

## Status of amendments that would force EPA to treat bioenergy as carbon neutral, and the urgent need for legislative opposition

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This document is intended to provide an overview of the “Collins biomass amendment” in the Senate version of the Energy Bill, and the bioenergy riders in the House and Senate Appropriations bills. We urge opposition to these provisions.

### The Collins bioenergy amendment in the Senate Energy Bill

The amendment was introduced by Senators Collins and King of Maine, and was attached by a voice vote to the Energy Bill recently passed in the Senate.<sup>1</sup> The amendment states,

*“To support the key role that forests of the US can play in addressing the energy needs of the US, the Secretary, the Secretary of Agriculture, and the **Administrator of the Environmental Protection Agency shall**, consistent with their missions, jointly –*

1. *ensure that the federal policy relating to forest bioenergy –*
  - A. *is consistent across all Federal departments and agencies; and*
  - B. *recognizes the full benefits of the use of forest biomass for energy, conservation, and*
2. *responsible forest management; and establish clear and simple policies for the use of forest biomass as an energy solution, including policies that –*
  - A. ***reflect the carbon-neutrality of forest bioenergy*** and recognize biomass as a renewable energy source, provided the use of forest biomass for energy production does not cause conversion of forests to non-forest use;
  - B. *encourage private investment throughout the forest biomass supply chain, including in-*
    - i. *working forests;*
    - ii. *harvesting operations;*
    - iii. *forest improvement operations;*
    - iv. *forest bioenergy production;*
    - v. *wood products manufacturing;*
    - vi. *paper manufacturing;*
  - C. *encourage forest management to improve forest health; and*
  - D. *recognize State initiatives to produce and use forest biomass.”*

The amendment’s wording is slightly vague, but nonetheless but its intent is clear: to impose upon EPA the requirement to treat bioenergy emissions as carbon neutral. The amendment is so objectionable, it elicited strong mention in editorials in both the New York Times<sup>2</sup> and the Washington Post.<sup>3</sup>

It is possible that the final Energy Bill may not be enacted, or the bioenergy amendment might be removed if the Senate bill is reconciled with the House’s version. However, there is another even more blatant attempt to legislate bioenergy as carbon neutral that has been carried over from 2015. This is currently to be found in the House and Senate Appropriations bills.<sup>4</sup>

### **House Appropriations Bill biomass language**

*“The Administrator of the Environmental Protection Agency shall base agency policies and actions regarding air emissions from forest biomass including, but not limited to, air emissions from facilities that combust forest biomass for energy, **on the principle that forest biomass emissions do not increase overall carbon dioxide accumulations in the atmosphere when USDA Forest Inventory and Analysis data show that forest carbon stocks in the U.S. are stable or increasing on a national scale,** or when forest biomass is derived from mill residuals, harvest residuals or forest management activities. Such policies and actions shall not pre-empt existing authorities of States to determine how to utilize biomass as a renewable energy source and shall not inhibit States’ authority to apply the same policies to forest biomass as other renewable fuels in implementing Federal law.”*

### **Senate Appropriations Bill biomass language**

#### **CARBON EMISSIONS FROM FOREST BIOMASS**

*SEC. 414. (a) IN GENERAL.—For any policy, regulation, or action of the Administrator of the Environmental Protection Agency (referred to in this section as the “Administrator”) specifically relating to carbon dioxide emissions due to the combustion of forest biomass from stationary sources, **the Administrator shall provide that those emissions, including forest biomass carbon dioxide emissions from a facility that combusts forest biomass for energy, do not require regulation, control, or action if—***

*(1) the Secretary of Agriculture (referred to in this section as the “Secretary”) determines, based on the most recent annual assessment of forest and timberland carbon stocks derived from the Forest Inventory and Analysis data of the Department of Agriculture, **that timberland carbon stocks in the relevant region, as described in subsection (b), are stable or increasing as compared to the assessment of timberland carbon stocks for that region based on the relevant average timberland carbon stock assessment baseline described in subsection (c); or***

*(2) the forest biomass is derived from—*

*(A) mill product manufacturing residuals;*

*(B) harvest residues;*

*(C) biowaste (including used wood products); or*

*(D) forest management activities that are conducted—*

*(i) to increase yield; or*

*(ii) to maintain or enhance forest health.*

*(b) REGION IDENTIFICATION.—*

*(1) IN GENERAL.—For purposes of the annual assessment of forest and timberland carbon stocks described in subsection (a)(1), the Secretary shall identify the relevant regions as the following:*

*(A) NORTH REGION—The North Region shall be comprised of the States of Connecticut, Delaware, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Vermont, West Virginia, and Wisconsin.*

*(B) SOUTH REGION—The South Region shall be comprised of the States of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia.*

*(C) INTERMOUNTAIN REGION—The Intermountain Region shall be comprised of the States of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming.*

*(D) PACIFIC COAST AND NORTHWEST REGION.—The Pacific Coast and Northwest Region shall be comprised of California, Idaho, Montana, Oregon, and Washington.*

*(2) INDIVIDUAL CONSIDERATION—For purposes of the annual assessment of forest and timberland carbon stocks described in subsection (a)(1), the Secretary shall consider individually any State not described in paragraph (1).*

*(e) AVERAGE CARBON STOCK ASSESSMENT BASELINE—*  
*The Administrator, in consultation with the Secretary, shall calculate the average timberland carbon stock assessment baseline referred to in subsection (a)(1)—*

*(1) for the period beginning on the date of enactment of this Act and ending on December 31, 2029, based on the average timberland carbon stock assessment for the years 2006 through 2015;*

*(2) for the period beginning on January 1, 2030, and ending on December 31, 2039, based on the average timberland carbon stock assessment for the years 2016 through 2025; and*

*(3) for the 10-year period beginning on January 1, 2040, and ending on December 31, 2049, and for each subsequent 10-year period, based on the average timberland carbon stock assessment for the 10-year period following the end of the previous 10-year baseline calculation.*

*(d) ANNUAL DETERMINATION or APPLICABILITY.—*  
*Not less frequently than annually, the Administrator shall review the most recent annual assessment of the Secretary referred to in subsection (a)(1) to determine the applicability of subsection (a).*

*(e) FOREST CARBON ASSESSMENTS. —Subject to appropriations, the Secretary shall update the measurement of forest carbon stocks with plot data not less frequently than once every 5 years.*

The language in the House and Senate Appropriations bills would codify into law a proposition that is completely false. It essentially says even though scientists and many members of the public understand that burning forests in the tropics is a major source of carbon pollution to the atmosphere, somehow when trees are burned right here at home, there is no effect on atmospheric carbon levels. Such language might be expected by climate change deniers and people who legislate that sea level rise is not happening, but incredibly, there are legislators who favor action on climate change who nonetheless support this language.

The House bill language was previously offered as an Appropriations Bill rider in 2015, and drew opposition from the White House, which specifically called out the biomass rider (along with other riders) in statement threatening a veto of the bill.<sup>5</sup> There was legislative opposition as well. Rep. Don Beyer, D-Va introduced an amendment that aimed to strike the biomass provision from the bill. Ultimately, the amendment was withdrawn.<sup>6</sup> Other lawmakers have gone on the record cautioning about bioenergy. Representative Beyer (D-Va) sent a letter to EPA requesting that the agency not include bioenergy as a compliance measure in the Clean Power Plan.<sup>7</sup> Representative Connolly (D-Va) submitted a similar letter,<sup>8</sup> as did Senators Markey and Warren.<sup>9</sup>

### **Tree-burning industry-written language, industry “science”**

It is clear that both bioenergy amendments were heavily influenced if not written by NAFO. Dave Tenny, president of NAFO, recently issued the following statement, titled “Biomass Recognized as Carbon-Neutral in Senate Energy Bill”<sup>10</sup>:

*“The National Alliance of Forest Owners (NAFO) worked very closely with Senators Collins, King, and Klobuchar on the language of the amendment. At the request of Energy Committee minority members, the amendment includes a proviso that forest biomass energy will be considered renewable and carbon-neutral only if the energy production does not cause the conversion of forests to non-forest uses. We viewed this as an acceptable provision because of the very low risk that energy production from biomass will cause forest conversion...*

*... The Collins/King/Klobuchar amendment is a very positive step forward in our overall legislative strategy on carbon neutrality. **Our next step is to use the momentum gained from this amendment to proceed with the placement of more detailed language (similar to last year’s provisions) in the House and Senate Interior Appropriations Bills.**”*

We hope that Senators will be encouraged by White House veto threat last year to oppose the Appropriations bill language this year. However, it is problematic that the “Collins” amendment was written so easily into the Senate Energy bill. The Tenny statement shows that the biomass industry and their legislative allies will not be satisfied until they have legislated an absurdity – that cutting and burning more trees doesn’t increase carbon pollution. We believe the earlier “Collins” amendment, which unfortunately did not draw a veto threat, was a way of “softening up” Senators and getting them accustomed to supporting legislation that forces EPA to treat bioenergy as carbon neutral. We believe the bioenergy industry and the National Alliance of Forest Owners (NAFO) are counting on ignorance about bioenergy on the part of legislators to effectively trick them into supporting the stronger Appropriations bill provision, which is based on bogus industry “science.” Senators should remember that the tobacco industry had their own “science,” too.

To the extent that well-intentioned minority members of the Energy Committee tried to reduce the impact of the Collins amendment, unfortunately, the “*proviso that forest biomass energy will be considered renewable and carbon-neutral only if the energy production does not cause the conversion of forests to non-forest uses*” is not effective because it does nothing to lessen the carbon pollution impacts of bioenergy over timeframes of years to decades. Clearcutting a forest and burning the wood in a powerplant emits a massive amount of carbon pollution. Ensuring forests cut for fuel are not then turned into housing lots is a laudable goal, but since the decision to develop land would likely precede forest harvesting and use of wood for bioenergy, the provision confuses cause and effect.

**The basic facts are not in dispute: Burning trees for electricity jeopardizes our ability to fight climate change**

FACT: Wood burning power plants emit more carbon pollution than coal plants per unit energy

Utility-scale biomass plants are demonstrably a highly inefficient and polluting way to generate electricity. Typical CO<sub>2</sub> emissions at a utility-scale biomass plant are 150% those of a coal-fired plant, and as much as 400% those of natural gas facility. Theoretically, forests can regrow and capture CO<sub>2</sub> to offset these emissions – but forest modeling shows that such regrowth takes decades, and is not adequate to recapture the full lifecycle emissions of biomass electricity production, which are significant.

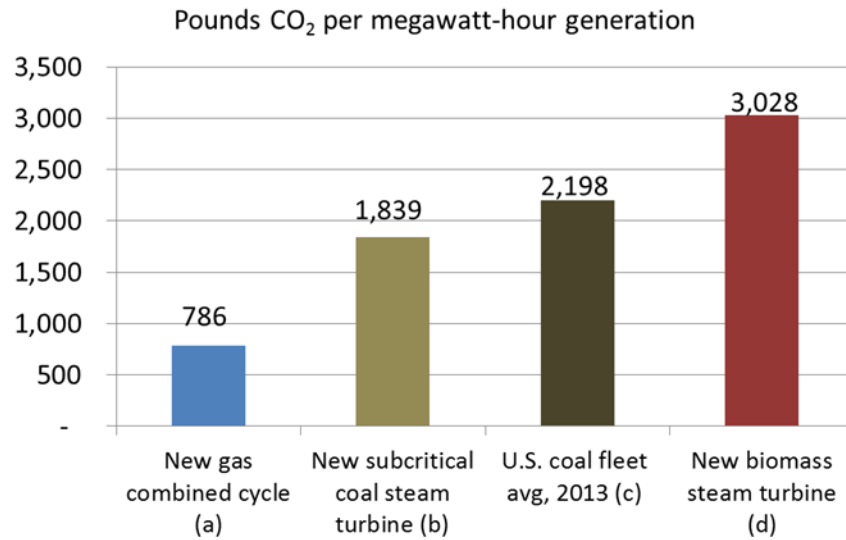


Figure 1. See end of document for references.

Not only does burning wood emit more carbon pollution per unit energy than burning coal or gas, but also, cutting and burning the trees that were growing and taking carbon out of the atmosphere dramatically increases the emissions impact – because cutting trees decreases the carbon “sink” capacity of the forest for long periods. From the point of view of the atmosphere, reducing a sink has the same effect as increasing a source: the net result is that more carbon remains in the atmosphere. A forest provides the “ecological infrastructure” to take carbon out of the atmosphere. Yes, trees can grow back – but it takes decades for small seedlings to grow and replace the massive carbon-sponge capacity of mature trees that are cut for biomass fuel. Reducing forest carbon uptake and simultaneously increasing smokestack carbon pollution can only result on one thing – an increase in atmospheric CO<sub>2</sub> concentration.

FACT: Climate modeling shows to prevent dangerous temperature rise, we need negative emissions  
 Climate modeling shows that to stay below 2 degrees C rise in temperature, it’s not enough to just reduce carbon pollution – we actually need to take carbon that has *already* been emitted out of the atmosphere, thus achieving “negative” emissions. In the chart below (Figure 2), the blue line shows the average trajectory required for scenarios to prevent dangerous temperature rise. Note that emissions flatten immediately from the present time, and show a steep decline starting in 2020 – four years from now.

## To keep temperature rise below 2 deg C, we need negative emissions

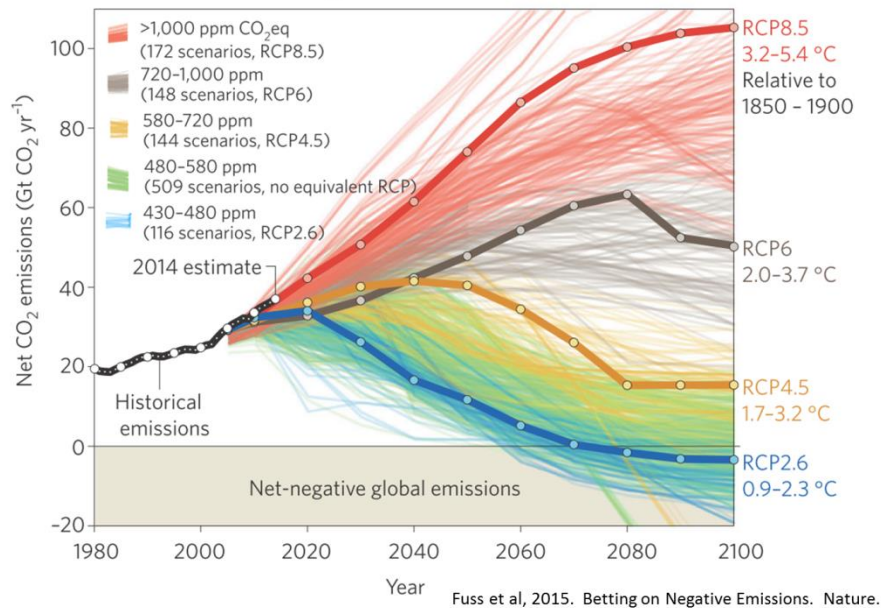


Figure 2.

We are not going to reduce our emissions by increasing them, but increased emissions is exactly what we get when we replace fossil fuels with biomass. New forest growth each year currently takes around 11 percent of our carbon emissions out of the atmosphere, tying that CO<sub>2</sub> up into new growth. We need forest growth and carbon uptake to meet our commitments under the Paris climate agreement. The idea that current forest growth rates create “headspace” for biomass fuel harvesting, and that bioenergy is carbon neutral as long as the amount of biomass harvested remains below annual growth, is nonsensical: burning trees puts more carbon dioxide in the atmosphere than burning coal while decreasing the number of trees available to sequester that carbon dioxide from the atmosphere. The carbon emissions will thus be higher for decades than if we had left the trees standing and let them continue sequestering the carbon emitted by burning fossil fuels.<sup>11</sup>

Dear reader, please note: This isn't an argument for continuing to burn fossil fuels, but instead an argument for recognizing that biomass energy is not the same as wind and solar – the technologies with which it competes for renewable energy dollars.

### The biomass industry's “clean power plan” – clearcutting forests and increasing carbon pollution

It is essential that these biomass provisions do not become law. The stakes are high: nothing less than the ability of the Clean Power Plan to actually reduce emissions, rather than just reducing them on paper. The experience in the EU shows us that treating bioenergy as carbon neutral, and putting a price on carbon, leads to a massive ramp-up in bioenergy, with the majority of the fuel provided by pellets made from North American forests.<sup>12</sup> With enactment of a widespread EU-style carbon trading system in the Clean Power Plan, we could see a similar increase in wood-burning in the United States. The biomass industry is eager to develop a market worth hundreds of millions of dollars each year for replacing coal with wood in the US as they are in Europe.<sup>13</sup> For instance last

year, the pellet industry’s annual conference flyer advertised wood pellets as the “easy solution” for keeping “aging coal plant assets” operating under the Clean Power Plan (Figure 3):

**4th INDUSTRIAL WOOD PELLETS for COAL PLANT CO-FIRING/CONVERSIONS**  
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**THE NEW NORTH AMERICAN WOOD PELLET MARKET: THE EASY SOLUTION FOR UTILITIES & IPPS WITH AGING COAL PLANT ASSETS**

- Get the Latest on the EPA's Clean Power Plan (CPP), 38+ State Renewable Portfolio Standards (RPS)/RPS variants, and other regulations impacting Coal Plant owners
- Learn how modifying pulverized coal power plants to utilizing industrial wood pellets can provide the lowest cost renewable and dispatchable power for CPP and RPS compliance
- Leading pellet producers discuss the prospects of the emerging North American market and outline benefits of the different types of pellets used following conversion
- U.S. and Canadian forest landowners provide perspectives and their projections for sustainable supplying a North American market
- Hear case studies from Utilities and Independent Power Producers (IPPs) who have successfully converted or are considering converting to wood pellets for power generation or co-firing

Figure 3.

**Replacing coal with biomass would require clearcutting millions of acres of forest and would emit billions of tons of carbon pollution**

Assuming average tree cover,<sup>14</sup> replacing just 10 percent of the coal burned in the US from 2005 to 2014 with wood pellets would have required just over 3 billion tons of wood. This amount of wood is the equivalent of clearcutting 39 million acres of forests, an area somewhat larger than the state of Georgia. Burning this amount of wood would emit about 3.6 billion tons of CO<sub>2</sub>; fossil fuel emissions from wood pellet manufacturing would represent hundreds of millions of tons of additional CO<sub>2</sub> emissions. Total carbon pollution from replacing 10 percent coal with wood pellets would exceed the amount of CO<sub>2</sub> emitted over two years of operation by all coal-fired power plants in the US (as of 2013).<sup>15</sup>

## **Legislators should not underestimate the threat that expanding forest bioenergy poses**

Legislative language declaring bioenergy to be carbon neutral defies science and the physical, demonstrable fact that burning biomass to generate electricity emits more CO<sub>2</sub> per megawatt-hour than burning coal or gas. These provisions jeopardize forests, which is not an exaggeration, given the widespread clearcutting for pellet manufacture that is already occurring in the Southeast.<sup>16</sup> They undermine the integrity and authority of EPA and send a terrible signal internationally, just as we are trying to persuade other countries to protect their forests. The provisions also seriously jeopardize the efficacy of the Clean Power Plan, which already only calls for relatively weak reductions in CO<sub>2</sub> emissions. No true climate progressive wants the environmental legacy of the Obama administration and its legislative allies to be that this was the Congress that greenlighted burning trees to generate electricity on the basis of phony industry “science” that denies carbon pollution. It is urgent that legislators voice strong opposition to these amendments, which should be rendered easier given the White House veto threat issued last year.

## **References for Figure 1**

**a, b, c** : from EIA at [http://www.eia.gov/environment/emissions/co2\\_vol\\_mass.cfm](http://www.eia.gov/environment/emissions/co2_vol_mass.cfm). Value for coal is for "all types." Different types of coal emit slightly more or less.

**d**: Assumes HHV of 8,600 MMBtu/lb for bone dry wood (Biomass Energy Data Book v. 4; Oak Ridge National Laboratory, 2011. (<http://cta.ornl.gov/bedb>.) and that wood is 50% carbon.

### **Efficiency**

**a**: DOE National Energy Technology Laboratory: Natural Gas Combined Cycle Plant F-Class

([http://www.netl.doe.gov/KMD/cds/disk50/NGCC%20Plant%20Case\\_FClass\\_051607.pdf](http://www.netl.doe.gov/KMD/cds/disk50/NGCC%20Plant%20Case_FClass_051607.pdf))

**b**: International Energy Agency. Power Generation from Coal: Measuring and Reporting Efficiency Performance and CO<sub>2</sub> Emissions.

[https://www.iea.org/ciab/papers/power\\_generation\\_from\\_coal.pdf](https://www.iea.org/ciab/papers/power_generation_from_coal.pdf)

**c**. EIA data show the averaged efficiency for the U.S. coal fleet in 2013 was 32.6%

([http://www.eia.gov/electricity/annual/html/epa\\_08\\_01.html](http://www.eia.gov/electricity/annual/html/epa_08_01.html))

**d**: ORNL's Biomass Energy Data Book (<http://cta.ornl.gov/bedb>; page 83) states that actual efficiencies for biomass steam turbines are "in the low 20's"; PFPI's review of a number of air permits for recently proposed biopower plants reveals a common assumption of 24% efficiency.

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<sup>1</sup> Co-sponsors included Sens. Klobuchar and Franken, and three climate-change deniers, Mike Crapo (R-ID), James Risch (R-ID), and Steve Daines (R-MT).

<sup>2</sup> <http://www.nytimes.com/2016/04/21/opinion/mixed-signals-on-energy.html?action=click&pgtype=Homepage&clickSource=story-heading&module=opinion-c-col-left-region&region=opinion-c-col-left-region&WT.nav=opinion-c-col-left-region&r=0>

<sup>3</sup> [https://www.washingtonpost.com/opinions/burning-wood-is-not-the-future-of-energy/2016/04/28/9cd9376c-08b9-11e6-bdcb-0133da18418d\\_story.html](https://www.washingtonpost.com/opinions/burning-wood-is-not-the-future-of-energy/2016/04/28/9cd9376c-08b9-11e6-bdcb-0133da18418d_story.html)

<sup>4</sup> Page 83 at <http://appropriations.house.gov/uploadedfiles/bills-114hr-sc-ap-fy2017-interior-subcommitteedraft.pdf>

<sup>5</sup> [https://www.whitehouse.gov/sites/default/files/omb/legislative/sap/114/saphr2822r\\_20150623.pdf](https://www.whitehouse.gov/sites/default/files/omb/legislative/sap/114/saphr2822r_20150623.pdf)

<sup>6</sup> <http://biomassmagazine.com/articles/12118/omb-weighs-in-on-biomass-language-included-in-appropriations-bill>



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- <sup>7</sup> <http://www.pfpi.net/representative-beyer-va-to-epa-treating-biomass-as-carbon-neutral-allows-virginias-forests-to-be-harvested-for-fuel>
- <sup>8</sup> <http://www.pfpi.net/letter-from-rep-connolly-va-to-epa-treating-bioenergy-as-carbon-neutral-may-undermine-the-clean-power-plan>
- <sup>9</sup> <http://www.pfpi.net/senators-markey-and-warren-call-for-moratorium-on-bioenergy-in-the-obama-clean-power-plan>
- <sup>10</sup> <http://www.nhtoa.org/news-and-events/news/64-biomass-recognized-as-carbon-neutral-in-senate-energy-bill.html>
- <sup>12</sup> <http://www.pfpi.net/wp-content/uploads/2016/04/PFPI-Westminster-talk-April-18-2016.pdf>
- <sup>13</sup> <http://www.pfpi.net/clearcutting-forests-for-biomass-to-keep-aging-coal-plants-operating-the-biomass-industrys-clean-power-plan>
- <sup>14</sup> We assume 78 tons of aboveground biomass per acre forest. Per industry specifications from the existing wood pellet industry, the majority of wood used as pellet feedstock is debarked roundwood. Low-diameter material (branches) and bark are burned for process heat.
- <sup>15</sup> EIA reports that emissions from the US coal-fired fleet in 2013 were 1.78 billion tons. This includes emissions from utility, industrial, and commercial coal-fired units.
- <sup>16</sup> See <https://www.dogwoodalliance.org/wetland-investigation-3-16/> for photos of wetland forest clearing by Enviva, the largest pellet manufacturer in the US.