

Comments by Emeritus Professor William R. Moomaw on proposed changes in APS and RPS regulations by DOER May 13, 2019 william.moomaw@tufts.edu 617-335-3994

I am William R. Moomaw, Emeritus Professor and Co-Director of the Global Development and Environment Institute at Tufts University. I have conducted research on methods for addressing climate change for 31 years and served as a lead author of five major reports by the Intergovernmental Panel on Climate Change (IPCC) and was a coordinating lead author on the Special Report on Renewable Energy and Climate Change. I am currently working with colleagues at MIT, University of Massachusetts Lowell and the Woods Hole Research Center on the climate implications of forest bioenergy and waste.

In October, the Intergovernmental Panel on Climate Change called for urgent action to address climate change immediately after examining thousands of research articles. It is essential to reduce our carbon dioxide emissions by 25-45% by 2030 and not exceed the capacity of natural systems to remove atmospheric carbon dioxide by 2050 – a condition sometimes termed carbon neutral. Because Americans and other nations have procrastinated, carbon neutrality is not enough! We must become carbon negative after 2050. Each year, we are adding twice as much as nature can remove. We need to both reduce the combustion of all fuels and materials that release carbon dioxide into the atmosphere and increase the removal rate by natural systems. Halting the burning of wood will be more effective than reducing the burning of coal. The IPCC and the UN concluded that the only means we have for sequestering sufficient carbon dioxide from the atmosphere in sufficient amounts in a timely fashion is through absorption by forests.

We cannot avoid serious and irreversible climate related damage unless we increase Carbon Dioxide Removal. Massachusetts forests already store 3x the amount of carbon per acre as do the mismanaged forests of Maine. Our forests are of an age when they are about to grow rapidly and remove a lot more carbon dioxide in the coming decades. Letting a significant portion of these forests continue growing – a management plan known as proforestation, is the most cost-effective and significant option that we have. It is not a substitute for reducing emissions, but burning wood is diminishing their role.

If left to the marketplace, we would not be burning wood either for heat or making electricity. Financial analysis finds that producing electricity by burning high emitting wood is more expensive than producing electricity from wind or solar that release zero carbon dioxide. However, the current regulations in the Alternative Portfolio (APS) standard provide large subsidies from electric rate payers to support the burning of wood by treating it as a zero- carbon source. Despite the fact that the conversion of heat energy to electricity is far less efficient and emits more carbon dioxide than burning any fossil fuel, bioenergy power stations can also qualify for some subsidy if they utilize just half of the heat energy released in combustion under the Renewable Portfolio Standard (RPS). ***Proposed changes will subsidize even more emissions!***

DOER proposes to relax the regulation on wood burning under both the APS and RPS by identifying many additional ways that more trees will be cut down and receive payments from all of the rest of us for energy production. In other words, we, the public are forced to pay still

more to put additional carbon dioxide into the atmosphere and simultaneously reduce the capacity of our forests to remove even as much atmospheric carbon dioxide as it does today.

Massachusetts prides itself on having one of the greatest concentrations of scientific research in the world. In 2008, the Commonwealth commissioned the Manomet study that concluded that it took many decades to a century for forests that have been cut and burned to make electricity to bring added atmospheric carbon dioxide to the level of coal combustion. In 2014, the IPCC concluded that

“The combustion of biomass generates gross GHG emissions roughly equivalent to the combustion of fossil fuels. If bioenergy production is to generate net reduction in emissions, it must do so by offsetting those emissions through increased net carbon uptake of biota and soils.”

“The shortcomings of this assumption (climate neutrality) have been extensively discussed.”

Scientists from University of Massachusetts Lowell, MIT, Tufts and from the Woods Hole Research Center and Partnership for Public Integrity have carried out further analysis demonstrating that burning wood is worse for climate than burning coal or other fossil fuels.

In January, 796 scientists wrote to the European Parliament urging them to restrict wood burning for energy to a few minor uses. Burning wood for electricity or heat will contribute future temperature increases and the associated severe climate related destruction including increased intensity of storms and precipitation, and rising seas in Boston Harbor. Those who argue that burning wood for energy production helps to reduce heat trapping greenhouse gas emissions do not have any scientific proof that this is true. I will attach to my submitted comments some of the verified scientific information and research articles that DOER does not appear to have.

The proposed rule changes by DOER to increase wood burning defy the logic of basic science, are incompatible with the urgent warnings of the Intergovernmental Panel on Climate Change, increase Massachusetts contribution to climate change and undermine the Massachusetts Global Warming Solutions Act and the requirement of the SJC that actions to reduce emissions be implemented.

I urge DOER not to implement any of the proposed changes in regulations for forest bioenergy, but instead to remove all bioenergy from both the APS and RPS and halt all state bioenergy subsidies. We are in a desperate race against time and it is essential that we rapidly halt all sources of heat trapping emissions and increase carbon dioxide sequestration by letting more of our forests grow through proforestation management. The ratepayer funds now being wasted on burning wood to increase climate change, can then be spent to reduce emissions by supporting energy efficiency and zero emission energy sources like wind, solar and technologies like heat pumps for heating and cooling.