April 13, 2023

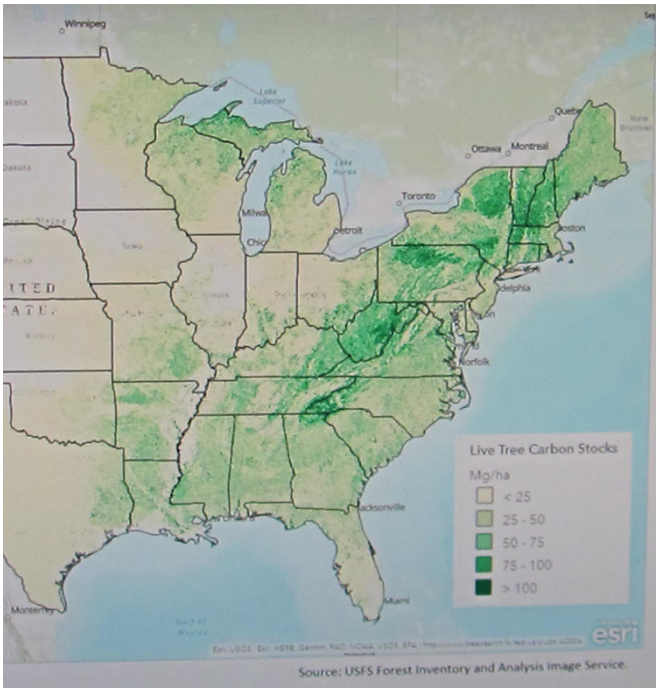
Comment: LD 1408 An Act to Reduce Maine's Dependence on Fossil Fuels and Carbon Footprint for Energy Production Using Waste Wood Fuel

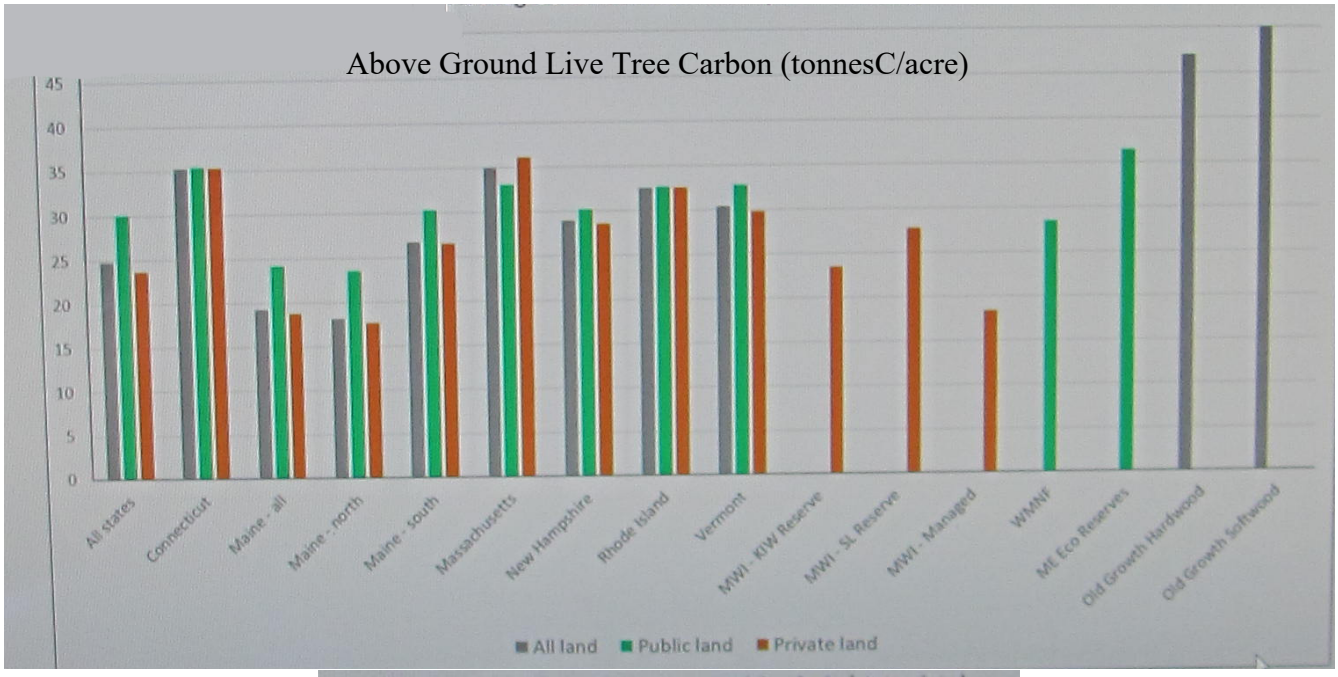
Lindy Moceus, Vienna, Maine

I oppose LD 1408. This bill doubles the allowance for electricity generation capacity from the combustion of wood waste fuel. This is an expansion of the forestry industry which we should instead, be scaling back.

I have included copies of three letters written by scientists to President Biden and Congress expressing their concerns about the forestry industry (includes the use of wood biomass for electricity generation.) These letters were written with regards to certain legislation that was being considered at the time, but many of the points presented are of importance in Maine today. One letter was signed by over 200 scientists, another by 100, and the other by 65. (I did not include the list of signatories because it would have added many many pages. I can provide those on request.) One key issue that was brought out was that electricity generated from incinerating trees should NOT be considered renewable carbon neutral energy. Also included are many examples of how forestry practices and equipment make the industry a high direct CO2 emitter. In addition, the letters promote that we should be shifting "away from consumption of wood products and forest biomass energy to help mitigate the climate crisis.'

Another key point the scientists made: "The growing consensus of scientific findings is that, to effectively mitigate the worst impact of climate change, we must not only move beyond fossil fuel consumption but must also substantially increase protection of our native forests in order to absorb more CO2 from the atmosphere and store more, not less, carbon in our forests." Please note the carbon storage map and graph below. Despite the fact that Maine has the largest contiguous forest east of the Mississippi River, the amount of carbon being stored is much less than forests in other states as denoted by the much lighter green color in Maine. This is because ours are working forests which means that trees are continuously being removed along with their accumulated carbon. The letters point out that contrary to industry claims, comparable amounts of carbon are not stored in wood products. (Refer to first bulleted paragraph in Letter #1 for further explanation.)





Data sources: USFS Forest Inventory and Analysis (state data).

Clearly, Maine's extensive forests are not storing much carbon which is critical, considering the climate crisis we are already experiencing. We must change the way that we have been doing things yet we are still catering to the wants of industry. Allowing industry freedom to steer the way is what got us into the climate crisis. It is time to start abiding by what the scientists have been telling us. (And, not the scientists employed by the industry.) That being said, let's not go in the completely wrong direction and add to the climate crisis problem with legislation such LD 1408. It is the opposite of what we should be doing. Please do not support this short-sighted legislation.

Thank you.

LETTER #1

To: Rep. Kathy Castor, Chair, House Select Committee on the Climate Crisis
Rep. Frank Pallone, Chair, House Energy and Commerce Committee
Rep. Raúl Grijalva, Chair, House Natural Resources Committee
Rep. Collin Peterson, Chair, House Agriculture Committee
Sen. Lisa Murkowski, Chair, Senate Committee on Energy and Natural Resources
Sen. John Barrasso, Chair, Senate Committee on Environment and Public Works

From: Scientists concerned about climate and biodiversity impact of logging

Date: 13 May 2020

Dear Members of Congress,

As forest and climate change scientists and experts, we are writing to urge you to oppose legislative proposals that would promote logging and wood consumption, ostensibly as a natural climate change solution, based on claims that these represent an effective carbon storage approach, or claims that biomass logging, and incinerating trees for energy, represents renewable, carbon-neutral energy.

We find no scientific evidence to support increased logging to store more carbon in wood products, such as dimensional lumber or cross-laminated timber (CLT) for tall buildings, as a natural climate solution. The growing consensus of scientific findings is that, to effectively mitigate the worst impacts of climate change, we must not only move beyond fossil fuel consumption but must also substantially increase protection of our native forests in order to absorb more CO2 from the atmosphere and store more, not less, carbon in our forests (Depro et al. 2008, Harris et al. 2016, Woodwell 2016, Erb et al. 2018, IPCC 2018, Law et al. 2018, Harmon 2019, Moomaw et al. 2019).

Furthermore, the scientific evidence does not support the burning of wood in place of fossil fuels as a climate solution. Current science finds that burning trees for energy produces even more CO2 than burning coal, for equal electricity produced (Sterman et al. 2018), and the considerable accumulated carbon debt from the delay in growing a replacement forest is not made up by planting trees or wood substitution (noted below). We need to increase growing forests to more rapidly close the gap between emissions and removal of CO2 by forests, while we simultaneously lower emissions from our energy, industrial and agricultural sectors.

In your deliberations on this serious climate change issue, we encourage you to consider the following:

- The logging and wood products industries suggest that most of the carbon in trees that are logged and removed from forests will simply be stored in CLT and other wood products for buildings instead of being stored in forest ecosystems. However, this is clearly incorrect. Up to 40% of the harvested material does not become forest products and is burned or decomposes quickly, and a majority of manufacturing waste is burned for heat. One study found that 65% of the carbon from Oregon forests logged over the past 115 years remains in the atmosphere, and just 19% is stored in long-lived products. The remainder is in landfills (Hudiburg et al. 2019).

- Logging in U.S. forests emits 617 million tons of CO2 annually (Harris et al. 2016). Further, logging involves transportation of trucks and machinery across long distances between the forest and the mill. For every ton of carbon emitted from logging, an additional 17.2% (106 million tons of CO2) is emitted from fossil fuel consumption to support transportation, extraction, and processing of wood (Ingerson 2007). In fact, the annual CO2 emissions from logging in U.S. forests are comparable to yearly U.S. emissions from the residential and commercial sectors combined (https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and- sinks). The cumulative climate change impact of logging in the U.S. is even higher, since logging causes substantial reductions in carbon sequestration and storage potential in forests due to soil compaction and nutrient removal, and these combined impacts can often reduce forest carbon storage potential by 30% or more (e.g., Elliott et al. 1996, Walmsley et al. 2009).

- The wood products industry claims that substituting wood for concrete and steel reduces the overall carbon footprint of buildings. However, this claim has been refuted by more recent analyses that reveal forest industries have been using unrealistic and erroneous assumptions in their models, overestimating the long-term mitigation benefits of substitution by 2 to 100-fold (Law et al. 2018, Harmon 2019). The climate impact of wood is even worse if the reduced forest carbon sequestration and storage caused by nutrient loss and soil compaction from logging is included, as discussed above.

In countless public communications, and at numerous Congressional hearings, industry representatives have advocated for increased logging in the context of reducing wildland fire and related emissions. While small-tree thinning can reduce fire intensity when coupled with burning of slash debris (e.g., Perry et al. 2004, Strom and Fulé 2007) under very limited conditions, recent evidence shows intensive forest management characterized by young trees and homogenized fuels burn at higher severity (Zald & Dunn 2018). Further, the extremely low probability (less than1%, Schoennagel et al. 2017) of thinned sites encountering a fire where thinning has occurred limits the effectiveness of such activities to forested areas near homes. Troublingly, to make thinning operations economically attractive to logging companies, commercial logging of larger, more fire-resistant trees often occurs across large areas.

Importantly, mechanical thinning results in a substantial net loss of forest carbon storage, and a net increase in carbon emissions that can substantially exceed those of wildfire emissions (Hudiburg et al. 2013, Campbell et al. 2012). Reduced forest protections and increased logging tend to make wildland fires burn more intensely (Bradley et al. 2016). This can also occur with commercial thinning, where mature trees are removed (Cruz et al. 2008, Cruz et al. 2014). As an example, logging in U.S. forests emits 10 times more carbon than fire and native insects combined (Harris et al. 2016). And, unlike logging, fire cycles nutrients and helps increase new forest growth.

We are hopeful that a new and more scientifically sound direction will be considered by Members that emphasizes increased forest protections, and a shift away from consumption of wood products and forest biomass energy, to help mitigate the climate crisis. We believe having a dialogue now would be productive, and we could help members of your Committees to be more effective in achieving the conservation and climate change goals that we share. We look forward to hearing from you and are available to provide additional scientific sources and serve as a resource for your Committees as you consider policy proposals on the climate crisis.

Sincerely,

LETTER #2

Open Letter to President Biden and Members of Congress from Scientists: It is essential to Remove Climate-Harming Logging and Fossil Fuel Provisions from Reconciliation and Infrastructure Bills

November 4, 2021

Dear President Biden and Members of Congress,

As scientists with expertise in ecology, forest management, biodiversity, and climate change, we are writing to urge you to remove from the Budget Reconciliation and Infrastructure provisions that promote logging and fossil fuels because such measures will only make worse the global climate and biodiversity crises. As an initial matter, we note that, even under optimistic expert estimates, the clean energy provisions in these bills are insufficiently bold and would, by themselves, only achieve a fraction of what we would need to reach the Administration's minimum climate crisis mitigation target of a 50% reduction in annual U.S. greenhouse gas emissions from 2005 levels by 2030. Making matters worse, the bills contain numerous logging provisions that would dramatically increase annual carbon emissions from logging for lumber, forest biomass energy, and wood pellets on public and private forestlands nationwide, which would undermine natural climate solutions and our forests' carbon storage and sink capacities. The Reconciliation Bill is in jeopardy unless the cost can be reduced. Removing these compromising logging provisions and the subsidies for logging, bioenergy and fossil fuels would help accomplish that goal.

As hundreds of climate and forest scientists warned Congress last year, logging in U.S. forests emits 723 million tons of uncounted CO2 into our atmosphere each year—more than 10 times the amount emitted by wildfires and tree mortality from insects combined. Greenhouse gas emissions from logging in U.S. forests are now comparable to the annual CO2 emissions from U.S. coal burning, and annual emissions from the building sector. Most of the carbon in trees removed from forests through logging is emitted almost immediately, as branches and tree tops are burned at biomass energy facilities, and mill residues are burned at the sawmills, typically for energy production—emitting more CO2 than burning coal, for equal energy produced. Logging conducted as commercial "thinning," under the rubric of fire management, emits about three times more CO2 than wildfire alone.

The Reconciliation Bill currently contains $14 billion in new subsidies for logging on federal public lands—more than double existing levels—as well as billions in new logging subsidies on private forestlands. The Reconciliation Bill further proposes nearly $1 billion in new subsidies for forest biomass energy, wood pellet facilities, and mass timber (cross-laminated timber) under the heading of "wood innovation." This ignores the advice of hundreds of climate and forest scientists who have previously informed Congress that these industries substantially increase emissions and worsen the climate crisis.

The Infrastructure Bill includes a legislative mandate for 30 million acres of additional logging on federal public lands over the next 15 years, in addition to misdirecting billions of dollars in new subsidies for the fossil fuel industry and an exemption from environmental analysis for new oil and gas pipelines across federal lands. It also includes provisions that would roll back the National Environmental Policy Act by creating new "categorical exclusion" exemptions from environmental

analysis and disclosure of adverse impacts of this logging on our climate and forest biodiversity, while eliminating the public's right to file administrative objections on logging proposals. Further, the Infrastructure bill includes $400 million for destructive post-fire clearcutting on public lands, and $400 million in new subsidies for forest biomass and wood pellet facilities, which not only harm our climate and forest ecosystems but also disproportionately adversely affect communities of color with increased particulate and toxic pollution. In addition, there are $18 billion in new subsidies in the bill for the forest biomass/pellet and fossil fuel industries to promote carbon capture and storage (CCS) and biomass energy with carbon capture and storage (BECCS), and construction of a massive network of CO2 pipelines. Hundreds of climate scientists, and conservation and environmental justice organizations, have decried this as a false climate solution that can actually increase net carbon emissions and energy consumption while increasing pollution in communities of color.

In both bills, logging provisions are promoted as wildfire management and climate solutions measures, but commercial logging conducted under the guise of "thinning" and "fuel reduction" typically removes mature, fire-resistant trees that are needed for forest resilience. We have watched as one large wildfire after another has swept through tens of thousands of acres where commercial thinning had previously occurred due to extreme fire weather driven by climate change. Removing trees can alter a forest's microclimate, and can often increase fire intensity. In contrast, forests protected from logging, and those with high carbon biomass and carbon storage, more often burn at equal or lower intensities when fires do occur.

We urge Congress to move in the opposite direction by shifting from more logging toward natural climate solutions that store carbon in mature and older forests and allow naturally regenerating forests to continue growing for greater carbon accumulation. For example, protecting U.S. federal public forestlands from logging would not only reduce direct carbon emissions but would also increase annual drawdown of atmospheric CO2 by 84 million tons per year. We do not wish to follow our Canadian neighbors where some of their managed forests have become a source of emissions because they followed many of the proposed policies in these Bills. There is a path toward meeting the vital 2030 climate crisis mitigation goals, but not with the Reconciliation and Infrastructure Bills as currently written.

We need the Administration and Congress to enact policies that will substantially reduce annual greenhouse gas emissions from logging, and from fossil fuels, and increase accumulation of carbon in our forests. The recent IPCC AR6 report released in August makes clear the urgent need to reduce emissions by at least half by 2030 to avoid large increases of devastating heat domes, prolonged droughts, wildfires that can impact communities, intense precipitation events, and catastrophic storms. The logging and fossil fuel subsidies and policies in the Reconciliation and Infrastructure Bills will only intensify the rate and intensity of our changing climate.

Lead Signatories

LETTER #3

The letter below was sent to 10 U.S. senators who are working on the Energy Policy Modernization Act. The Senate has accepted an amendment to the act which would legally designate forest biomass to be "carbon neutral." This means that U.S. Federal agencies would be required to assume that burning wood (instead of coal) to generate electricity emits no greenhouse gases to the atmosphere, even though this is not the case.

February 22, 2016

Dear Majority Leader Mitch McConnell, Minority Leader Harry Reid, Chairwoman Lisa Murkowski, and Ranking Member Maria Cantwell:

We are 65 research scientists and practitioners who study energy, soils, forested and wetland ecosystems and climate change. We are writing in our individual capacities to express our concern over the implications of a "forest biomass carbon neutrality" Senate Amendment 3140 to the Energy Policy Modernization Act that was recently accepted by the US Senate.

This well-intentioned legislation, which claims to address climate change, would in fact promote deforestation in the U.S. and elsewhere and make climate change much worse.

The amendment would require all federal departments and agencies to promote consistent policies that "reflect the carbon neutrality of forest bioenergy and recognize biomass as a renewable energy source." Mandating that there are no carbon dioxide emissions from burning wood from forests to produce energy does not make it so in fact.

The consequence of the amendment is to encourage a shift to forest biofuels in the form of pellets and wood chips to replace coal in the generation of electricity. Wood burning power plants are becoming more numerous in the United States and in the European Union. The US Department of Commerce and the US Forest Service are promoting expanded export of American wood pellets for this purpose to Europe and to Asia. Burning any carbon containing substance whether biomass or fossil fuels releases carbon dioxide into the atmosphere. Burning forest biomass to make electricity releases substantially more carbon dioxide per unit of electricity than does coal. Removing the carbon dioxide released from burning wood through new tree growth requires many decades to a century, and not all trees reach maturity because of drought, fire, insects or land use conversion. All the while the added carbon dioxide is in the atmosphere trapping heat. Right now, large areas of American forests including old growth trees are being cleared for pellets that are shipped to Europe and burned to produce electricity that is counted there as zero carbon. There is no requirement in the amendment that trees used for bioenergy be replaced. International obligations require the United States to account for bioenergy emissions from either the energy sector or as land-use change.

While forest biomass energy may be renewable over the long-term, it is not a low-carbon source of energy like solar panels. Using the same amount of land area, solar panels produce up to 80-times as much electricity as wood burning with no emissions at all. Yet with this amendment, both might receive the same subsidy under the Act. Furthermore, fossil fuel emissions associated with producing bioenergy (harvesting, chipping, drying, pelletizing and transporting) are equivalent to 20-25% of direct emissions, and under this legislation these emissions are unaccounted for.

Forest bioenergy as currently produced also competes with land for other forest products including timber, paper and agriculture. Promoting forest biomass therefore encourages additional deforestation.

Granting carbon amnesty to forest biomass burning for energy could lead to significant depletion of US forests. The potential implications of declaring carbon neutrality for forest biofuels are great because even small quantities of bioenergy require large quantities of wood. The US Energy Information Agency estimates that for each 1% added to current US electricity production from forest biomass an additional 18% increase in US forest harvest is required. This policy would also encourage the destruction of forests in developing countries that would see the US as an export market. This would undermine international attempts to protect tropical forests in these countries through the programs agreed to in Paris.

This amendment puts forest carbon in the atmosphere contributing to climate change instead of keeping it in living, productive forests that provide multiple benefits of water and wetland protection, flood control, soils protection, wildlife habitat, improved air quality and recreational benefits for hunters and all who enjoy being in the great out-of-doors. Legislating scientific facts is never a good idea, but is especially bad when the "facts" are incorrect. We urge you and other members of the Senate to reconsider this well-intentioned legislation and eliminate the misrepresentation that forest bioenergy is carbon-neutral.

We respectfully request an opportunity to inform you and other Senators of the scientific evidence for the appropriate accounting of forest bioenergy emissions. You could perform a great service by proposing and enacting legislation that effectively addresses climate change by enhancing the capacity of forests to reduce the amount of carbon dioxide entering the atmosphere. Any number of us would be willing to testify or to assist you and your staff in meeting the climate challenge with scientifically sound actions.

Sincerely,