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Massachusetts Sierra Club

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August 18, 2013

The Honorable John Keenan, House Chairman
Joint Committee on Telecommunications, Utilities and Energy
State House, Room 473B
Boston, MA 02133

The Honorable Benjamin Downing, Senate Chairman
Joint Committee on Telecommunications, Utilities and Energy
State House, Room 413F
Boston, MA 02133

Re: Massachusetts Sierra Club Testimony on S.1593: An Act relative to credit for thermal energy generated with renewable fuels

Dear Chairman Keenan, Chairman Downing, and Honorable Members of the Committee,

The Sierra Club thanks you for the opportunity to offer our comments on S.1593. The bill provides for the addition of thermal renewable energy credits (RECs), which include geothermal and solar thermal as REC eligible energy sources.

Sections of the bill are commendable for the much needed application of thermal RECs to truly clean energy sources like geothermal, heat pumps and solar thermal. However, as written, S.1593 is not acceptable because it includes harvesting whole trees on private or public lands for wood biomass and wood pellets, as well as using such biomass sources to develop bio-gas and liquid bio-fuel. The bill then includes such biomass sources in the alternative Renewable Energy Portfolio Standard (RPS). Renewable Energy Credits are reserved for energy sources that mitigate greenhouse gases (GHG) production and that are in fact renewable. Burning wood harvested for the purpose of electricity or thermal energy generation does not mitigate GHG emissions and is not a renewable fuel. Therefore we believe that biomass sources derived from harvested whole trees on private or public lands should be excluded from eligibility for thermal RECs and not be part of any RPS.

The Sierra Club is opposed to the classification of biomass as “renewable” because (a) it takes 30+ years for biomass to reach carbon neutrality and (b) trees absorb CO₂ from the atmosphere and are a natural carbon sink. Trees are in fact the only practical method to reduce atmospheric carbon. So trees are not only not a renewable energy source but harvesting them for burnable wood pellets produces more carbon dioxide and eliminates a proven, significant means of carbon recapture as well.

The bill also undercuts existing biomass regulations for which Massachusetts has received well-deserved national and international recognition as explained more fully below. But for the inclusion of harvested wood biomass, the expansion of thermal REC program is acceptable to the Sierra Club.

The Sierra Club is the oldest and largest grassroots non-profit and non-partisan environmental organization in the country, with over 1.4 million members and supporters nationwide. Its chapter in Massachusetts has over 22,000 members throughout the state and a history of protecting the environment that spans more than forty years. We work to create healthy, vibrant communities through support of clean air and water; clean energy; recycling and waste-elimination; and the preservation of the Commonwealth's most treasured forests, parks and open spaces.

Massachusetts has specific regulations excluding biomass energy produced from harvested wood. The inclusion of biomass from harvested wood as a source of thermal energy is regressive legislation in several respects. One, this state was the first to promulgate restrictive regulations on the environmentally destructive use of biomass through a contentious regulatory rule-making process that took several years of hard and skilled work on the part a broad coalition of environmental groups. The legislature authorized its administrative agency with the requisite expertise to make that decision and should not now undo it.

Because biomass was being defined under then current statute and regulation as "carbon neutral" and "renewable", biomass plants were being promoted aggressively by energy speculators as "green" energy. With passage of the Green Communities Act and other regulatory initiatives, biomass became classified as renewable energy and became eligible for incentives to promote its development, including eligibility under the RPS. Because carbon dioxide (CO₂) emissions from most types of biomass plants have been ignored, some coal-fired plants in MA were even considering converting to partial or total biomass energy. While this may keep such plants emissions "off the books," it does not take keep those emissions out of our atmosphere and would result in a net increase of carbon emissions. The biomass regulations mitigated that impact. **The inclusion of harvested wood biomass in S.1593 will set the clock back and undo the beneficial effect of those regulations.**

Federal law recognizes biogenic carbon dioxide as a pollutant, not a renewable energy source. The concept of treating biomass as a renewable or clean energy source has recently been judicially ruled to be erroneous under federal law. The prestigious, influential Federal District Court for the District of Columbia struck down the Environmental Protection Agency's temporary exemption under the Clean Air Act of emissions from industrial facilities burning biomass.¹ The Court noted "At least one State, Massachusetts, is currently regulating biogenic carbon dioxide sources at Step Two of the Tailoring Rule." The Court recognized, as does Massachusetts, that "... EPA regulates carbon dioxide as an "air pollutant." The Court did not permit the EPA to treat biogenic sources of carbon dioxide (such as burning wood) differently from any other sources subject to permitting.

Harvested wood biomass is not a renewable energy source. The failure to exclude harvested wood in the statutory biomass definition applicable to thermal RECs and as a renewable or clean energy source, i.e., not emitting a greenhouse gas, turns the concept of a clean or renewable resource on its head. It is a perversion of the concept of renewable or clean energy and a misuse of RECs. The harvesting of live trees and forests for biomass generated electricity or heat should not be part of a renewable portfolio standard.

The proposed expanded definition should be modified to read as follows:

(6) any facility that generates useful thermal energy using sunlight, **bio-gas** [²] **or liquid bio-fuel** [³] **developed from other than harvesting forest resources**, or naturally occurring temperature differences in ground, air or water, whereby one megawatt-hour of alternative energy credit shall be earned for every 3,412,000 British thermal units of useful thermal energy produced and verified through an on-site utility grade meter or other means satisfactory to the department;

Inclusion of harvested wood biomass undermines current GHG goals. The inclusion of biomass in the proposed S.1593 undercuts and reverses the progress that the Commonwealth has made over the last several years in reducing GHG. Massachusetts has charted a course for greener energy to take advantage of its environmental and economic benefits and become a national leader. The Global Warming Solutions Act of 2008 (M.G.L. Section 21N), for example, required the state to reduce GHG emissions from 10 to 25% below 1990 levels by 2020 and by 80% by 2050. In 2010, the state Secretary for Energy and Environmental Affairs set the bar at 25% for 2020, which was actually moderately higher than the 18% reduction that existing policies were already expected to achieve.⁴ The Commonwealth has also established energy efficiency as a way to manage demand. Earlier this year, the Department of Public Utilities approved the Three-Year Energy Efficiency Plans for electric and gas distribution companies and the Cape Light Compact for 2013-2015. These plans will provide to customers a net benefit of \$6.2 billion over the lifetime of the efficiency implementations with a benefit-to-cost ratio of more than 3-1 for every dollar invested. The plans' cost savings confirm that what is smart environmentally also often makes good economic sense.⁵

Eliminating harvested wood as a source of biomass in S.1593 would enhance air quality in the state by providing fuller regulation of GHG emissions and avoid future increases in GHG emissions in Massachusetts.

Thermal RECs will give a much needed boost to developing geothermal technologies and an affiliated industry in Massachusetts. The benefits of S.1593 with that modification to apply thermal RECs to include geothermal sources, i.e., "naturally occurring temperature differences in ground, air or water," include making Massachusetts a leader in heat pump technology and development. Heat pumps are already more than competitive with oil fired furnaces and are running at least neck and neck with gas fired furnaces.⁶ When we use oil and natural gas, many of our dollars leave our state and the country. Based on national numbers, at least two dollars (\$2) per gallon of oil leaves our state each time we fill our oil tank⁷, and \$3 leaves per thousand cubic feet of gas that is piped into our homes and businesses.⁸ In 2011 Massachusetts, residents spent over \$1.7 billion on natural gas and over \$2.3 billion on oil.⁹ These numbers do not even include commercial and industrial buildings. So as we heat our homes and businesses with renewable energy, we stimulate our local economy at the same time by investing these dollars in ourselves!

Turning again to the increased detrimental effects of harvesting live trees for biomass:

- Native forests are presently exploited as a major source of fuel for projects defined as biomass;
- Harvesting existing forests for biomass fuel, including pellet manufacture or conversion to liquid form, adds net carbon to the atmosphere;
- Energy sources provided by forest biomass cannot be increased to provide a meaningful amount of energy without significantly increasing carbon emissions;
- Leading climate change scientists call for immediate carbon dioxide reductions of 2 to 3 percent per year to avert the worst impacts of global climate change;
- A net carbon dioxide increase at this time from biomass harvesting and burning may accelerate climate change impacts and make it difficult or impossible to meet CO2 reduction targets of 80% by 2050;
- Biomass harvesting of forests reduces natural carbon recapture/sequester capacity;
- And a typical utility-scale, electricity-only power station fueled by forest or woody biomass:
 - generates electricity at less than 25% efficiency, which is even less than a typical coal-fired power plant;
 - emits 1.5 times as much operational CO2 than coal per unit of energy generated;
 - emits 3 to 4 times as much operational CO2 than natural gas per unit of energy generated;

- has potentially profound impacts on local and regional air and water quality;
- burns over one ton of wood per minute, requiring 13,000 tons of green biomass to generate one megawatt of biomass power for one year, or 35 tons of green wood per megawatt per day;
- requires very large fossil-fueled equipment and vehicles to harvest and transport the biomass to the burning facility;
- and reduces the ability of remaining and regenerating forest ecosystems to sequester carbon and will destroy important natural habitats by reducing the amount of nutrients and woody debris available for recycling by natural the forest processes.

In sum, biomass energy generation processes contribute to the destruction of existing forests, and wood pellet manufacture relies on harvesting whole trees. Moreover, any biomass to energy projects should have full environmental review and be carefully monitored and designed as part of a sustainable system similar to that required for Forest Stewardship Council certification.

The Sierra Club supports the most significant aspects of S.1593 but opposes the harvested wood biomass component. If modified to exclude that component, S.1593 would have a significant positive impact on the development of geothermal (heat pump) sources of energy to reduce dependence on oil and gas fired home furnaces and industrial facilities, as well as government buildings and non-profits. Development of geothermal and solar thermal technologies will further aid the Commonwealth's economy by stimulating job creation and technological innovation in support of cleaner energy.

Respectfully,



Ryan Black
Director
Massachusetts Sierra Club

Testimony prepared by Edward Woll, Jr., Chair, Massachusetts Sierra Club Energy Committee.

¹ National resource Defense Council Environmental News: Media Center July 9, 2013

<http://www.nrdc.org/media/2013/130712.asp>

² Biogas is actually “any gas fuel derived from the decay of organic matter, as the mixture of methane and carbon dioxide produced by the bacterial decomposition of sewage, manure, garbage, or plant crops.”

<http://dictionary.reference.com/browse/biogas>.

³ Liquid bio-fuels are, for example, bioethanol and biodiesel. <http://en.wikipedia.org/wiki/Biofuel>

⁴ Executive Office of Energy and Environmental Affairs (Massachusetts), Determination of Greenhouse Gas Emission Limit for 2020, memo (Dec. 28, 2010), <http://www.mass.gov/eea/docs/eea/energy/2020-ghg-limit-dec29-2010.pdf> (accessed March 18, 2013).

⁵ Department of Public Utilities (Massachusetts), *D.P.U. 12-100 through D.P.U. 12-111*, xv, (Jan. 31, 2013), <http://www.env.state.ma.us/dpu/docs/gas/12-100/13113dpuord.pdf> (accessed March 18, 2013).

⁶ A heat pump is a clean solution for any home or business and, despite its name, can provide cooling too. Not only do heat pumps reduce GHG emissions, they reduce energy costs too. The financial benefits include tax credits on top of energy savings. However, it is important to do an energy efficiency assessment for your building and make the basic efficiency upgrades first in order to get the most out of every bit of

heat produced. See “Heat Pumps: Good Enough for Queen Elizabeth so Why Not for the Northeast?,” Rocky Mountain Institute, Nov. 2012

” http://blog.rmi.org/blog_Heat_Pumps_Good_Enough_Queen_Elizabeth_Why_Not_Northeast ; Deflate Your Heating Bills with a Heat Pump, e-sierran <http://www.sierraclubmass.org/scan/March2013.htm> and “Heat Pumps: alternative to oil heat for the Northeast – input for and policy-makers.” Rocky Mountain Institute, http://www.rmi.org/Knowledge-Center/Library/2013-05_HeatPumps

⁷ U.S. Energy Information Administration “Petroleum and Other Liquids” arch 2013 Released: July 31, 2013 <http://www.eia.gov/oog/info/twip/twip.asp>

⁸ U.S. Energy Information Administration “Natural Gas” Released July 31, 2013 <http://www.eia.gov/dnav/ng/hist/n9190us3m.htm>

⁹ U.S. Energy Information Administration “State Energy Data System (SEDS): 2012” <http://www.eia.gov/state/seds/seds-data-fuel.cfm?sid=US#PetroleumandFuelEthanol>