



Office of the Ohio
Consumers'
Counsel

Your Residential Utility
Consumer Advocate

CONSUMERS'
FACT
SHEET

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Renewable Energy Sources

BIOMASS ENERGY



What is biomass energy?

Biomass is a renewable resource that can be used to generate electricity, produce heat, or fuel automobiles. It can be developed for use in the form of solid, liquid, or gas. Biomass energy uses organic matter to produce energy, using materials such as municipal and industrial waste, methane gas from landfills, unused vegetable crops, and tree waste.

People have been using biomass as an energy source for thousands of years when wood was first burned to cook food and keep warm. Even now, wood and its waste are still the largest sources of biomass energy. Biomass can be used

for fuel, power production, and products that are typically made from fossil fuels. Today, there are five different ways biomass energy can be generated:

- ▶ **Direct combustion** – the burning of dry organic matter, such as wood;
- ▶ **Chemical conversion** – the conversion of soybean and canola oil to bio-diesel or ethanol;
- ▶ **Pyrolysis** – the heating of organic compounds to produce gases;
- ▶ **Anaerobic digestion** – the conversion of sewage and animal waste to methane;

RENEWABLE ENERGY SOURCES BIOMASS ENERGY

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The Office of the Ohio Consumers' Counsel (OCC), the residential utility consumer advocate, represents the interests of 4.5 million households in proceedings before state and federal regulators and in the courts.

The state agency also educates consumers about electric, natural gas, telephone and water issues.

For more information, please visit the OCC website at www.occ.ohio.gov.



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- **Fermentation** – the creation of ethanol by fermenting and distilling sugar solutions. This ethanol can be used to fuel automobiles.

These biomass processes are used to create energy for both industrial and residential use.

Statewide and national outlook

Per the Institute for Energy Research, biomass accounts for around half of the renewable energy produced in the United States.

According to the U.S. EPA's Landfill Methane Outreach Program, as of June 2017, Ohio has developed 19 "Landfill Gas-to-Energy" projects totaling 79 megawatts of energy production. Several of the projects use the biomass energy directly, but some generate electricity to sell to a third party.

Throughout the nation, there are more than 600 operational landfill biomass projects. These projects have a capacity of more than 2000 megawatts of electricity.

Pros and cons of biomass energy

Like fossil fuels, biomass energy emits carbon dioxide when burned. Carbon dioxide is considered to be a greenhouse gas. Unlike fossil fuels, however, biomass is considered a renewable resource. The plants used in biomass energy can be grown over and over again.

Depending on the source of the biomass, it may give off pollutants when burned. This may cause health issues for some people.

Except for a few instances, biomass is considered more environmentally friendly than traditional fossil fuels; however, some believe that biomass materials would be better used as food, fertilizer, or otherwise, rather than burned for energy.

Additional resources

For additional information on solar power, visit these organizations:

[U.S. Energy Information Administration](#)

[U.S. Department of Energy Biomass Program](#)

[National Renewable Energy Laboratory Biomass Research](#)

[U.S. EPA Landfill Methane Outreach Program](#)