that claim.

Carbon Emissions Are Off the Books

Despite the physical reality that burning wood increases stack emissions of carbon dioxide relative to coal, Enviva repeatedly claims in its SEC filings and elsewhere that burning wood "reduces" emissions compared to coal. The claim exploits a policy loophole in the EU and UK that is increasingly recognized by scientists and policymakers as contributing to misinformation about the real impacts of burning wood. Because carbon accounting protocols under the United Nations Framework Convention on Climate Change (UNFCCC) count carbon losses from forest harvesting in the Agriculture, Forestry and Other Land Use (AFOLU) sector of countries where they occur, emissions from burning that wood as fuel are *not* reported in greenhouse gas accounting by EU member states, so as to avoid counting the emissions twice.[4]

The European Union has no unified rules for counting emissions from bioenergy, allowing member states to report as they see fit, and in the UK, the only bioenergy carbon dioxide emissions that are counted by the power sector are those from fossil fuels burned in the course of wood pellet manufacturing and transatlantic shipping. Thus, although renewable energy policy and incentives in the EU and UK have increased demand for wood and other biomass fuels by tens of millions of tons per year, in turn representing tens of millions of tons of carbon dioxide emitted when the wood is burned, if that wood comes from the US or some other country that does not report forest carbon losses under the Kyoto Protocol, the transfer of carbon from the forest to the atmosphere is effectively "off the books."

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[3] Federal Trade Commission. 16 CFR Part 260, Guides for the use of environmental marketing claims. At https://www.ftc.gov/sites/default/files/attachments/press-releases/ftc-issues-revised-green-guides/greenguides.pdf

[4] See pages 14 - 16 of main report for a more detailed explanation of carbon accounting for bioenergy.

Enviva does not explain that its claim of "reduced" emissions is based on this regulatory accounting loophole that *excludes the CO_2 coming out the smokestack* when wood fuel is burned. The portrayal of wood pellets as reducing power plant emissions is pervasive and unqualified, as for instance in Figure ES-3, from a "Business Overview" document furnished to investors in November 2015.

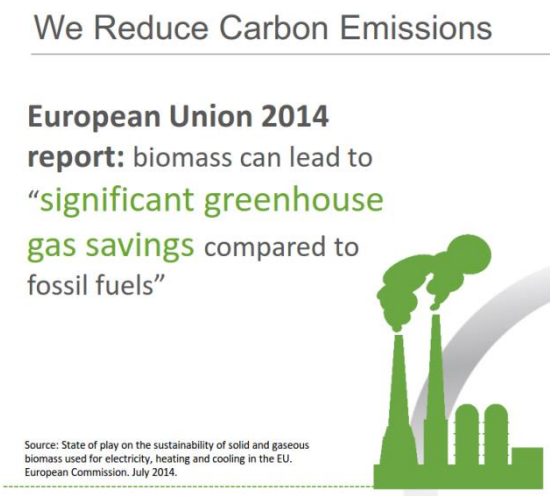

Figure ES-3. Graphic from November 2015 "Business Overview" Enviva filed at the SEC.

For public consumption, the Company's "Frequently Asked Questions" webpage[5] states:

> *"I have heard that burning wood pellets actually results in more carbon emissions than burning coal. Is that true?*
>
> *No. According to the UK Environment Agency, switching from coal to biomass reduces emissions of carbon dioxide by between 74 and 90% on a lifecycle basis.[1] Enviva consistently exceeds the Greenhouse Gas (GHG) reductions targeted by governments like the UK.[2] We know this because we track, internally audit, and are regularly assessed by stringent 3rd party audits of all GHG emissions associated with the harvest, transport, processing, and shipping of our products. We report these total lifecycle emissions on a regular basis."*

This is a misleading answer to the question, because the statement that "all" GHG emissions from harvest and "total" lifecycle emissions are counted would be interpreted by most people to include carbon in the wood that is removed from the land, which is oxidized to CO_2 when the wood is burned. However, the protocol to which the Company refers does *not* include the carbon that is contained in the wood, and the GHG emissions associated with "harvest" in the statement refer only to CO_2 produced from fossil fuels that are burned in the course of wood harvesting.

The SEC requires companies to disclose known material trends and risks in their filings, so that investors may evaluate the soundness of an investment. Environmental regulations are considered a risk for companies, sometimes involving costs of compliance. Enviva misrepresents the current status of US Environmental Protection Agency (EPA) regulation of biomass plant carbon dioxide in the US, downplaying the risk of regulation. In its risk disclosures to the SEC, Enviva states *"it is possible that in the future, US EPA or individual states may seek (or be required) to regulate carbon dioxide or other GHG emissions from biomass-fired power plants."*[6] However, in our opinion, the statement is misleading, because EPA already regulates these emissions, and has done so since 2014.[7]

[5] http://www.envivabiomass.com/faq-most-frequently-asked/#emissions Accessed October 19, 2015

[6] Prospectus page 30/39

[7] Section IV.A.3

Also in its risk disclosures, Enviva discusses the importance of renewable energy subsidies to the power companies in the UK that buy its pellets, but does not disclose that the UK government discussed, and then executed, a reduction in one of the subsidy programs upon which Drax, Enviva's main customer, depends. The reduction was accompanied by a statement from the UK government that emissions from biomass energy are likely too high to meet the government's decarbonization targets.[8]

Enviva is eager to develop a market for its wood pellets in the United States, and has made other statements regarding the regulatory environment and the Company's US prospects that could mislead investors. The Clean Power Plan (CPP) is the EPA's set of regulations for reducing carbon dioxide emissions from the power sector. While the EPA has left the door open to some types of bioenergy as compliance measures under the CPP, the EPA did not include biomass energy as part of its approach for the "best system of emission reduction" for reducing emissions under the Clean Power Plan, and during the rulemaking, the agency acknowledged that co-firing biomass with coal can degrade facility efficiency[9] and thus *increase* CO_2 emissions. However, Enviva's press release upon CPP finalization may give the impression that EPA selected biomass as a favored technology. Titled "Enviva "Applauds EPA on Release of the Clean Power Plan," it states

> *"Converting coal-fired plants to dedicated or co-fired biomass plants is one of the quickest and most cost-effective ways of achieving substantial reductions in emissions of carbon dioxide and other pollutants."*[10]

In our assessment, the statement is misleading because once again it does not acknowledge the physical reality that burning biomass in power plants actually *increases* day-to-day carbon dioxide emissions compared to coal.

Enviva's disclosures about the sources of wood it uses are also misleading in our opinion, because they downplay the harvesting of whole trees for pellet feedstock and the general impacts of forest harvesting. The Company obtains wood from a variety of sources, including sawmill residues and low-diameter tops and limbs left over after trees are cut for sawlogs ("forestry residues"). Data from Enviva show that 50% or more of the wood processed into pellets is from naturally regenerated hardwood stands (Figure ES-4), many of them located in wetlands.[11] Roundwood, rather than low-diameter forestry residues, is a major source of pellet feedstock (see Figure 4, main report).

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[8] Section IV.B.2.

[9] U.S. Environmental Protection Agency. Documentation for EPA Base Case v.5.13 Using the Integrated Planning Model. Page 5-9. http://www.epa.gov/powersectormodeling/docs/v513/Documentation.pdf

[10] Enviva press release, August 4, 2015. Available at http://www.reuters.com/article/2015/08/04/md-enviva-idUSnBw046040a+100+BSW20150804#ZoEcKWYkQswM6oxc.97.

[11] Enviva discusses wetland forest logging at http://www.envivabiomass.com/faq-forests-fiber-sourcing/#wetlands. The Dogwood Alliance has documented Enviva's logging in wetlands. Representative photos can be seen at http://www.dogwoodalliance.org/wp-content/uploads/2015/06/Wetlands-Logging-Investigation-Flyer.pdf

Species Information

Mill	Species Breakdown (hardwood vs. softwood)
Ahoskie	HW-78%, SW-22%
Amory	HW-48%, SW-52%
Monroe (Third-party supplier)	HW-82%, SW-18%
Northampton	HW-89%, SW-11%
Southampton	HW-100%
Wiggins	HW-43%; SW-57%

Figure ES-4. The balance of hardwood and softwood used at Eviva's pellet mills. [12]

However, Enviva's statements in its public materials and SEC filings more prominently describe the Company's feedstocks as coming from mill residues, forestry residues, and other sources of waste wood.[13] For instance, Enviva's prospectus, dated April 2015, states,

> *"Currently, our raw materials are byproducts of traditional timber harvesting, principally the tops and limbs of trees as well as other low-value wood materials that are generated in a harvest, and industrial residuals (chips, sawdust and other wood industry byproducts).[14]"*

A brochure from Enviva's website states that feedstock is from "underused" residues, and only mentions "low grade round timber" (i.e., trees) in passing:

> *PUTTING UNDERUSED RESOURCES TO GOOD USE*
> *Enviva produces wood pellets from both processed and unprocessed wood residues. Our processed wood raw materials include chips, bark, and sawdust by-products from wood processing facilities. Unprocessed residues include tree tops, branches, stumps, and other forestry debris remaining after the primary biomass (or the tree trunk) has been processed and shipped from the forest. These unprocessed residues would most likely otherwise go unused as a resource. Additional biomass sources currently include low-grade round timber.[15]*

The use of roundwood by the pellet industry competes directly with wood use by the domestic pulp and paper industry, which is increasingly alarmed about the sharp increase in wood harvesting by the pellet industry. Representative concerns, as set out in a presentation[16] given on behalf of the pulp and paper company MeadWestvaco, are that the pellet industry will create damage and dislocation in domestic wood markets, that available forest resources won't sustain the harvesting pressure, and that the vast majority of the fiber is coming from whole trees, not residuals. A recent report commissioned by the American Forest and Paper Association (AFPA) concludes that the UK's new "contracts for

[12] Enviva factsheet titled "Enviva Data for Trader EUTR Compliance," dated February 2015.

[13] Section IV.C.2

[14] Prospectus page 30/39

[15] At http://www.envivabiomass.com/wp-content/uploads/ITR-21177-WoodPelletsBrochureResize_v1a1.pdf

[16] Irene Kowalczyk, Director, Global Sourcing & Policy, MeadWestvaco. "Forest Resource Sustainability – Forest Products Industry Persective." Presentation given at the Kentucky Industrial Utility Customers conference, March 13, 2014. Available at http://kiucenergy.com/wp-content/uploads/2013/08/Kowakczyk_Presentation.pptx or http://www.pfpi.net/wp-content/uploads/2015/11/Kowalczyk_Presentation.pdf

difference" scheme, which gives renewable energy generators a guaranteed price for energy, will allow pellet producers to pay up to $53 per ton of wood fiber, far greater than the recent price of $11 per green ton paid by domestic pulp and paper makers.[17] Partially in response to these concerns, the EU recently announced an investigation into the next coal-to-wood conversion of a boiler at the Drax plant, stating that the conversion could "significantly distort competition in the biomass market."[18]

Enviva also states that all of its forestry operations are certified "on an ongoing basis for sustainability," potentially creating the impression that forests are protected during harvesting, when in fact this appears to refer only to "chain of custody" certifications that separate certified sustainably harvested wood from uncertified wood. As far as we are able to ascertain from the disclosures, the Company does not disclose what portion of its forests are *actually certified as sustainably harvested*. The complex disclosures on this issue may create the impression for investors and the public that forests utilized by Enviva are more protected during harvesting than they actually are.[19] In fact, there seem to be few limits on the intensive forestry practices that Enviva employs, which include clearcutting hardwood forests that have remained undisturbed for decades.

The renewability of using trees as fuel is hypothetically valid, since in theory, new trees can replace those cut for pellet feedstock. However, the theoretical renewability of a fuel should not be conflated with having low emissions, or no emissions. Smokestack emissions from burning biomass are greater per megawatt-hour than from coal, and lifecycle emissions associated with manufacturing and transporting wood pellets overseas increase greenhouse gas emissions further. It may be inconvenient for the Company that its product, "when used as directed," increases day to day carbon dioxide emissions, but given the importance of environmental concerns in promoting its business it is essential for the Company to avoid distortion of those benefits by omitting necessary context. While Enviva's customers in the EU and UK may capitalize on a loophole in carbon accounting policy that exempts smokestack emissions from burning wood, Enviva itself has an obligation under US law, including SEC and FTC rules, to include sufficient additional disclosures so that its publications do not materially exaggerate environmental benefits.

Altogether, Enviva has made a number of statements that are misleading, both in public documents and in filings to the SEC, and has failed to disclose other facts that would be of significant interest and concern to investors, especially investors focused on renewable energy and sustainable investments. Enviva's statements that their pellets "reduce" emissions compared to burning coal is misleading without an explanation of how this conclusion is based a European carbon accounting framework that does not count emissions from actually burning the pellets; prominent statements that the Company primarily relies on mill and forestry residues for feedstock are misleading given the less prominent mentions and evidence from the company that roundwood and whole trees play a major role as pellet

[17] RISI, 2015. An analysis of UK biomass power policy, US South pellet production and impacts on wood fiber markets. (Press release at http://afandpa.org/media/news/2015/11/18/new-research-shows-uk-wood-pellet-subsidies-distort-the-us-market-for-wood-fiber)

[18] European Commission - Press release: "State aid: Commission opens in-depth investigation into UK public support for Drax power plant." Brussels, 5 January 2016. At http://europa.eu/rapid/press-release_IP-16-2_en.htm.

[19] Section IV.C.3.

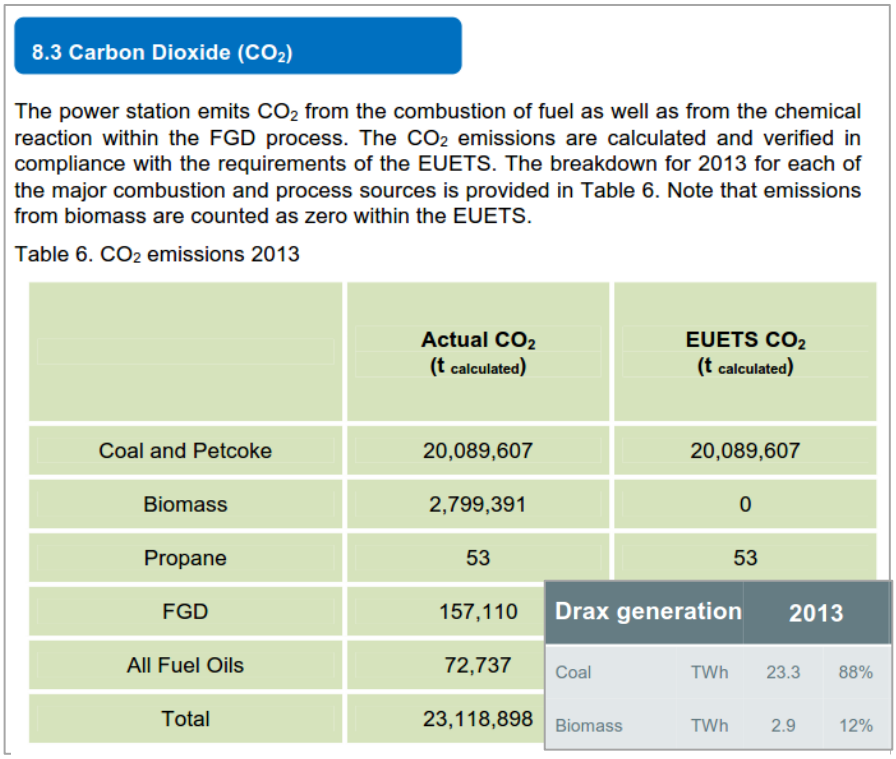
feedstock; statements that EPA does not currently regulate CO_2 from wood-burning power plants are demonstrably incorrect; and the failure to disclose its customer Drax's loss of subsidies is another omission. We urge the Federal Trade Commission, the Securities and Exchange Commission, the New York Stock Exchange, and the New York Attorney General to examine these failings in disclosure individually and in the aggregate. We ask that the officials of these entities assess whether the Company has presented a materially misleading portrait of its environmental and financial strengths, then take appropriate corrective and enforcement action, including requiring the Company to revise, supplement, update or correct existing disclosures.

III. Background

Subsidized as renewable energy alongside wind and solar, biomass electricity – burning wood and other plant materials as fuel in power plants – represents a growing industry in the European Union and the United Kingdom. Power companies are developing new wood burning power plants and converting coal plants to burn wood, making them eligible for renewable energy subsidies. However, European forests can't provide the millions of tons of fuel required by wood-burning facilities, so utilities are importing wood from other countries, including the United States. Shipping wood chips is inefficient, because wood is about half water by weight, thus to increase its value as fuel, wood is processed into pellets, which are manufactured by pulverizing, drying, and extruding wood through a die. In the U.S., wood use for pellet manufacturing was around 20 million tons in 2014, and is projected by Forisk, a forestry research consulting firm, to approximately double by 2018.[20]

With six operating wood pellet manufacturing facilities in the Southeastern U.S., Enviva is the largest pellet manufacturing and exporting company in the United States. To date, the most important customer for Enviva's pellets has been the 3,000 MW Drax coal plant in the UK, which has converted two of its six boilers from coal to wood, and are ramping up biomass use in a third unit with the goal of full conversion.

Enviva was a privately held company, but to fund expansion and reimburse the Company's recent acquisition of a large competitor in Florida, the Company went public in April 2015. To attract investment, Enviva needs to convince US shareholders and investors that its business model is solid – that it has an assured and growing market for its products in the EU and UK, and potentially in the United States. However, the Company is faced with a challenge when describing and promoting its product: The central premise upon which the wood pellet industry is based – that it is beneficial to the climate – is at odds with the physical reality that wood-burning power plants emit as much or more



8.3 Carbon Dioxide (CO_2)

The power station emits CO_2 from the combustion of fuel as well as from the chemical reaction within the FGD process. The CO_2 emissions are calculated and verified in compliance with the requirements of the EUETS. The breakdown for 2013 for each of the major combustion and process sources is provided in Table 6. Note that emissions from biomass are counted as zero within the EUETS.

Table 6. CO_2 emissions 2013

	Actual CO_2 (t calculated)	EUETS CO_2 (t calculated)
Coal and Petcoke	20,089,607	20,089,607
Biomass	2,799,391	0
Propane	53	53
FGD	157,110	
All Fuel Oils	72,737	
Total	23,118,898	

Drax generation		2013	
Coal	TWh	23.3	88%
Biomass	TWh	2.9	12%

Figure 1. Drax data on CO_2 emissions from burning fossil fuels and biomass in 2013. Inset shows electricity generated by coal and biomass. Per megawatt-hour, emissions from biomass exceed those from coal (see text).

[20] Forisk Consulting. Wood Bioenergy US report, Q4 2015.

carbon dioxide per megawatt-hour as coal burning units.

Data from Drax itself show the magnitude of wood use and emissions. In 2013, the facility burned about 1.6 million metric tonnes of pellets, emitting almost 2.8 million metric tonnes of carbon dioxide (Figure 1).[21] By combining emissions data with data on electricity generation provided in Drax's "biomass supply" document,[22] it is apparent that in 2013, the average CO_2 emissions rate for coal at Drax was 1,901 lb/MWh (pounds per megawatt-hour), while the averaged emissions rate for wood was higher, at 2,128 lb/MWh.[23] Drax increased its wood use significantly in 2014, burning over 4 million metric tonnes of pellets[24] that represented more than twice as many tonnes of raw wood prior to processing and drying.[25]

Since the goal of generating renewable energy is to reduce carbon emissions and mitigate climate change, why would the UK subsidize companies like Drax to convert to burning wood, if burning wood emits more carbon dioxide than burning coal?

A key factor is a provision of EU carbon policy that treats combustion of the actual wood fuel as if it emits zero carbon dioxide[26] (as referenced in the Drax table of emissions at Figure 1, which states, "*emissions from biomass are counted as zero*" under European Union Emissions Trading System (EUETS) rules). The only CO_2 counted is that from fossil fuels that are burned in the course of manufacturing and transporting biomass fuels.

A 2014 report from the UK's Department of Energy and Climate Change (DECC) describes the emissions loophole ("LCA" stands for Life Cycle Accounting):

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[21] Drax Annual Review of Environmental Perfomance, 2013. At http://www.drax.com/media/56551/Environmental-Performance-Review-2013.pdf

[22] Drax's biomass supply report for 2013 and 2014 is located at http://www.drax.com/media/56583/biomass-supply-report-2014.pdf

[23] **Emission rate for coal:**

- 20,089,607 metric tonnes CO_2 x 1.10231 English tons/tonne x 2000 lb/English ton = 44,289,949,384.34 lb CO_2
- Divided by 23.3 TWh x 1,000,000 MWh/TWh = 23,300,000 MWh
- 44,289,949,384.34 lb CO_2 ÷ 23,300,000 = **1,900.86 lb/MWh**

Emission rate for biomass

- 2,799,391 metric tonnes CO_2 x 1.10231 English tons/tonne x 2000 lb/English ton = 6,171,593,386.42 lb CO_2
- Divided by 2.9 TWh x 1,000,000 MWh/TWh = 2,900,000 MWh
- 6,171,593,386.42 lb CO_2 ÷ 2,900,000 = **2,128.14 lb/MWh**

[24] http://www.drax.com/media/56583/biomass-supply-report-2014.pdf

[25] Industry estimates for the amount of roundwood required to make one ton of pellets range from 2 to around 2.24 tons. This estimate does not account for the mass of tops and limbs of trees harvested for pellet manufacturing, which are not useful as feedstock but are burned for energy at the pellet manufacturing plant.

[26] As noted in a report by the Institute for Energy and Transport of the European Commission, "*In the current European energy policy framework, biogenic CO2 emissions from combustion of forest biomass used for energy and transport purposes are set to zero*." EU policies do hold companies burning biomass as responsible emissions from manufacturing and transporting wood fuel, because these emissions are not counted elsewhere under national-level policies. (Agostini, et al. 2013. Carbon accounting for bioenergy. Joint Research Centre, Institute for Energy and Transport, European Commission, Luxembourg.)

"The Renewable Energy Directive LCA methodology considers the emissions from the cultivation, harvesting, processing and transport of the biomass feedstocks. It also includes direct land use change where the land use has changed category since 2008, e.g. from forest to annual crop land, grassland to annual crop land. However, the Renewable Energy Directive LCA methodology ***does not account for changes in the carbon stock of a forest, foregone carbon sequestration of land****, or indirect impacts on carbon stocks in other areas of land."* [27]

The "carbon stock" in the above quote refers to the carbon in soil, trees, and other vegetation. All other things being equal, the carbon that is removed from the land as wood is equivalent to the carbon going up the stack (as carbon dioxide) when wood is burned in power plants. "Foregone carbon sequestration of land" is shorthand for saying that if trees were not cut for fuel, but instead were allowed to keep growing, they would continue taking carbon dioxide out of the atmosphere (thus reducing atmospheric carbon dioxide concentration). In summary, the LCA protocol does not represent "total" lifecycle accounting, because it does not include the largest source of carbon emissions associated with biomass fuel – the carbon dioxide emitted when wood is burned.[28]

The DECC report goes on to state that full lifecycle accounting is required to determine the GHG impacts of bioenergy:

"If the carbon stored in a forest reduces, carbon dioxide (CO2) is released to the atmosphere, whereas if the carbon stock of a forest increases, CO2 is removed from the atmosphere and sequestered as biomass in the forest…. Recent reports have shown that the ***above factors omitted in the Renewable Energy Directive LCA methodology can have significant impacts on the total GHG intensities of some types of bioenergy feedstocks, and therefore need to be considered if we wish to understand the true GHG intensities of different bioenergy feedstocks and technologies****."*

Similarly, a report from the European Commission's Institute for Energy and Transport notes[29] that the failure of EU and UK emissions accounting to include changes in forest carbon means policies promoting bioenergy may not reduce emissions in a timely way, especially when trees ("stemwood") are harvested for fuel:

"in order to assess the climate change mitigation potential of forest bioenergy pathways, the ***assumption of biogenic carbon neutrality is not valid under policy relevant time horizons*** *(in particular for dedicated harvest of stemwood for bioenergy only) if carbon stock changes in the forest are not accounted for."*

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[27] Stephenson, A.L., and MacKay, D.J.C. 2014. Scenarios for assessing the greenhouse gas impacts and energy input requirements of using North American woody biomass for electricity generation in the UK. Department of Energy & Climate Change, London, UK. At https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/349024/BEAC_Report_290814.pdf.

[28] The exception is that CO_2 emissions from burning biomass are counted toward a country's total emissions as reported under UNFCCC rules if fuel is obtained from areas in that same country where there is land-use conversion, as for instance if a forest is replaced by agriculture.

[29] Agostini, A., et al. 2013. Carbon accounting of forest bioenergy. Institute for Energy and Transport, European Commission. At http://iet.jrc.ec.europa.eu/bf-ca/sites/bf-ca/files/files/documents/eur25354en_online-final.pdf

The origin of the loophole that excludes bioenergy stack emissions was benign. Countries report national greenhouse gas emission totals under carbon accounting protocols of the United Nations Framework Convention on Climate Change (UNFCCC), a record-keeping mechanism that has no enforcement consequences. The UNFCCC protocol counts carbon impacts of forest harvesting in each country's Agriculture, Forestry and Other Land Use (AFOLU) sector, thus to avoid counting carbon impacts twice, carbon emitted from wood burned in power plants is *not* counted. However, this convention of not counting stack emissions was also incorporated into the EU rules governing power sector carbon accounting for renewable energy and emissions trading set up under the Kyoto Accord. In the UK, the only biomass-related carbon dioxide emissions that are officially counted are those from fossil fuels burned during biomass fuel manufacturing and transport – emissions from burning the wood itself are not counted. Thus, even as renewable energy policy and incentives in the EU and UK are increasing demand for imported wood fuel by millions of tons per year, if that wood fuel comes from the US or Canada, neither of which is party to Kyoto, the transfer of carbon from the forest to the atmosphere is effectively "off the books," recorded neither as a loss in carbon from forest harvesting in the home country, nor as stack emissions in the country where the fuel is burned.

The contradiction between the physical reality that burning biomass emits as much or more CO_2 as burning fossil fuels, and the EU's policy of not counting emissions from biomass combustion, may induce wood pellet manufacturers to avoid discussing emissions, or even to actively state that burning wood *reduces* carbon emissions without adding the needed qualification that this reflects an accounting convention rather than physical reality. For instance, Enviva has advertised its wood pellets in the United States as a way to reduce emissions, claiming in a recent press release that

> *"Converting coal-fired plants to dedicated or co-fired biomass plants is one of the quickest and most cost-effective ways of achieving substantial reductions in emissions of carbon dioxide and other pollutants."*[30]

As a publicly traded company doing business in the United States, Enviva is subject to disclosure and transparency rules set by the Federal Trade Commission (FTC) and the Securities and Exchange Commission (SEC). In particular, the SEC's rules require publically traded companies to disclose additional information to investors where necessary to avoid materially misleading them.[31] The definition of "material" information is where there is a "*substantial likelihood that a reasonable investor would consider it important in deciding how to vote or make an investment decision, or, put another way, if the information would alter the total mix of available information."*[32] (For a more detailed discussion of the SEC's requirements for Initial Public Offerings, please see the Appendix).

Among the SEC's required disclosures are environmental matters, such as the cost of complying with environmental rules. In 2010, the SEC issued new guidelines to assist companies in disclosing matters relating to climate change. These guidelines highlight the need for disclosure on direct risks arising

[30] Enviva press release, August 4, 2015. Available at http://www.reuters.com/article/2015/08/04/md-enviva-idUSnBw046040a+100+BSW20150804#ZoEcKWYkQswM6oxc.97.

[31] SEC Rule 10b-5, 17 C.F.R. 240.10b-5.

[32] Securities and Exchange Commission. Commission Guidance Regarding Disclosure Related to Climate Change, 17 CFR Parts 211, 231 and 241 [Release Nos. 33-9106; 34-61469; FR-82]. Page 11.

from existing or pending climate change-related legislation or regulation in the US or internationally; indirect risks such as the potential for decreased consumer demand; and reputational risks.

The guidance states

> *"Disclosure decisions concerning trends, demands, commitments, events, and uncertainties generally should involve the:*
> - *consideration of financial, operational and other information known to the registrant;*
> - *identification, based on this information, of known trends and uncertainties; and*
> - *assessment of whether these trends and uncertainties will have, or are reasonably likely to have, a material impact on the registrant's liquidity, capital resources or results of operations."* [33]

Companies doing business in the United States are also required to comply with Federal Trade Commission (FTC) rules on unfair trade practices that require companies to avoid making misleading statements about their products. The FTC's "Green Guides" outline how companies should discuss claims of environmental benefit, deeming a "*representation, omission, or practice*" as deceptive "*if it is likely to mislead consumers acting reasonably under the circumstances and is material to consumers' decisions*." [34] The Green Guides also stress the importance of disclosures, stating

> *"To prevent deceptive claims, qualifications and disclosures should be clear, prominent, and understandable. To make disclosures clear and prominent, marketers should use plain language and sufficiently large type, should place disclosures in close proximity to the qualified claim, and should avoid making inconsistent statements or using distracting elements that could undercut or contradict the disclosure."*

We examined Enviva's SEC filings and public statements in light of SEC and FTC rules on disclosure and transparency to explore whether Enviva has disclosed information that would allow a reasonable investor to evaluate the Company's claims about the value of burning wood pellets as a way to reduce power sector carbon emissions, and the viability of the Company as an investment.

Our investigation revealed misleading statements and omissions, which fall into three categories:

1. Assertions that burning wood pellets reduces emissions compared to coal, without disclosure of the carbon accounting assumptions and protocols upon which these assertions depend, including the failure to count stack emissions.
2. Inaccurate and misleading portrayals of current US and European regulatory restrictions including:
    a. Incorrect statements that EPA does not currently regulate bioenergy carbon emissions.
    b. Failures to disclose regulatory risks associated with wood-burning power plant emissions.

[33] Ibid, page 17.

[34] Federal Trade Commission. 16 CFR Part 260, Guides for the use of environmental marketing claims. At https://www.ftc.gov/sites/default/files/attachments/press-releases/ftc-issues-revised-green-guides/greenguides.pdf

c. Failure to disclose subsidy losses by Enviva's leading customer.

3. Complex and contradictory statements regarding sources of wood that give disproportionate prominence to the role of forestry and mill residues and much less prominence to use of whole trees and "roundwood" as pellet feedstock.

The disclosure and omission of these issues, individually or in the aggregate, may mislead investors regarding the Company's environmental and financial strengths. We urge the Securities and Exchange Commission, the New York Stock Exchange, and the New York Attorney General to examine these disclosure issues and assess their materiality, and then to take appropriate action, including requiring the Company to revise, supplement, update or correct existing disclosures.

IV. Omissions and Misrepresentations in Enviva's Disclosures

A. Claims About Greenhouse Gas Emissions From Burning Biomass

Enviva makes multiple statements that either imply, or state directly, that burning biomass "reduces" power plant emissions. Enviva does not disclose in any SEC filing that combustion emissions are not counted under European carbon accounting protocols. Representative examples follow.

1. Claims in SEC filings that burning biomass reduces emissions

Enviva's "Business Overview"[35] was submitted to the SEC along with the Company's 8k report dated November 16, 2015. The document contains statements, some presented in a graphical form (Figure 2), claiming that the Company's product reduces carbon emissions. These statements rely on the fact that EU and UK policy treat emissions from burning wood pellets as zero by policy convention, and are thus misleading in the absence of additional information.

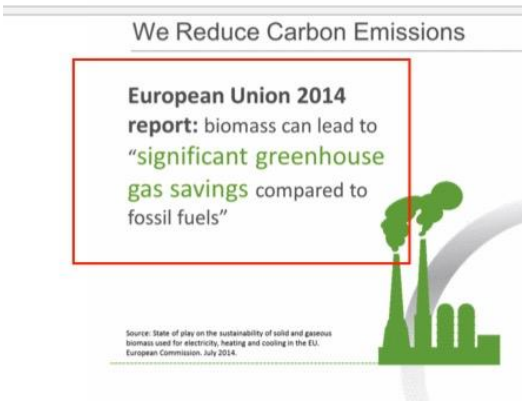

Figure 2. Excerpt from "Business Overview" investor presentation furnished to investors and filed with the SEC in Form 8-K (Current Developments), November 16, 2015.

Representative statements from Enviva's prospectus and IPO filing document also do not disclose that EU convention ignores combustion emissions. The following statements are not false, but they lack the necessary clarification of carbon accounting conventions to make them not misleading:

[35] "Business Overview" presentation for investors submitted by Enviva Partners LP with Securities and Exchange Commission in Form 8-K (Current Developments). Initially dated October 14, 2015, updated versions have been published November 16, 2015, December 28, 2015; and February 25, 2016. Available at http://www.sec.gov/Archives/edgar/data/1592057/000110465915079191/a15-23007_1ex99d1.htm

a) Wood pellets *"enable major power generators to profitably generate electricity **in a manner that reduces the overall cost of compliance with mandatory GHG emissions limits** and renewable energy targets..."*[36]

b) Coal plant conversions *"are attractive due to a combination of factors: they enable power generators to profitably extend the permitted lives of plants that provide critical baseload power generation; **they help countries meet regulations regarding greenhouse gas ("GHG") emissions** and renewable energy usage.*[37]

Reading these statements, an investor could be misled, for instance, to believe that wood inherently emits less carbon at the smokestack per unit energy than coal, as is the case for natural gas.[38]

2. Claims in public documents that burning biomass reduces emissions

Enviva's promotional materials include press releases, its website, and company presentations. Some of the claims made in these materials appear to be misleading under FTC rules that regulate business-to-consumer transactions and business-to-business transactions. To the extent that claims made in public materials are not properly qualified or contextualized in company filings with the SEC, they also can be misleading to investors. Representative examples follow.

a) The Clean Power Plan (CPP) is EPA's rulemaking for reducing CO_2 emissions from the power sector. The EPA developed emission reduction goals for each state with a "best system of emission reduction" (BSER) that includes replacing some fossil-fueled generation with zero-emissions renewable technologies like wind and solar power. EPA explicitly did not include biomass energy as part of the BSER, and while EPA has indicated states may be able to burn some biomass under the Clean Power Plan, the agency has acknowledged that co-firing biomass with coal can degrade facility efficiency and increase CO_2 emissions.[39] Nonetheless, Enviva issued a press release[40] following EPA's finalization of the Clean Power Plan that may create the impression for investors that EPA is encouraging co-firing wood pellets with coal, or converting coal plants to burn wood, as a way to reduce emissions under the CPP. Titled "Enviva Applauds EPA on Clean Power Plan," it states:

"Converting coal-fired plants to dedicated or co-fired biomass plants is one of the quickest and most cost-effective ways of achieving substantial reductions in emissions of carbon dioxide and

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[36] Enviva Prospectus. Filed April 29, 2015. Page 4/12. At http://www.sec.gov/Archives/edgar/data/1592057/000119312515155449/d808391d424b4.htm.

[37] Enviva prospectus page 1/9. The same statement was repeated in the IPO filing document (the IPO document is no longer available at the NASDAQ website; it is now posted at http://www.pfpi.net/wp-content/uploads/2015/11/ENVIVA-PARTNERS-LP-EVA-IPO-NASDAQ.pdf).

[38] While per MWh stack emissions of natural gas-fired power plants are lower than those of coal-fired power plants, methane emissions associated with gas extraction and transport may significantly increase its greenhouse gas footprint.

[39] U.S. Environmental Protection Agency. Docket ID No. EPA-HQ-OAR-2013-0602. Technical Support Document for Carbon Pollution Guidelines for Existing Power Plants. GHG Abatement Measures, June, 2014. Page 6-16.

[40] Enviva press release, August 4, 2015. Available at http://www.reuters.com/article/2015/08/04/md-enviva-idUSnBw046040a+100+BSW20150804#ZoEcKWYkQswM6oxc.97.

other pollutants... Countries around the world are turning to biomass–increasingly wood pellets – as a renewable, low-carbon source of base load energy and we are pleased that the EPA has opened the door to these coal-to-biomass conversions here in the United States."

As it is a physical fact that burning biomass emits more CO_2 per unit energy than burning fossil fuels, it is misleading to claim that replacing coal with biomass "reduces" emissions without adding appropriate qualifications as discussed previously in this review.

b) A November 2015 presentation for investors[41] from Enviva quotes a document from the Intergovernmental Panel on Climate Change (IPCC), stating "*United Nations Climate 2014: Carbon emissions from coal are 4 times greater than from forest wood biomass*." Perusal of the actual document they cite[42] reveals that the chart from which Enviva is presumably quoting treats CO_2 emissions from biomass combustion as zero in its assessment for "total" emissions from biomass, whereas combustion emissions *are* included for coal.

c) Enviva's website homepage[43] claims emissions are reduced relative to coal:

"We export our pellets primarily to power plants in the United Kingdom and Europe that previously were fueled by coal, ***enabling them to reduce their carbon footprint by about 80 percent****. We make our pellets using sustainable practices that protect Southern forests… At Enviva, our job is more than making pellets.* ***We work for lower emissions****, healthy forests and strong communities."*

d) The Company's "Frequently Asked Questions" webpage[44] states:

"I have heard that burning wood pellets actually results in more carbon emissions than burning coal. Is that true?

No. According to the UK Environment Agency, switching from coal to biomass reduces emissions of carbon dioxide by between 74 and 90% on a lifecycle basis.[1] Enviva consistently exceeds the Greenhouse Gas (GHG) reductions targeted by governments like the UK.[2] We know this because we track, internally audit, and are regularly assessed by stringent 3rd party audits of ***all GHG emissions associated with the harvest, transport, processing, and shipping of our products****. We report these* ***total lifecycle emissions*** *on a regular basis."*

This is a misleading answer to the question, because the statement that "all" emissions from harvest and "total" lifecycle emissions are counted would be interpreted by most people to include carbon in the actual wood that is harvested from the land, which is emitted as CO_2 when the wood is burned. However, as explained above, Enviva's accounting does *not* count the carbon that is contained in the

[41] "Business Overview" presentation for investors filed By Enviva Partners LP with Securities and Exchange Commission in Form 8-K (Current Developments). Initially dated October 14, 2015, updated versions have been published November 16, 2015, December 28, 2015; and February 25, 2016. . Available at http://www.sec.gov/Archives/edgar/data/1592057/000110465915079191/a15-23007_1ex99d1.htm

[42] http://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter7.pdf; page 539

[43] Accessed October 15, 2015

[44] http://www.envivabiomass.com/faq-most-frequently-asked/#emissions Accessed October 19, 2015

harvested wood fuel. The 74 to 90% "reduction" in lifecycle emissions that Enviva references is a citation from a report which additionally states that it is "*important to note*" that its analysis is based on estimating emissions "*up to the point the biomass fuel enters the boiler, engine, or power plant*," and thus excludes combustion emissions.[45] However, Enviva fails to include this important disclaimer when it cites the statistic.

e) A brochure[46] downloadable on Enviva's website discusses "Wood pellets' role in reducing GHG emissions," stating that audits have found a 95% and 83% "greenhouse gas savings" over coal. Enviva's brochure then states, "*There are several reasons for these very significant GHG reductions*," listing

> "*Positive Drain/Growth Ratio*" (the argument that the Southeast grows more timber than is harvested, which does not relate directly to the calculation of carbon emissions when wood is burned[47])
>
> "*Robust Sustainable Forestry Practices*" (there are substantial issues regarding the sustainability of Enviva's practices on the ground, as discussed below)
>
> "*Reduced Local Transport*," and "*Environmentally Friendly Shipping to Europe*" (focusing on emissions from land and sea transport).

However, the brochure does not list the principal carbon accounting premise behind the emissions being "lower" than coal –that biomass combustion emissions are not counted.

3. Claims that EPA does not regulate bioenergy carbon emissions

Enviva is eager to develop a market for utility-grade wood pellets in the United States, because their customer base is currently limited to relatively few companies overseas.[48] The Company prospectus projects that the US market for pellets will be about 4 million tons per year by 2020, and Enviva's most recent filing to the SEC, the Company states that EPA's Clean Power Plan, which mandates reductions

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[45] UK Environment Agency, 2009. Minimizing greenhouse gas emission from biomass energy generation. At http://www.globalbioenergy.org/uploads/media/0904_Environment_Agency_-_Minimising_greenhouse_gas_emissions_from_biomass_energy_generation.pdf

[46] At http://www.envivabiomass.com/wp-content/uploads/ITR-21177-WoodPelletsBrochureResize_v1a1.pdf

[47] Enviva's brochure includes a chart showing increasing forest stocks in the Southeast and the US as a whole. The company states that the Southeast "*consistently grows more timber than is harvested*." This is a specious argument when used to justify treatment of bioenergy combustion as if it has zero emissions, as shown in the following scenarios. Say a region grows 10 units of wood per year. In the first scenario, 1 unit of wood is harvested and burned for fuel. Emissions are thus 1 unit and net growth is 9 units. In the second scenario, 9 units are harvested and burned. Emissions are thus 9 units and net growth is 1 unit. In both scenarios, the 10 units of growth exceed the amount that was harvested and burned, but emissions differ by 900 percent. In neither case can emissions be considered zero. Further, it is a false argument to claim that emissions from burning wood harvested in one location are offset by forest growth happening in another location unless that offsite mitigation represents additional carbon sequestration that would not have otherwise occurred.

[48] Prospectus page 38, In the risk disclosures section, Enviva acknowledge "*We derive substantially all of our revenues from customers in Northern Europe. If we fail to diversify our customer base in the future, our results of operations, business and financial position and ability to make cash distributions could be materially adversely affected.*"

in CO_2 emissions from domestic power plants, could be a "*new enabler for growth in nascent US market*."[49]

EPA's regulation of bioenergy carbon emissions will affect whether the Clean Power Plan encourages growth in a US pellet market. In its risk disclosures, Enviva states *"it is possible that in the future, US EPA or individual states may seek (or be required) to regulate carbon dioxide or other GHG emissions from biomass-fired power plants."*[50]

Box 1: EPA's regulation of bioenergy CO_2 emissions

EPA issues pollution permits for large new or modified power plants under its Prevention of Significant Deterioration (PSD) permitting program. In 2011, when EPA started regulating carbon dioxide as a pollutant under the PSD program, the agency enacted a three-year moratorium on regulation of carbon dioxide emissions from biomass power plants. The moratorium was challenged in federal court by a coalition of environmental groups (*Center for Biological Diversity v. EPA, 722 F.3d 401;D.C. Cir. 2013*). Although the environmental coalition won the case, the court stayed the effectiveness of its ruling pending resolution of broader challenges to regulation of all greenhouse gases under PSD program. As a result, EPA did not immediately start regulating carbon dioxide from biomass plants.

The Supreme Court subsequently upheld regulation of greenhouse gases in PSD permits at facilities large enough to require permits for their "conventional" pollutants (e.g., nitrogen oxides and particulate matter). The D.C. Circuit also finalized its ruling striking down the three-year biomass carbon dioxide exemption, which expired of its own accord in 2014, contrary to Enviva's statement that the exemption was still in place as of April, 2015. This is known to companies that burn biomass for onsite power, such as International Paper, which acknowledged in its Form 10-K for the year ended December 31, 2014 that EPA established "*that BACT (Best Available Control Technology) would be required for any GHG emissions increase above 75,000 tons per year if a new source or Title V review was required for other regulated pollutants*."

However, EPA currently regulates carbon dioxide from biomass combustion in boilers that emit over a certain threshold of "conventional" pollutants (Box 1), thus Enviva's statement that EPA might regulate biomass plant carbon dioxide "in the future" is misleading. The Company makes a similar misstatement elsewhere in the prospectus, stating that a temporary exemption EPA granted for bioenergy CO_2 from Prevention of Significant Deterioration permitting is still extant, so that "*Until the petition for rehearing in Center for Biological Diversity v. EPA is decided, the exemption for biomass-fired power plants will remain in place*." [51]

B. Failure to Disclose Known Trends and Risks

Although Enviva has disclosed the existence of regulatory risks, including the possibility that EPA or another agency might alter its treatment of bioenergy, the disclosures stop short of disclosing the emerging trend that scientific and policy experts increasingly recognize that wood burning power plants can be a substantial source of carbon emissions. Examples follow.

[49] "Business Overview" presentation for investors filed By Enviva Partners LP with Securities and Exchange Commission in Form 8-K (Current Developments). Initially dated October 14, 2015, updated versions have been published November 16, 2015, December 28, 2015; and February 25, 2016. . Available at http://www.sec.gov/Archives/edgar/data/1592057/000110465915079191/a15-23007_1ex99d1.htm

[50] Prospectus page 30/39

[51] Prospectus At page 29/38. The date for the prospectus was April 28, 2015, well after EPA started regulating biogenic carbon dioxide under the Clean Air Act.

1. EU and UK government scientists recognize carbon impacts of bioenergy

A modeling study from the UK's Department of Energy and Climate Change (DECC) is particularly significant to Enviva and its main customer, Drax. The model compared net emissions under scenarios where trees are cut for pellets that are burned in a power plant, versus scenarios where forests are left to grow or are harvested for other products, and fossil fuels are burned for energy. The model "cuts" and "grows" the forest under the different scenarios, treating losses in forest carbon as an emission of carbon to the atmosphere, and gains in forest carbon as a negative emission where carbon is taken out of the atmosphere. While data from Drax show the facility's 2013 CO_2 emission rate for biomass was 2,128 lb/MWh (Figure 1), this is just what is coming out the stack and does not reflect net emissions over time, which including the loss in forest carbon uptake following harvesting (since reducing a sink for carbon has the same effect on atmospheric CO_2 concentration as increasing a source). The DECC report concluded that for pellets made largely from naturally-regenerated hardwood forests, the net emissions rate remains high for decades, at 2,800 to 8,792 lb CO2e/MWh[52] when analyzed over a time horizon of 40 years, and 1,689 to 11,407 lb CO2e/MWh when analyzed over 100 years.[53] As we show below, naturally regenerated hardwood forests are already a main source of Enviva's pellet feedstock, thus the scenario is directly relevant to Enviva's current harvesting practices.

2. Policymakers may reduce subsidies for bioenergy based on carbon emissions

Enviva discusses the importance of renewable energy subsidies for supporting the bioenergy industry in its prospectus, but does not disclose the known trend of increasing vulnerability of subsidies as policymakers come to understand the greenhouse gas emissions impacts of wood-burning.

Enviva's prospectus acknowledges the importance of renewable portfolio standards in the US and the inclusion of wood-burning bioenergy as an eligible technology:

> *"In addition to federal regulations that limit carbon dioxide emissions, 29 states and Washington, DC have Renewable Portfolio Standards (RPS) that require power generators to meet specified renewable energy targets by certain dates."*[54]

Renewable energy receives subsidies, and the loss of subsidies can serve as a disincentive. As discussed below, Washington DC has actually eliminated subsidies for stand-alone biomass electricity plants, but this fact is omitted from Enviva's statement.

The prospectus also notes that bioenergy is promoted by policies and financial incentives in the EU/UK:

> *Consumers of utility-grade wood pellets currently use our products either as part of a binding obligation to generate a certain percentage of low-carbon energy or because they receive direct or indirect financial support or incentives to do so.*[55]

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[52] The notation "CO2e" expresses the global warming potential of all greenhouse gases in terms of the equivalent forcing effect of CO_2 alone.

[53] Stephenson and McKay, 2014. Table 17, page 86.

[54] Prospectus page 113/123.

[55] Prospectus page 29/38

However, Enviva does not disclose an important trend - that as the environmental impacts of bioenergy come to light, policymakers are increasingly questioning and even curtailing subsidies for biomass power. In the U.S., Washington DC has eliminated subsidies for low-efficiency wood burning power plants under its Renewable Portfolio Standard program,[56] as has Massachusetts;[57] and in Vermont, the Public Utilities Commission denied a Certificate of Public Good to a wood-burning power plant based on its carbon emissions,[58] thus preventing it from being built. In the UK, the government has been cutting subsidies for renewable energy, [59] and in one case specifically identified bioenergy as a carbon-intensive technology that is not a long-term climate solution. In a December 2014 decision to terminate automatic extension of a particular subsidy program for new coal-to-biomass conversions (a subsidy that would have encouraged conversion of an additional Drax unit from coal to biomass),the UK Department of Energy and Climate Change noted that without significant development in carbon capture and storage,

> *"emissions from such biomass plants are likely to be too high if we are to meet our longer term decarbonisation targets. This is therefore a technology for the short-term to help us meet our 2020 renewables target and to help our transition to a low-carbon power sector."* [60]

This statement of UK government policy, which demonstrates a focus on wood pellet burning as a transitional strategy but not as a long-term strategy for renewable energy, is highly relevant and material to Enviva given that Drax is one of its three main purchasers. The intent of the UK subsidy decision appears to be to slow the growth of electricity generation from biomass.

The UK's "Carbon Brief" website also recognized that subsidy cuts were intended to reduce biomass capacity growth:

> *"The idea behind this is to prevent increases in biomass generating capacity. Today, there are 2.4GW of biomass conversion capacity that will convert if state aid approval is given. Without today's changes, DECC thinks this could increase to 4.6GW in 2020/21. Preventing this from happening will, they say, avoid £500m in costs in 2020/21."* [61]

Drax is a publicly traded company in the UK. The threat of cuts to subsidies for biomass made shares of Drax fall significantly in December 2014, as a result of the UK decision to cut subsidy levels. Shares

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[56] See http://www.pfpi.net/wp-content/uploads/2015/03/DCBiomassLaw2015B20-0418-SignedAct.pdf

[57] See http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/biomass/renewable-portfolio-standard-biomass-policy.html

[58] See http://www.pfpi.net/vermont-biomass-power-plant-denied-approval-on-basis-of-greenhouse-gas-emissions

[59] Subsidies were eliminated for new stand-alone biomass power plants after March 2017, though such facilities can still benefit from competitive "contract for difference" pricing for electricity. Stand-alone biomass power plants can compete for a CfD if they achieve a minimum of 35% efficiency and make limited use of heat, and "advanced conversion" bioenergy facilities can benefit regardless of efficiency and heat use.

[60] Consultation on changes to grandfathering policy with respect to future biomass co-firing and conversion projects in the Renewables Obligation, December 12, 2014 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/386289/biomass_condoc.pdf

[61] http://www.carbonbrief.org/decc-amber-rudd-reduces-subsidies-for-renewable-energy/

fell again by more than a quarter in 2015 after analysts stated that the change in subsidies could significantly reduce the company's earnings in 2016 - 2017[62] (Figure 3).

Figure 3. Drax share price November 18, 2014 – November 18, 2015.

While the Drax facility purchases wood fuel from suppliers in several countries, Enviva reports that the bulk of its wood pellets are sold to Drax and just two other customers,[63] suggesting that Enviva's prospects are presently connected to those of Drax. Enviva's prospectus, which was filed several months after the December 2014 announcement in the UK, makes no mention of policymaker doubts and subsidy cuts for renewable energy that included Drax and other biomass-burning power plants in the UK. The Company does acknowledge in a general way that their business could be impacted "*if*" bioenergy incentives change in the E.U.:

> *(4) Significant Risks and Uncertainties Including Business and Credit Concentrations*
> *The Partnership's business is significantly impacted by greenhouse gas emission and renewable energy legislation and regulations in the European Union (the "E.U."). If the E.U. significantly modifies such legislation and regulations, the Partnership's ability to enter into new contracts as the current contracts expire may be materially affected.*[64]

[62] Gosden, E. "Budget 2015: Green energy companies hit as Chancellor slashes renewables subsidies." The Telegraph. July 8, 2015. At http://www.telegraph.co.uk/finance/budget/11727378/Budget-2015-Green-energy-companies-hit-as-Chancellor-slashes-renewables-subsidies.html

[63] Enviva's June 30, 2015 10Q at page 22/22 states, *"The Partnership's primary industrial customers are located in Northern Europe. Three customers accounted for 92% of the Partnership's product sales during the three months ended June 30, 2015 and 96% during the six months ended June 30, 2015. Three customers accounted for 100% of the Partnership's product sales during the three months ended June 30, 2014 and 98% during the six months ended June 30, 2014."*

[64] From June 30 10Q page 22

However, Enviva's prospectus argues that subsidy losses are *unlikely* to occur, even as they already had:

> *Northern European countries, in which the primary customers of utility-grade wood pellets are located, all have strong track records in grandfathering biomass energy projects where significant capital investment has been made. Although regulations for new biomass energy projects do sometimes change,* ***there have been no examples to date of Northern European governments implementing retrospective changes or cuts to incentives offered to such biomass energy projects****.*[65]

More recently, Enviva's November 2015 "Business Overview" presentation for investors, filed with the SEC, claims that the wood pellet market is "Seeing Regulatory Stability and Orderly Growth."[66] As of November 2015, Enviva had so far not engaged in corrective or updated disclosure of the loss of subsidies by its largest customer as a result of change in UK policy.

C. Claims About Forests and Fuel Harvesting

Harvesting trees for feedstock has proved to be controversial for Enviva.[67] When waste wood or forestry residues are used as feedstock, it is assumed that because materials would eventually decompose and emit carbon dioxide, net carbon emissions from burning these materials don't exceed emissions that would occur anyway (although burning is instantaneous, whereas decomposition takes years to decades). In contrast, harvesting trees that would otherwise continue growing and taking carbon dioxide out of the atmosphere has a greater and longer-lasting net impact on atmospheric carbon concentration. Additionally, intensive forest harvesting for pellet feedstock has proven to be inherently objectionable to environmentalists[68] and the public.

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[65] Page 109/119 prospectus

[66] "Business Overview" presentation for investors filed By Enviva Partners LP with Securities and Exchange Commission in Form 8-K (Current Developments). Initially dated October 14, 2015, updated versions have been published November 16, 2015, December 28, 2015; and February 25, 2016. Available at http://www.sec.gov/Archives/edgar/data/1592057/000110465915079191/a15-23007_1ex99d1.htm

[67] See, Justin Scheck and Ianthe Dugan. "Europe's Green-Fuel Search Turns to America's Forests." Wall Street Journal, online version May 27 2013. http://www.wsj.com/articles/SB10001424127887324082604578485491298208114; also Joby Warrick. How Europe's climate policies led to more U.S. trees being cut down. Washington Post, June 2, 2015. At https://www.washingtonpost.com/national/health-science/how-europes-climate-policies-have-led-to-more-trees-cut-down-in-the-us/2015/06/01/ab1a2d9e-060e-11e5-bc72-f3e16bf50bb6_story.html

[68] **Greenpeace**: The organization's report "Fueling a BioMess: Why Burning Trees for Energy Will Harm People, the Climate, and Forests" is a highly critical look at the Canadian bioenergy industry, including the pellet manufacturing industry. (http://www.greenpeace.org/canada/Global/canada/report/2011/10/ForestBiomess_Eng.pdf)

National Wildlife Federation: With Southern Environmental Law Center, NWF conducted a study that was highly critical of the forest and biodiversity impacts of harvesting wood by Enviva and other pellet companies in the US Southeast. (http://www.nwf.org/news-and-magazines/media-center/reports/archive/2013/12-05-13-forestry-bioenergy-in-the-southeast.aspx)

Natural Resources Defense Council "Our Forests Aren't Fuel" (http://www.nrdc.org/energy/forestsnotfuel/) campaign states

"Burning trees to produce electricity is dirty and destructive. It creates more carbon pollution than coal, gas, and oil. It destroys forests and our heritage along with them."

Enviva makes a variety of contradictory and confusing assertions about its wood harvesting practices, some of which may create the impression that the Company primarily uses forestry residues as pellet feedstock, rather than whole trees. These assertions add to the aggregate of misinformation that might cause a shareholder to conclude that Enviva's products are "environmentally friendly." In light of the relevance of forest stock changes to carbon accounting (including both reductions in standing carbon and reduced future carbon sequestration), the confusing information may raise additional questions about the viability of the company's wood pellets as a GHG reduction strategy.

1. A significant portion of Enviva's feedstock comes from whole trees, not waste wood

Despite varying descriptions of the categories of wood used as feedstock, it is clear that a large proportion of Enviva's feedstock comes from trees that are cut solely to be used by the Company.

Enviva's process description, as included in the prospectus, demonstrates the facility handles logs:

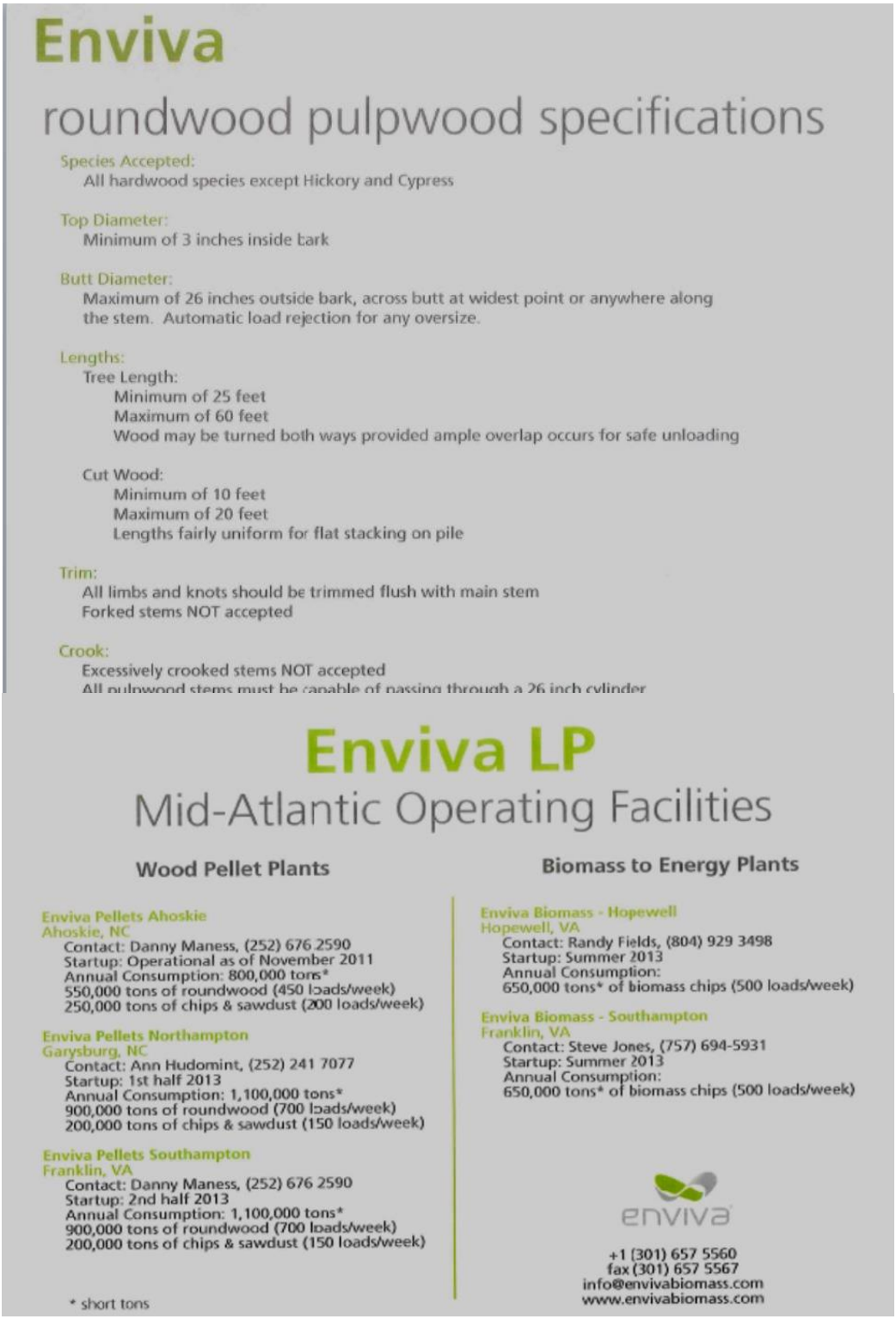
> *Our production process can be divided into four subsystems:*
> *1. Log Receiving, Storage, Debarking, Chipping, Chip Storage and Chip Transfer:*
> - *Incoming trucks pass over truck scales and are routed to unloading areas and storage piles based on their contents.*
> - ***Cranes feed logs into a processing system, where bark is removed.***
> - *Debarked logs are fed into a chipper by a knuckle boom hydraulic loader.*
> - *Chipped wood fiber is transferred via conveyor either directly to the drier or into secondary storage.*
> - *Bark byproduct is fed directly to the furnace fuel bin or to bark storage.*
> - *Purchased green chips are unloaded at a separate hydraulic truck dumper that delivers the chips to a furnace fuel reclaim system, a dryer fuel bin or a chip storage pile.*[69]

The Company burns bark and forestry residues (tree branches and tops) to generate heat for the dryer:

> *Green Sizing, Dryer Heat Generation, Drying and Air Pollution Control:*
> - *Chips fed directly from the primary chipper or reclaimed from secondary storage are fed onto a green hammermill infeed conveyor which feeds the chips to a dryer metering bin.*
> - ***Bark, residuals and process waste are fed by front loading mobile equipment or directly from the debarking drum into the furnace fuel bin.***
> - *Furnace fuel is combusted in the wood-fired stoker grate (or suspension burner) system and hot flue gas is drawn through the drier with a furnace induced draft fan.*
> - *Chipped wood fiber is fed via the dryer metering bin through the rotary kiln dryer and conveyed to the dry hammermill island.*
> - *Flue gas is drawn through the cyclones, baghouses, and wet electrostatic precipitators to remove particulates prior to discharge to atmosphere.*[70]

Sierra Club: The organization's "biomass guidance" (http://www.sierraclub.org/policy/energy/biomass-guidance) states, *"Native Forests are presently the largest source of fuel for projects defined as biomass. In keeping with our forest policy, we oppose all biomass energy generation processes including fuel production which contribute to the destruction of existing forests, including national or native forests as well as remaining old-growth or roadless areas."*

[69] Prospectus page 132/142



Enviva

roundwood pulpwood specifications

Species Accepted:
All hardwood species except Hickory and Cypress

Top Diameter:
Minimum of 3 inches inside bark

Butt Diameter:
Maximum of 26 inches outside bark, across butt at widest point or anywhere along the stem. Automatic load rejection for any oversize.

Lengths:
Tree Length:
Minimum of 25 feet
Maximum of 60 feet
Wood may be turned both ways provided ample overlap occurs for safe unloading

Cut Wood:
Minimum of 10 feet
Maximum of 20 feet
Lengths fairly uniform for flat stacking on pile

Trim:
All limbs and knots should be trimmed flush with main stem
Forked stems NOT accepted

Crook:
Excessively crooked stems NOT accepted
All pulpwood stems must be capable of passing through a 26 inch cylinder

Enviva LP

Mid-Atlantic Operating Facilities

Wood Pellet Plants

Enviva Pellets Ahoskie
Ahoskie, NC
Contact: Danny Maness, (252) 676 2590
Startup: Operational as of November 2011
Annual Consumption: 800,000 tons*
550,000 tons of roundwood (450 loads/week)
250,000 tons of chips & sawdust (200 loads/week)

Enviva Pellets Northampton
Garysburg, NC
Contact: Ann Hudomint, (252) 241 7077
Startup: 1st half 2013
Annual Consumption: 1,100,000 tons*
900,000 tons of roundwood (700 loads/week)
200,000 tons of chips & sawdust (150 loads/week)

Enviva Pellets Southampton
Franklin, VA
Contact: Danny Maness, (252) 676 2590
Startup: 2nd half 2013
Annual Consumption: 1,100,000 tons*
900,000 tons of roundwood (700 loads/week)
200,000 tons of chips & sawdust (150 loads/week)

* short tons

Biomass to Energy Plants

Enviva Biomass - Hopewell
Hopewell, VA
Contact: Randy Fields, (804) 929 3498
Startup: Summer 2013
Annual Consumption:
650,000 tons* of biomass chips (500 loads/week)

Enviva Biomass - Southampton
Franklin, VA
Contact: Steve Jones, (757) 694-5931
Startup: Summer 2013
Annual Consumption:
650,000 tons* of biomass chips (500 loads/week)

enviva

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Figure 4. Documents from Enviva specifying the types and amounts of wood Enviva can accept as pellet feedstock at its facilities.

[70] Prospectus page 132/142

Documents obtained from Enviva outline "roundwood pulpwood specifications"[71] at Enviva's facilities (Figure 4), and specify wood use at three of Enviva's plants, showing that "roundwood," rather than chips and sawdust, constitutes the majority of Enviva's feedstock supply.[72] For instance, the document states that Enviva's Ahoskie plant at that time required 550,000 tons of roundwood per year (450 truckloads per week), and 250,000 tons of chips and sawdust.

Data from Drax, Enviva's main customer, also indicates that a significant proportion of the pellets it imports from the United States are made from whole trees, as opposed to residues. In its fuel sourcing report submitted to the UK government for 2014, Drax states that it bought 2,380,347 tons of pellets from the United States, with more than 80% of these pellets made from categories of wood that include whole trees.

Forestry residues - Branch wood, tops, bark and other residues (collected from forests at harvest, which can include other low grade wood): ***942,039 tons***

Diseased wood and storm salvage - Timber that is diseased or has been damaged during a storm: ***164,410 tons***

Thinnings - Roundwood from a forest or plantation thinning, as long as this practice does not change the land use status of the area: ***805,815 tons***

Long rotation forestry – Low quality fibre from broadleaf or conifer tree plantations felled after a growing period of several decades, and then replanted: ***12,374 tons***

Categories of wood that can include whole trees are "low grade wood," "timber," "roundwood from a forest," and "low quality fibre from plantations."

According to Enviva's own data, the majority of the wood the Company uses to make pellets is sourced from hardwood forests ("HW" in Figure 5, versus "SW" for softwood, which refers to pines).

Species Information

Mill	Species Breakdown (hardwood vs. softwood)
Ahoskie	HW-78%, SW-22%
Amory	HW-48%, SW-52%
Monroe (Third-party supplier)	HW-82%, SW-18%
Northampton	HW-89%, SW-11%
Southampton	HW-100%
Wiggins	HW-43%; SW-57%

Figure 5. The balance of hardwood and softwood used at Eviva's pellet mills. [73]

[71] The US Forest Service defines "roundwood products" as "Logs, bolts, or other round timber generated from harvesting trees for industrial or consumer uses. Includes sawlogs; veneer and cooperage logs and bolts; pulpwood; fuelwood; pilings; poles; posts; hewn ties; mine timbers; and various other round, split or hewn products." http://www.nrs.fs.fed.us/fia/data-tools/state-reports/glossary/default.asp

[72] Enviva fuel specifications from http://kiucenergy.com/wp-content/uploads/2013/08/Kowakczyk_Presentation.pptx

[73] Enviva factsheet titled "Enviva Data for Trader EUTR Compliance," dated February 2015.

In contrast to the pine plantations that are found so abundantly in the Southeast, where genetically homogenous trees are planted in rows, hardwood forests are naturally regenerated and contain a variety of native species. Unless the hardwood forest is converted to a pine plantation, companies do not typically replant hardwood forests after harvesting, instead relying on natural regeneration of the forest.

2. Statements that obscure use of whole trees as pellet feedstock

Enviva's statements about the sources of wood it uses may create the impression that the Company does not substantially rely on whole-tree harvesting for pellet feedstock. The Company *does* state that it uses whole trees as feedstock, but such disclosures are buried among multiple, conflicting statements in its public documents and SEC filings that predominantly describe the Company's feedstocks as coming from sources of forestry residues (tops and branches left over from sawtimber harvesting), mill residues (like sawdust) and other sources of waste wood. In the aggregate, therefore, we consider these statements to be confusing and misleading. For instance:

a) A brochure available to the public on Enviva's website states that most of the feedstock is from "underused" residues, and only mentions "low grade round timber" (i.e., trees) in passing:

> *PUTTING UNDERUSED RESOURCES TO GOOD USE*
> *Enviva produces wood pellets from both processed and unprocessed wood residues. Our processed wood raw materials include chips, bark, and sawdust by-products from wood processing facilities. Unprocessed residues include tree tops, branches, stumps, and other forestry debris remaining after the primary biomass (or the tree trunk) has been processed and shipped from the forest. These unprocessed residues would most likely otherwise go unused as a resource.* ***Additional biomass sources currently include low-grade round timber****.*[74]

Reading this description, all but the most meticulous, skeptical reader might imagine that the bulk of materials utilized come from waste materials that would otherwise be cut down and left to decompose. Yet that last sentence regarding "low-grade round timber" may be a reference to a different reality -- that a substantial portion of pellet production comes from cutting down trees like those pictured in Figure 6, a photograph from a logging operation where harvested trees were trucked back to Enviva's pellet plant.

[74] At http://www.envivabiomass.com/wp-content/uploads/ITR-21177-WoodPelletsBrochureResize_v1a1.pdf

Figure 6. Stumps at the Urahaw Swamp in Woodland, NC, which was harvested in May, 2015. The stumps are Bald Cypress Trees that were several decades to more than 100 years old. [75]

b) Similarly, almost none of the statements about materials sourcing in Enviva's prospectus acknowledge that "trees" are cut down for pellet feedstock, though the category may be implied in the phrase "low value wood materials that are generated in a harvest":

> *Our raw materials are byproducts of traditional timber harvesting, principally the tops and limbs of trees as well as other* ***low-value wood materials that are generated in a harvest****. We procure wood fiber directly from timber owners, loggers and other suppliers. Industrial residuals (sawdust and shavings) and forest residuals (woodchips and slash) are included opportunistically when they provide a cost advantage.*[76]

c) Other parts of the prospectus contain conflicting descriptions. For instance, the following statement acknowledges that Enviva's "primary" source of wood is "traditional pulpwood" and that the Company "*also*" uses industrial and forest residuals. This is the opposite of the above statements where the Company's statement implies that only residues and low-value materials are used.

> ***Our primary source of wood fiber is traditional pulpwood****, which has historically exhibited less pricing volatility than other sources of wood fiber. To ensure a low-cost raw materials position, we also procure industrial residuals (sawdust and shavings) and forest residuals (wood chips and slash), which have been more volatile historically in terms of price and supply but occasionally represent lower cost alternative inputs.*[77]

[75] http://www.dogwoodalliance.org/wp-content/uploads/2015/06/Wetlands-Logging-Investigation-Flyer.pdf

[76] Prospectus page 134/144

[77] Prospectus page 131/141

The statement that the Company uses "traditional pulpwood" is also contradictory of claims, such as that above, that Enviva employs "underused" wood resources. In practice, Enviva competes directly with the pulp and paper industry for pulpwood. The domestic pulp and paper industry is increasingly alarmed at the harvesting pressure on certain areas of the Southeast where pellet plants are being located. Representative concerns, as set out in a presentation[78] given on behalf of the pulp and paper company MeadWestvaco, are that the pellet industry will create damage and dislocation in domestic wood markets, that the forest resources in the region won't sustain the harvesting pressure, and that the vast majority of the fiber is coming from whole trees, not residuals. A recent report commissioned by the American Forest and Paper Association concludes that the UK's new "contracts for difference" scheme, which gives renewable energy generators a guaranteed price for energy that generally exceeds the market price, will allow pellet producers to pay up to $53 per ton of wood fiber, far greater than the current price of $11 per green ton.[79]

The domestic pulp and paper industry is concerned that these subsidies are driving up the price of pulpwood. Partly in response to these concerns, the EU has announced an investigation into that the next coal-to-wood conversion of a boiler at the Drax plant, stating that

> *"the amount of wood pellets required is considerable, as compared to the volume of the global wood pellets market and demand from the Drax conversion project could significantly distort competition in the biomass market. The Commission is therefore also concerned that on balance the measure's negative effects on competition could outweigh its positive effect on achieving EU 2020 targets for renewable energy."*[80]

d) The prospectus also provides a list of feedstocks. Here again the role of "trees" is downplayed by using the phrases "Low-grade wood fiber" and "Wood that is unsuitable or rejected." The phrase "commercial thinnings," however, is a strong indication that the company is harvesting whole trees:

> *Our procured wood fiber consists of:*
> - ***Low-grade wood fiber**: w**ood that is unsuitable for or rejected by the sawmilling and lumber industries** because of small size, defects (e.g. crooked or knotty), disease or pest infestation;*
> - *Tops and limbs: the parts of trees that cannot be processed into lumber;*
> - *Commercial thinnings: harvests that promote the growth of higher value timber by removing weaker or deformed trees to reduce competition for water, nutrients and sunlight; and*
> - *Mill residues: chips, sawdust and other wood industry byproducts.*[81]

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[78] Irene Kowalczyk, Director, Global Sourcing & Policy, MeadWestvaco. "Forest Resource Sustainability – Forest Products Industry Perspective." Presentation given at the Kentucky Industrial Utility Customers conference, March 13, 2014. Available at http://kiucenergy.com/wp-content/uploads/2013/08/Kowakczyk_Presentation.pptx or http://www.pfpi.net/wp-content/uploads/2015/11/Kowalczyk_Presentation.pdf

[79] RISI, 2015. An analysis of UK biomass power policy, US South pellet production and impacts on wood fiber markets. (Press release at http://afandpa.org/media/news/2015/11/18/new-research-shows-uk-wood-pellet-subsidies-distort-the-us-market-for-wood-fiber)

[80] European Commission - Press release: "State aid: Commission opens in-depth investigation into UK public support for Drax power plant." Brussels, 5 January 2016. At http://europa.eu/rapid/press-release_IP-16-2_en.htm. The term "biomass" here refers to both fuelwood and feedstock for pulp and paper manufacturing.

[81] Prospectus page 136/146

Figure 7. A wood truck leaving a harvest site; another truck entering the pellet plant.[82]

e) When Enviva does acknowledge in the prospectus that it cuts trees, it states they are "non-merchantable" or otherwise defective. However, these are the same materials that provide feedstock for the pulp and paper industry:

> *Demand for the non-merchantable trees, waste products or byproducts that we use is generally low because they have few competing uses, and such raw materials represent approximately 10% to 30% of the value paid to a landowner for any given harvest. The tops, limbs and other low-grade wood fiber that wood pellet producers take would otherwise generally be left on the forest floor, impeding reforestation, or burned.*[83]

f) On the website, the admission of whole tree use is found on the Frequently Asked Questions page:
"Does Enviva use whole trees?

[82] Dogwood Alliance's investigation is documented at http://www.dogwoodalliance.org/wp-content/uploads/2015/05/InvestigationFlyer-12.18.14.pdf.

[83] Prospectus page 136/146

The only whole trees that Enviva uses are either young commercial softwood thinnings, which are cut to ensure healthy growth of high-value timber, or in some cases small, diseased or deformed trees that do not meet specifications for sawlogs. In many places, there is no other market for this wood. Often, what may appear to be a whole tree is actually the top of a tree, which cannot be used to make the high-value wood products for which the trunks have been harvested."[84]

The statement that Enviva only uses "small, diseased or deformed trees that do not meet specifications for sawlogs" may mislead investors. Many people might not consider the high volume sales of timber harvested and sold to Enviva to be "small" (e.g., see Figures 6 and 7). The existing disclosures downplay the harvesting of whole trees to such an extent that an investor could be led to believe that largely only "waste" is being purchased and consumed by the Company's operations.

3. Claims that wood comes from certified or "responsible" sources

Enviva makes confusing claims about how much of the wood they use is from certified sources. The "Forest Credo" page of their website[85] and their downloadable sustainability policy state,

"We believe that landowner certification of forestland is a good thing, and we pay more for fiber from certified forests. We engage in ongoing landowner outreach and make direct investments to support certifications of forestlands. ***But as we continue working to improve the total percentage of lands certified, we also ensure that non-certified fiber comes from responsible sources.*** *Enviva is certified to the stringent standards of the world's foremost forestry organizations, such as the Forest Stewardship Council™ (FSC®) (Chain of Custody Standard requirements Program for the Endorsement of Forest Certification (PEFC) (Chain of Custody Standard requirements), and the Sustainable Forestry Initiative® (SFI®) (Chain of Custody Standard requirements as well as SFI Certified Sourcing standard requirements)."*

While the statement above says the Company is "working to improve the total percentage of lands certified," the "Frequently Asked Questions" page might be construed to imply that *all* lands from which Enviva obtains wood are certified:

"How do you know that the forests you source from are sustainably managed?

All of our forestry operations are certified on an ongoing basis for sustainability *by the top international forestry organizations, which require no-less-than-annual 3rd party audits of our supply chain, on top of our own rigorous quarterly audits of our supplier operations. Sustainability is an essential, non-negotiable part of our business."*

These statements may be misleading because the claim that "forestry operations are certified on an ongoing basis for sustainability" may create the impression that forests are protected in the course of Enviva's harvesting. In fact, Enviva does not appear to disclose what percentage of the wood it uses is from lands where the harvesting has been certified as sustainably harvested, and the "chain of

[84] http://www.envivabiomass.com/faq-most-frequently-asked/#whole, accessed October 20, 2015.

[85] http://www.envivabiomass.com/sustainability/enviva-forest-credo/ Accessed October 19, 2015

custody" certifications that Enviva is actually talking about are not related to forest management, but to protocols for *tracking* sustainably harvested wood.[86]

Figure 8. Photo from a Washington Post article,[87] showing an area where trees were harvested and sold to Enviva. The paper's caption reads, "*Little remains but stumps and puddles in what was once a bottomland hardwood forest on the banks of the Roanoke River in northeastern North Carolina. Many of the trees were turned into wood pellets for burning in power plants in Europe. Others were sold for high-value uses such as furniture." (Joby Warrick/The Washington Post)*

Enviva's references to certification and sustainable forestry may be misleading to the Company's investors when in fact, clearcutting and complete elimination of all standing trees is a common practice by the Company. As shown in Figure 8, while some of the higher value wood may have been sold as sawtimber, the pellet industry can take all of what is left, leaving nothing standing.

Enviva's November 2015 "Business Overview," [88] filed with the SEC, claims that the Company's activities benefit forests. The statement about Enviva sustaining "thriving, healthy forests" (Figure 9) stands in contrast to the practice of clearcutting forests for wood, some of which, if not the majority,[89] is used as pellet feedstock.

[86] See, e.g., the Forest Stewardship Council chain of custody webpage at https://ic.fsc.org/chain-of-custody-certification.39.htm

[87] https://www.washingtonpost.com/national/health-science/how-europes-climate-policies-have-led-to-more-trees-cut-down-in-the-us/2015/06/01/ab1a2d9e-060e-11e5-bc72-f3e16bf50bb6_story.html

[88] Excerpt from "Business Overview" presentation for investors filed By Enviva Partners LP with Securities and Exchange Commission in Form 8-K (Current Developments). Initially dated October 14, 2015, updated versions have been published November 16, 2015, December 28, 2015; and February 25, 2016. Available at http://www.sec.gov/Archives/edgar/data/1592057/000110465915079191/a15-23007_1ex99d1.htm

[89] David Rose. "The UK's £1billion carbon-belcher raping US forests...that YOU pay for: How world's biggest green power plant is actually INCREASING greenhouse gas emissions and Britain's energy bill". The Mail on Sunday, June 6, 2015. At

The graphic in Figure 9 is also misleading because it includes an out-of-context quote from a university research paper that used a computer simulation model – not an actual study - to determine how forest area would change if EU sustainability criteria were introduced and implemented so as to prohibit forest harvesting for pellets in high-sensitivity forests. The study cited in the graphic modeled a "sustainability sourcing restrictions" scenario that prohibits harvesting in protected areas, areas of high biodiversity and conservation value, and undrained peatlands or wetlands – areas from which Enviva currently obtains wood. (Enviva states on their website that they harvest in wetlands,[90] and the only areas they identify as off-limits for harvesting are sites "*undergoing conversion to a non-forest use, or from any area that is protected by law such as a national park or preserve,*"[91] a smaller scope of area than that considered off-limits in modeling study).

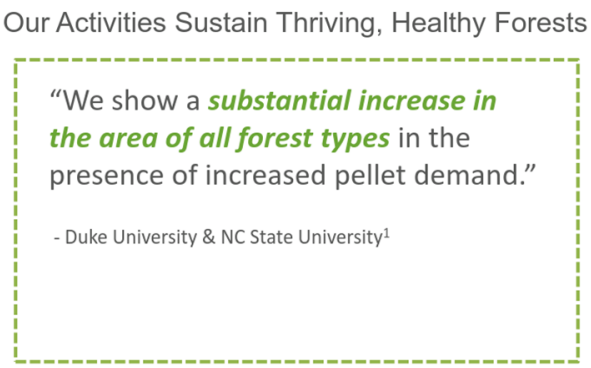

Figure 9. Excerpt from Enviva's November 2015 "Business Overview."

By quoting the study's conclusion only in part, Enviva may create the impression that the existence of a pellet industry increases the area of forest. In context, the actual quote from the paper states:

> *Comparing restricted baseline and pellet scenarios indicates the relative change attributable to additional pellet demand* ***under sustainability sourcing restrictions****. We show a substantial increase in the area of all forest types in the presence of increased pellet demand, with the change dominated by an increase in planted pine.*[92]

In other words, the researchers found that *restricting* forest harvesting for pellet feedstock on much of the land from which Enviva now gets their wood (hardwood forests and wetland forests) would, in this simulation model, drive landowners to establish more pine plantations that could then provide wood

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http://www.dailymail.co.uk/news/article-3113908/How-world-s-biggest-green-power-plant-actually-INCREASING-greenhouse-gas-emissions-Britain-s-energy-bill.html

The Mail on Sunday spoke to a senior forester at a North Carolina wood firm which has frequently worked for Enviva, clear-cutting areas from 20 to 80 acres. The forester, who asked us to protect his identity, said: 'Most of this wood is no good for sawmills. You might get the odd log or two, but very few in the swamps I've cut. You might not get any that are any use for that. It's very possible they will all just go for pellets or chips.'

[90] From http://www.envivabiomass.com/faq-forests-fiber-sourcing/#wetlands: *"Does Enviva source wood from wetlands?" "In regions where forests are located in wet areas for one or more seasons of the year, including permanent wetlands, Enviva suppliers take extra care by using specialized harvesting equipment and techniques that minimize environmental impacts and protect soil and water quality. We are unconditionally committed to ensuring that our activities do not negatively impact water quality or sensitive habitats. "*

[91] http://www.envivabiomass.com/faq-forests-fiber-sourcing/#limits

[92] Galik, C. and Apt, R. 2015. Sustainability guidelines and forest market response: an assessment of European Union pellet demand in the southeastern United States. GBC Bioenergy (2015), doi: 10.1111/gcbb.12273 (at http://onlinelibrary.wiley.com/doi/10.1111/gcbb.12273/full)

for the pellet industry. Enviva took the quote out of context, and it is our opinion that by presenting it as if it applies to their current operations, its inclusion is quite misleading.

V. Request to Regulators

The preceding discussion raises a number of issues that merit attention of securities and consumer protection regulators. We request that regulators examine, in particular, statements from the Company that its products "reduce" carbon emissions to ensure that such disclosures are accompanied by the clarification, where applicable, that such "reductions" are based on a carbon accounting protocol that, among other assumptions, does not include emissions from actually burning the wood.

Assessing Materiality

There seems little question that issues related to the environmental benefits and regulatory risks associated with Enviva's wood pellet production should be of concern to its investors, because the asserted environmental benefit and demands created by regulation are key to the Company's promotional selling points. Inaccurate and outdated portrayal of regulatory risks, subsidy trends, regulatory requirements, facility emissions and climate benefits all seem to relate to the "inferences a 'reasonable shareholder' would draw from a given set of facts and the significance of those inferences to him," Basic Inc. v. Levinson, 485 U. S. 224, 236 (1988). In addition, the information presented by the Company on some of these complex issues dramatically alters the "mix" of available information. Although a technically advanced shareholder or analyst could theoretically wade through EPA regulations, and research UK subsidy policies and developments, the securities laws are generally understood to allow a shareholder to presume that a company is providing reasonably accurate, up-to-date and complete disclosures, including any statements made regarding EPA rules or the status of subsidies for its largest purchaser.

Duty to Update or Correct

On an ongoing basis, a company may have a duty to update or correct previous disclosures. The inaccurate information in the IPO regarding the status of European subsidies, the status of EPA regulation of carbon emissions from biomass, and other elements highlighted in document each could have triggered a duty to update or correct.

These obligations may in some instances depend on whether the company was aware of the correct information at the time of the original disclosure. In addition, the SEC's Form 8-K Current Developments disclosure form generally only requires immediate disclosure of certain specified developments. However, one would expect that a subsequent quarterly report would have made corrections on some of these noted issues. To our knowledge, no such corrections have yet been made.

In addition to SEC rules, as a firm traded on the New York Stock Exchange, Enviva is subject to NYSE disclosure rules that impose additional update and correction disclosure obligations.
Section 401(a) of NYSE MKT Company Guide states that a "listed company is required to make immediate public disclosure of all material information concerning its affairs, except in unusual circumstances."

Disclosure of Trends and Developments

Examples of trends and developments that seem especially notable include the December 2014 decision of UK regulators to treat wood pellet burning as a transitional rather than long-term climate carbon solution, and to reduce subsidies for construction of additional operational capacity to the Company's leading customer.

Carbon Accounting Guidelines Needed

This company review is indicative of a larger issue that, after the 2015 United Nations Climate Change Conference, should now be a higher priority for the SEC. The SEC urgently needs establish clear guidelines regarding the degree to which companies can claim climate benefits based on undisclosed and long-term carbon accounting assumptions. The climate disclosure guidance should be updated to include requirements to disclose carbon accounting contingencies and assumptions when necessary to ensure that disclosures are not misleading.

We ask that securities regulators and the New York State Attorney General examine existing disclosures by Enviva and take appropriate action.

Investors should proceed with caution in investing in the biomass sector, and in our opinion, should recognize that claims of environmental benefits from bioenergy are likely to be based on a number of assumptions.

VI. Appendix 1: Disclosure and Transparency Requirements of the SEC and FTC

SEC rules on the registration statement (Form S-1) prescribe some requirements for company disclosures in an IPO.

> *… there must be set forth under an appropriate caption, a carefully organized series of short, concise paragraphs, summarizing the most significant factors that make the offering speculative or substantially risky. Issuers should avoid generalized statements and include only factors that are specific to the issuer…*

(2) The issuer must also describe those distinctive or special characteristics of the issuer's operation or industry that are reasonably likely to have a material impact upon the issuer's future financial performance. Examples of factors that might be discussed include dependence on one or a few major customers or suppliers (including suppliers of raw materials or financing), effect of existing or probable governmental regulation (including environmental regulation), material terms of and/or expiration of material labor contracts or patents, trademarks, licenses, franchises, concessions or royalty agreements, unusual competitive conditions in the industry, cyclicality of the industry and anticipated raw material or energy shortages to the extent management may not be able to secure a continuing source of supply.

The Prospectus should include a Management Discussion and Analysis which includes among other things:

(d) Trend information. The issuer must identify the most significant recent trends in production, sales and inventory, the state of the order book and costs and selling prices since the latest financial year. The issuer also must discuss, for at least the current financial year, any known trends, uncertainties, demands, commitments or events that are reasonably likely to have a material effect on the issuer's net sales or revenues, income from continuing operations, profitability, liquidity or capital resources, or that would cause reported financial information not necessarily to be indicative of future operating results or financial condition.

All of these disclosures are subject to the additional requirements of disclosure of sufficient information and context to ensure that shareholders are not significantly misled. Rule 10b-5 provides:

240.10b-5 Employment of manipulative and deceptive devices.
It shall be unlawful for any person, directly or indirectly, by the use of any means or instrumentality of interstate commerce, or of the mails or of any facility of any national securities exchange…
(b) To make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading.

New York Stock Exchange Rules
In addition to SEC rules, New York Stock Exchange (Section 401(a) of NYSE MKT Company Guide) states that a "listed company is required to make immediate public disclosure of all material information concerning its affairs, except in unusual circumstances."

VII. Appendix 2: Letter From Investors

March 14, 2016

The Honorable Mary Jo White
Chair
Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549

Re: Carbon emissions disclosure by the bioenergy sector

Dear Chair White,

Today, many publicly traded companies are promoting the climate change benefits of their operations. As investors, we are concerned that the lack of effective enforcement of the Commission's climate disclosure guidelines may lead to disclosures which exaggerate climate benefits of companies' products and services, and therefore lead to misguided investment decision-making.

Particular vigilance is needed in the renewable energy sector, where technologies intended to reduce greenhouse gas emissions are experiencing explosive growth. The biomass energy sector is especially in need of scrutiny, as this industry is prone to distorted disclosures that may lead investors to conclude that wood burning power plants, which in fact have substantial greenhouse gas emissions, provide equivalent climate benefits as far less polluting technologies like solar and wind power.

The enclosed case study of the single largest producer of wood pellets as fuel for electricity generators, Enviva Partners LP (NYSE: EVA. IPO: April 2015; market cap $350 million, October 2015) illustrates how companies can mislead investors on the environmental and climate benefits of their products, and demonstrates the need for the Commission to be more proactive.

In order to ensure that investors have the necessary and accurate information, we request that the SEC more closely monitor companies' climate benefit claims, and establish and *enforce* clear guidelines applicable to companies that may be claiming climate benefits. Instead of simply declaring that their carbon emitting products or services are beneficial for the climate, companies should also be required to disclose the assumptions and contingencies that underlie such claims. To support such scrutiny, we also request that the climate disclosure guidance be updated to (a) include requirements to disclose carbon accounting contingencies where they underlie statements in SEC filings and (b) include all assumptions going into such accounting that are necessary to ensure that such disclosures are not misleading.

We urge you to examine the enclosed report, and protect investors by revising and enforcing the climate guidance.

Sincerely,

Natasha Lamb, Director of Research & Shareholder Engagement, **Arjuna Capital**

Danielle Fugere, President, **As You Sow Foundation**

Steven Heim, Director of ESG Research/Shareowner Engagement, **Boston Common Asset Management**

Stu Dalheim, Vice President, Shareholder Advocacy, **Calvert Investments**

Steven Viederman, Chair, Finance Committee, **Christopher Reynolds Foundation**

Shelley Alpern, Director of Social Research & Advocacy, **Clean Yield Asset Management**

Sally Ann Brickner, OSF. Justice, Peace, and Integrity of Creation Coordinator, **Congregation of Sisters of St. Agnes**

Duane Roberts, Director of Equities, **Dana Investment Advisors**

Mark Regier, Vice President of Stewardship Investing, **Everence Asset Management**

Holly A. Testa, Director, Shareowner Engagement, **First Affirmative Financial Network**

Jeffrey W. Perkins, Executive Director, **Friends Fiduciary Corporation**

Leslie Samuelrich, President, **Green Century Capital Management**

John Harrington, President and CEO, **Harrington Investments**

Christine Jantz, President, **Jantz Management**

Peter Krull, President, **Krull and Company**

Mary Minette, Director of Shareholder Advocacy, **Mercy Investment Services**

Barbara Jennings, CSJ. Coordinator, **Midwest Coalition For Responsible Investment**

Luan Steinhilber, Director of Operations and Shareholder Advocacy, **Miller/Howard Investments, Inc.**

Julie N.W. Goodridge, CEO, **NorthStar Asset Management, Inc.**

Judy Byron, OP, Director, **Northwest Coalition for Responsible Investment**

Julie Gorte, PhD., Senior Vice President for Sustainable Investing, **Pax World Management Corp.**

Rob Fohr, Committee on Mission Responsibility Through Investment, **Presbyterian Church U.S.A.**

Michael H. Crosby, OFMCap. Corporate Responsibility Office, **Province of St. Joseph of the Capuchin Order**

Jo Marie Chrosniak, HM, Coordinator, **Region VI Coalition for Responsible Investment**

Ethel Howley, Social Responsibility Resource Person, **School Sisters of Notre Dame Cooperative Investment Fund**

Michael Crosby, Executive Director, **Seventh Generation Coalition for Responsible Investment**

Joy Peterson, PBVM, Sinsinawa Shareholder Committee, Sinsinawa Dominican Shareholder Action Committee, **Sinsinawa Dominican Sisters**

Nora. M. Nash, OSF, Director, Corporate Social Responsibility, **Sisters of St. Francis of Philadelphia**

Anna Falkenberg, PhD, Executive Director, **Socially Responsible Investment Coalition**

Allan Pearce, Shareholder Advocate, **Trillium Asset Management**

Patricia A. Daly, Executive Director, **Tri-State Coalition for Responsible Investment**

Timothy Brennan, Treasurer & CFO, **Unitarian Universalist Association**

Katie McCloskey, Director, Social Responsibility, **United Church Funds**

Sonia Kowal, President, **Zevin Asset Management, LLC**