



## Waste-To-Energy is a Climate-Friendly, Renewable Energy Source

In determining the sources to include under a greenhouse gas emissions cap, policymakers should evaluate the complete lifecycle of the source. Sources that reduce greenhouse gases over their lifecycle should be encouraged rather than regulated. Applying a lifecycle analysis to waste-to-energy facilities demonstrates that they are net reducers of greenhouse gases and should be treated accordingly under any policy to regulate greenhouse gas emissions. Crafting a climate policy that recognizes the benefits of waste-to-energy will have the desired effect of providing incentives to renewable energy sources that minimize greenhouse gases and promote energy independence and fuel diversity. Waste-to-energy facilities should qualify as sources of offsets in any climate change program and be excluded as a source regulated under a cap.

### ***Waste-to-Energy Basics***

Waste-to-energy facilities generate electricity and steam using municipal solid waste as the primary fuel source. The facilities burn waste in specially designed boilers to ensure complete combustion and employ modern pollution control equipment to scrub emissions.

The result is clean, renewable energy. Nationwide, 87 waste-to-energy plants supply about 2,500 megawatts of generating capacity to the grid. These plants divert approximately 90,000 tons of waste each day from landfills, generating nearly 17 billion kilowatt hours of electricity per year. This is enough to meet the electricity needs of almost two million homes and represents nearly 20 percent of all non-hydro renewable electricity generation in the U.S. To put this in context, it would take 7.8 million tons of coal to produce the same amount of electricity from a coal-fired power plant. Additionally, waste-to-energy plants generally operate in or near metropolitan areas, increasing transmission efficiency and improving distribution bottlenecks.

Currently, waste-to-energy facilities process only 8 percent of the municipal solid waste produced in the U.S. each year. This largely untapped resource of readily-available biomass does not require large-scale conversion of arable land or diversion of compostable materials.

### ***Waste-to-Energy Reduces Greenhouse Gases and Should be Encouraged***

Although waste-to-energy facilities emit CO<sub>2</sub> as part of their process, they achieve a net reduction of greenhouse gas emissions over their lifecycle and should not be covered under an emissions cap.

Waste-to-energy emits two types of CO<sub>2</sub>: biogenic and anthropogenic. Most of the emissions (67%) are biogenic. These emissions result from the combustion of biomass, which is already part of the Earth's natural carbon cycle – the plants and trees that make up the paper, food, and other biogenic waste remove CO<sub>2</sub> from the air while they are growing, which is returned to the air when this material is burned at a waste-to-energy facility. Because they are part of the natural carbon cycle, greenhouse gas policies should not seek to regulate these emissions.

The remaining CO<sub>2</sub> emissions are anthropogenic. They come from man-made substances in the waste that is combusted, such as unrecyclable plastics and synthetic rubbers. Despite these emissions, waste-to-energy facilities more than offset these emissions through three separate mechanisms.



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### *Waste-to-energy facilities reduce greenhouse gas emissions in each of the following ways:*

- ◆ by generating electrical power or steam, waste-to-energy avoids CO<sub>2</sub> emissions from fossil fuel-based electrical generation;
- ◆ the waste-to-energy combustion process eliminates the methane emissions that would have occurred if the waste was placed in a landfill; and
- ◆ the recovery of metals from municipal solid waste by waste-to-energy facilities is more energy efficient than the production of metals from raw materials.

As a result of these mechanisms, waste-to-energy produces electricity at a net emission rate of **negative** 3,636 lbs of CO<sub>2</sub>/MWh. In other words, on a lifecycle basis, for every ton of trash burned at a waste-to-energy plant, approximately one ton of CO<sub>2</sub> equivalents is reduced.

Climate change policies that only look at the end of the stack may inadvertently include net reducers like waste-to-energy facilities. This would unnecessarily penalize facilities that provide climate change benefits and would be inconsistent with state and regional greenhouse gas programs like the Regional Greenhouse Gas Initiative (RGGI), which exclude waste-to-energy facilities from the definition of covered sources. It would also be inconsistent with international carbon regimes. For example, the Clean Development Mechanism established under the Kyoto Protocol accords waste-to-energy projects offset status for displacing fossil fuel-fired electricity generation and eliminating methane production from landfills. Any federal climate change program should similarly recognize waste-to-energy as an important tool to meet greenhouse gas reduction goals and should treat waste-to-energy as a renewable energy source and an eligible offset project category.

### ***Renewable Energy Policies Should Promote Waste-to-Energy Facilities***

Federal, state, and local governments have enacted a variety of laws that recognize waste-to-energy as a renewable energy source. At the federal level, waste-to-energy has been recognized as an important source of renewable energy since the inception of the industry over 30 years ago. The Federal Power Act, the Public Utility Regulatory Policy Act (PURPA), the Biomass Research and Development Act of 2000, the Pacific Northwest Power Planning and Conservation Act, the Internal Revenue Code, the Energy Policy Act of 2005, Executive Order 13123, and Federal Energy Regulatory Commission regulations all recognize waste-to-energy as a renewable source of energy. Most recently, the Emergency Economic Stabilization Act, also recognized waste-to-energy as a renewable energy source by providing a two-year extension of the renewable energy production tax credit for waste-to-energy facilities and other renewable sources.

Policies aiming to increase renewable energy production (production tax credit or renewable energy standard) and reduce greenhouse gas emissions (cap-and-trade) should rely on waste-to-energy to assist in these efforts. Increased use of waste-to-energy will help promote energy independence, reduce dependence on fossil fuels, and reduce greenhouse gas emissions. In conclusion, it is essential that any future climate and renewable policies continue to encourage the development and operation of waste-to-energy facilities.

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### **States Defining Waste-to-Energy as Renewable in State Law**

(as of 1/1/09)

Alaska	Maine	New York
Arkansas	Maryland	Oregon
California	Massachusetts	Pennsylvania
Connecticut	Michigan	South Dakota
District of Columbia	Minnesota	Virginia
Florida	Montana	Washington
Hawaii	Nevada	Wisconsin
Iowa	New Hampshire	
Indiana	New Jersey	