

## Biomass power cuts forests, pollutes the air, drains rivers, and worsens global warming – While costing taxpayers billions as “renewable” energy

### *The surge in bioenergy development threatens forests*

More than 150 wood-burning biomass power plants have been proposed in the U.S. These plants will dramatically increase forest harvesting and air emissions. Some examples:

In New Hampshire, the 70 MW Laidlaw biomass plant in Berlin, NH, will burn 113 tons of “whole logs” an hour, according to the air permit. This is around 900,000 tons a year.

In Maine, a new wood pellet plant requiring 650,000 tons of green wood a year will ship its product exclusively to Europe, for burning in European coal plants.

In Vermont, the Beaver Wood Energy pellet manufacturing and biomass energy plant in Fair Haven will consume over 600,000 tons of trees per year.

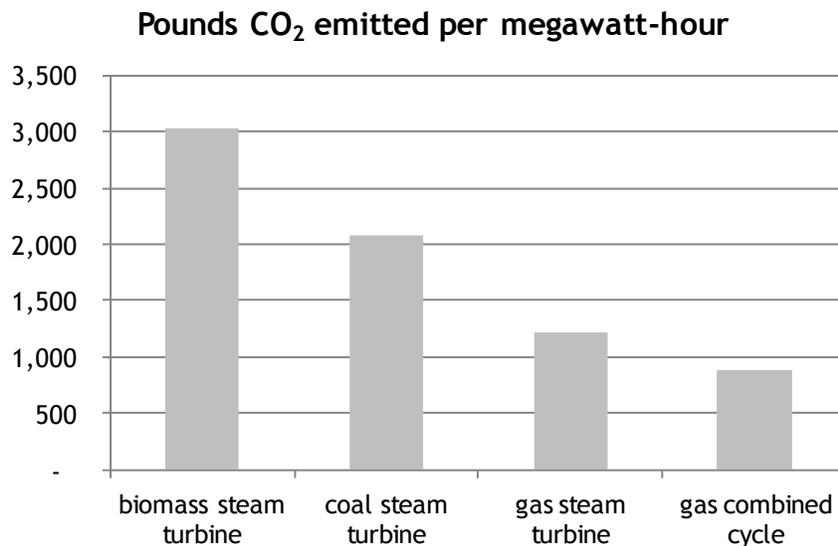
In Virginia, Dominion Energy is re-firing three coal plants with biomass. The 150 MW of “renewable” power will require 1.9 million tons of wood/yr and will increase emissions, yet allow these aged coal plants, which were barely operating, to move to full-time operation and collect renewable energy subsidies worth millions of dollars per year.

In North Carolina, Duke Energy persuaded the Utilities Commission to define whole trees, and not just “forestry waste,” as eligible for renewable energy subsidies.

In Florida and Georgia, more than 25 new wood pellet and biomass power facilities will consume 20 million tons of wood per year.

### *Biomass energy emits more CO<sub>2</sub> than fossil fuels*

A typical 50-MW biomass plant operates at ~24% efficiency and emits more than 660,000 tons of CO<sub>2</sub> per year. CO<sub>2</sub> emissions from biomass power plants exceed those from coal and gas.<sup>1</sup>



There’s no faster way to move carbon into the air than by cutting and burning forests, yet the treatment of biomass energy as “carbon neutral” assumes that new forest growth takes up CO<sub>2</sub> released by burning. A typical 50-MW plant burns ~650,000 tons of wood a year, or 1.23 tons of wood per minute. Re-growing forests cut for fuel in a timeframe meaningful to addressing climate change is impossible.

## ***Biomass energy emits the same pollution as coal***

Typical annual emissions from a 50 MW biomass plant<sup>2</sup>: 230 tons nitrogen oxides, 248 tons carbon monoxide, 85 tons particulate matter, 40 tons volatile organic carbons, and 25 tons hazardous air pollutants. Many plants burn demolition waste and other sources of treated and painted wood, increasing emissions of heavy metals, dioxins, and other toxics. EPA recognizes that even the best-performing biomass plants emit as much or more air pollution as a similar-sized coal plant.<sup>3</sup>

Health organizations oppose biomass energy:

- *American Lung Association*: ALA "does not support biomass combustion for electricity production" and "strongly opposes the combustion of wood and other biomass sources at schools and institutions with vulnerable populations".<sup>4</sup>
- *Massachusetts Medical Society*: MMS opposes construction of large-scale biomass energy plants, which pose an "unacceptable risk to the public's health".<sup>5</sup>

## ***Biomass energy requires millions of gallons of diesel fuel***

Harvesting and transporting one ton of wood chips requires about 2.1 gallons of diesel.<sup>6</sup> A 50 MW plant requires 1,365,000 gallons of diesel per year for wood harvest and transport.

## ***Biomass burning creates thousands of tons of ash that require disposal***

A typical 50-MW plant produces over 3,000 lb of ash per *hour*. The ash is mixed with water for shipping and disposal. If the facility is burning construction waste, the ash will have a high concentration of heavy metals. Disposing of ash requires landfill space.

## ***Biomass power plants drain rivers and aquifers***

A typical 50 MW plant requires 700,000 to 900,000 gallons of fresh water a day for cooling. About 85% of this is evaporated; the balance is returned to the river as a heated solution containing concentrated pollutants like aluminum and phosphorus.

## ***We pay more to pollute - biomass energy costs taxpayers and ratepayers***

- A typical 50 MW plant can collect ~\$15 million a year in electricity ratepayer-funded Renewable Energy Credits at average prices.
- The federal taxpayer-funded renewable energy production tax credit (PTC) is worth ~\$4.5 million a year to a 50 MW biomass power plant. **PTC obligations between 2013 and 2020 will cost taxpayers more than \$2.2 billion if present trends continue.**<sup>7</sup>
- Some facilities have been granted millions of dollars under the federal 1603 program, which converts the federal incentive tax credit to cash worth 30% of construction costs.

<sup>1</sup> CO<sub>2</sub> emissions were calculated using fossil fuel facility efficiency rates from Energy Information Administration, 2011. Average heat rates by prime mover and energy source. Electric Power Annual 2009, Washington, DC. The biomass efficiency value is common value for utility-scale facilities.

<sup>2</sup> Emissions estimates were based on rates from biomass facility permits issued over the last four years.

<sup>3</sup> Pollution emission rates are expressed as pounds of pollution per million btu of boiler capacity (lb/mmbtu). EPA's permit clearinghouse shows overlap in the permitted emission rates for coal- and biomass-burning facilities for each pollutant, with the exception of sulfur, which is usually emitted at a higher rate by coal plants. Range of rates at the five lowest-emitting coal facilities and the five lowest-emitting biomass facilities:

Filterable PM10 Coal: 0.01 to 0.12 lb/mmbtu; Biomass: 0.02 to 0.03 lb/mmbtu

NOx Coal: 0.067 to 0.07 lb/mmbtu; Biomass: 0.065 to 0.15 lb/mmbtu

CO Coal: 0.1 to 0.135 lb/mmbtu; Biomass: 0.1 to 0.24 lb/mmbtu

<sup>4</sup> American Lung Association. Public Policy Position on Energy. Approved June 11, 2011.

<sup>5</sup> MMS. "Massachusetts Medical Society adopts policy opposing biomass power plants". December 9, 2009.

<sup>6</sup> Innovative Natural Resource Solutions. Biomass fuel availability, North Springfield, Vermont. September 2011.

<sup>7</sup> Data on new generation to 2015 from EIA and Forisk Consulting, with equivalent yearly increases thereafter. Capacity is assumed to be 80%. Facilities are assumed to get the PTC for ten years.