

# Biomass Carbon Neutrality Rider in Congressional Appropriations Bill Will Increase CO<sub>2</sub> Emissions, Threaten Forests (June, 2015)



The bioenergy rider in the Interior, Environment and Related Agencies Appropriations Bill requires the EPA to treat bioenergy as having zero CO<sub>2</sub> emissions when “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.” This rider embodies a fundamental error in carbon math, and if enacted, would dramatically increase atmospheric CO<sub>2</sub> as well as allowing forest clearing in the name of “clean energy.”

## Forests are our most important carbon sink

Sector	1990	2005	2011
Energy.....	5,806.2	6,891.2	6,333.6
Industrial Processes.....	348.4	364.6	359.9
Solvent and Other Product Use.....	4.9	4.9	4.9
Agriculture.....	456.2	491.9	508.7
Land Use, Land-Use Change and Forestry.....	15.1	28.0	40.3
Waste.....	185.0	150.9	140.8
Total Emissions.....	6,815.9	7,931.5	7,388.0
Land Use, Land-Use Change and Forestry (Sinks)....	(875.8)	(1,099.9)	(997.6)
Net Emissions (Sources and Sinks).....	5,940.0	6,831.5	6,390.4

Cutting forests puts forest carbon into the atmosphere, as shown (pink highlight) by EPA data. New forest growth takes carbon *out* of the atmosphere (green highlight). In fact, forest CO<sub>2</sub> uptake is our only significant **sink** for carbon, taking up more than 13% of CO<sub>2</sub> emissions each year.

U.S. GHG Emissions and Sinks by Sector (million tons CO<sub>2</sub> equivalent).  
 997.6 (forest carbon sink) ÷ 7,388 (total emissions) = **13.5 %** of US emissions

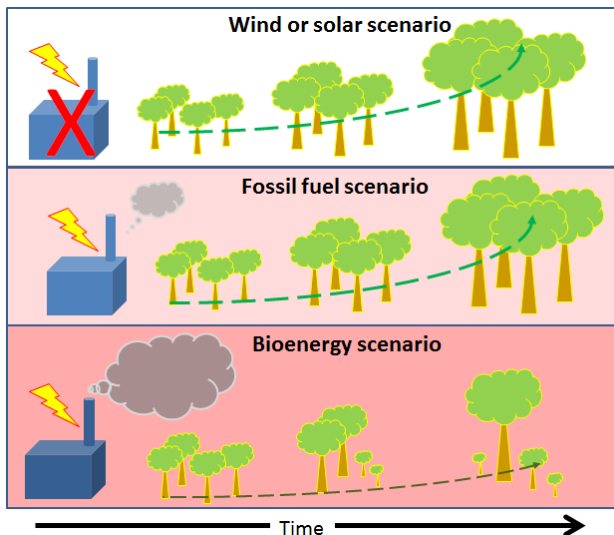
**The rider’s math error:** It forces EPA to act as if cutting and burning the equivalent of new forest growth for fuel would have no effect on atmospheric CO<sub>2</sub>. In fact, this action would dramatically *increase* atmospheric CO<sub>2</sub> because it would reduce our most important carbon sink.

## Biomass power plants emit more CO<sub>2</sub> than coal plants

CO <sub>2</sub> Emission Rates From Power Plants	Lb CO <sub>2</sub> /MMBtu	Facility efficiency	MMBtu /MWh	Lb CO <sub>2</sub> /MWh
Gas combined cycle	117.1	0.45	7.6	<b>888</b>
Gas steam turbine	117.1	0.33	10.3	<b>1,211</b>
Coal steam turbine	205.6	0.34	10.0	<b>2,063</b>
Biomass steam turbine	213	0.24	14.2	<b>3,028</b>

Biomass power plants are notoriously inefficient, emitting ~50% more CO<sub>2</sub>/MWhr than coal plants. Co-firing biomass with coal increases CO<sub>2</sub> emissions and decreases facility efficiency compared to burning coal alone. Emissions are higher even when mill waste or forestry waste is burned as fuel.

## Worse than coal: Bioenergy *increases* emissions and *decreases* forest carbon uptake



Contrasting scenarios demonstrate that bioenergy is a double-whammy for the climate

- 1.) Wind and solar power emit no CO<sub>2</sub> and forests are left to grow and sequester CO<sub>2</sub> from the atmosphere.
- 2.) Fossil fuels emit CO<sub>2</sub>, but leaving forests standing provides a growing carbon sink that sequesters and stores at least some emissions.
- 3.) Biomass power plants emit more CO<sub>2</sub> than coal plants, and harvesting forests for fuel reduces the carbon stored in forests for decades to more than a century, moving that carbon into the atmosphere.