1Sky * Clean Air Task Force * Center for Biological Diversity * Conservation International
Defenders of Wildlife * Earthjustice
Environment America * Environment Northeast * League of Conservation Voters * National Audubon Society
Natural Resources Defense Council * Sierra Club * Southern Environmental Law Center
The Wilderness Society * Union of Concerned Scientists

Establishing a Sound Framework for Bioenergy in Clean Energy and Climate Protection Legislation

We need a firm limit on global warming pollution and a comprehensive plan to repower America and revitalize our lagging economy. Done right, we can create millions of jobs, curb global warming pollution and restore the United States to a position of world leadership in technology and innovation. Renewable biomass resources, such as agricultural, forestry, and urban residues, as well as some dedicated energy crops, can be used to produce transportation fuels, electricity, and heat. These types of bioenergy can create jobs in rural communities, cut carbon pollution, and reduce our dependence on imported oil.

According to studies by the National Research Council and the Union of Concerned Scientists, the U.S. can produce between 370 and 550 million tons of biomass for energy use by 2020[1] from sustainably sourced lands and feedstocks. Applying sustainability criteria and other protections to bioenergy production would direct development of dedicated energy crops to land not currently used to produce food, feed, or fiber (e.g. some marginal, degraded, and pasture lands). This amount of biomass is more than enough to meet the demand created by a comprehensive policy that includes a declining cap on global warming pollution, a renewable electricity standard, and the advanced biofuels component of the existing Renewable Fuels Standard.[2] Yet, to date, climate legislation has ignored emissions associated with bioenergy.

As the Senate develops comprehensive clean energy and climate protection legislation it should establish a consistent set of incentives to use renewable biomass resources that contribute to reducing greenhouse gas pollution, rather than encouraging biomass sources that could compete with food and fiber production and contribute to degrading forest and soil carbon stores and related ecosystem services. If limits are placed on industrial and conventional energy carbon emissions but not on net emissions from bioenergy or deforestation and forest degradation emissions from land-use change could significantly increase, particularly after 2030. With bioenergy carbon excluded from emission caps, the emissions limits on capped sectors needed to prevent dangerous global warming must be lower, and hence the global allowance price would be considerably higher than if all emissions are covered, increasing costs for covered sectors and consumers.

There are three critical and related provisions that the Senate needs to get right:

1. Accurate accounting for biomass emissions from sources covered by the cap

Burning biomass in power plants or biofuel in automobiles releases carbon dioxide to the atmosphere, just like burning fossil fuels. The environmental benefits of using bioenergy depend on whether the carbon dioxide released during combustion is balanced by subsequent or additional carbon dioxide uptake during the growth of the biomass and management of the land. A group of prominent climate scientists and land-use experts recently called attention to the need to fix what they called a "critical climate accounting error" in current climate bills.[3] Not all renewable biomass produces zero carbon energy. But current legislation lacks a way to differentiate low carbon biomass from high carbon biomass. The error is assuming that using biomass for energy produces zero net carbon emissions as long as the biomass is "renewable" as defined in the bill. The definition of "renewable biomass" in these bills, however, is far

broader than the biomass sources identified above that would likely represent genuinely low or possibly negative net emission resources.

We recommend that Congress direct EPA to work with USDA and DOE to commission a study by the National Academy of Sciences to evaluate and measure emissions associated with bioenergy and how to account for them. EPA should establish rules to cover these emissions under a cap based on the recommendations of the study.

2. **Accurate accounting for emissions from land-use change in the Renewable Fuels Standard**
The Renewable Fuels Standard enacted in 2007 will greatly expand biofuels production and requires that these fuels significantly reduce global warming pollution compared to the gasoline and diesel fuel they replace. The law requires a science-based, full lifecycle analysis that includes the global ripple effect of increased biofuels production, also known as "indirect-land-use change." The latest scientific research confirms that whether biofuels create or reduce global warming pollution hinges on where and how the feedstocks are produced.[4] In fact, expert agencies implementing the RFS and California's low-carbon fuel standard have found that greenhouse gas emissions from market-driven deforestation and land use change are large and make the difference between biofuels that help or harm the climate.[5] Instead of living up to the challenge of delivering biofuels that are part of the solution, some want to legislate away the science and keep EPA from looking at one of the largest single sources of emissions—clearing forests and grasslands. Congress should leave intact the balanced approach adopted in 2007 and let EPA implement science-based rules.

3. **A sound definition of "renewable biomass"**
An appropriate definition of "renewable biomass" helps protect sensitive wildlife habitat and natural ecosystems, while making a wide diversity of feedstocks available for compliance with the renewable electricity and renewable fuels standards. Biomass sourcing guidelines should provide safeguards for native grasslands, sensitive wildlife habitat, old-growth, wilderness, roadless areas and other especially-sensitive components of our federal lands. At the same time, it should include sustainability measures that protect wildlife habitat, soil productivity, and biodiversity in working forests and discourage the conversion of natural forests to less diverse, planted forests or energy crops. Loss of forests is one of the greatest threats to biodiversity worldwide and a huge contributor to global warming.[6] While outright deforestation is the most dramatic example, conversion of natural forests to single-species tree plantations is also critically important. Plantations may look like "forests," but they are biological deserts compared to the natural forests they replace – lacking the carbon content, diversity of species, structure, and ecological functions that make natural forests so important. A sound definition of "renewable biomass" also acts as a backstop against increased carbon emissions by directing biomass sourcing away from high-carbon ecosystems and towards lower-carbon sources.

With the right criteria in place we can produce enough biomass to help meet fuel and energy demand. Accounting for the emissions associated with bioenergy is not a bar to biomass use in the U.S., rather it will ensure that we develop bioenergy that is part of the solution.

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[1] According to the National Research Council study, 384 million dry tons is available from agricultural and forestry residues and municipal solid waste. Early studies suggest that today cover crops could produce between 2 and 3.6 tons per acre of biomass when harvested and up to 5 tons with good weather and soil fertility. If 10 percent of the nation's 220 million acres of field crop land was cover cropped and the biomass harvested, this would produce between 44 and 110 million tons per year. If incentives boosted cover crop adoption rates to 30 percent, we could expect 66 million acres of land to be planted in cover crops, yielding between 132 and 330 million tons per year of biomass. Because cover crops are best managed as a system with agricultural residues, these numbers may not be entirely additive to the NRC's 130 million tons of residues. Thus, combining innovate farm practices such as double cropping and winter cover crops with potential dedicated energy crops on marginal or abandoned lands,,

an additional 40-330 million dry tons could be available. These estimates do not include the potential from biofuel production from algae.

[2] NEMS model runs of ACES (H.R. 2454) for NRDC (see NRDC, *Clean Energy Bargain*, September 2009, NEMS-NRDC results, http://docs.nrdc.org/globalWarming/glo_09091601.asp.) Energy Information Administration, *Energy Market and Economic Impacts of H.R. 2454, The American Clean Energy and Security Act of 2009*, August 2009. UCS, Cl*imate 2030: A National Blueprint for a Clean Energy Economy*, 2009, http://www.ucsusa.org/global_warming/solutions/big_picture_solutions/climate-2030-blueprint.html.

[3] Searchinger, T., et al., October 2009. "Fixing a Critical Climate Accounting Error." *Science* 326:527-528.
[4] Mellilo, J., et al., October 2009. "Indirect Emissions from Biofuels: How Important?" *Science* 22 October 2009: 1180251v1.
[5] According to the EPA and CARB, the emissions from the biomass-generated incentive for clearing land equal between 31 percent and 66 percent of the life-cycle greenhouse gas emissions of gasoline. See, California Air Resources Board (CARB), "Staff Report: Proposed Regulation to Implement the Low Carbon Fuel Standard - Initial Statement of Reasons (ISOR), Volume 1," March 5, 2009. Table IV-5, p. IV-
and Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program (Notice of Proposed Rulemaking). Federal Register 74:99 (May 26, 2009) p. 25041.
[6] Intergovernmental Panel on Climate Change, *Climate Change 2007: Synthesis Report Summary for Policymakers*, pg. 5. Available at http://www.ipcc.ch/pdf/assessment_report/ar4/syr/ar4_syr_spm.pdf