BIOENERGY



CASES

FACT SHEET

PREPARED BY: MAX POELZER

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What is Bioenergy?

Bioenergy is produced through various processes and technologies that convert organic waste into fuel sources. The most common forms ways of using bioenergy is through combustion or collecting gases produced through decomposition.

Organic materials used for combustion to generate heat or energy are called feedstocks. This can include offcuts and sawdust from sawmills, rice husks, and other residue from forestry and agricultural industries.[1]

Gas collected from decomposing organic materials is most often generated from two processes. The first is landfill gas. This involves the capture of gases released from municipal waste. The second is anaerobic digestion. Anaerobic digestion is the process of gathering materials like crop materials, cow feces, wastewater, and food waste and placing it in an oxygen-free container. When the materials decompose, the products leftover are biogases, in the form of methane and carbon dioxide, and solid waste that can be used as fertilizer.

What is Bioenergy Used For?

Bioenergy can be used for combined heat and power in industrial and municipal settings. Since biofuels have low energy density and the transportation of feedstocks or the shipment of gas comprise a large part of the costs associated with bioenergy, it is often most economical to use them on-site. For example, a sawmill can generate its own heat and power using scrap wood or sawdust.

[1] IRENA (2022), Renewable Power Generation Costs in 2021, International Renewable Energy Agency, Abu Dhabi, 168.

Biogases can also be used as a substitute for natural gas. As a gas, it can be transported over long distances through natural gas pipelines.[2]

Bioenergy and Renewable Energy

Bioenergy is most effective in combatting climate change and reducing greenhouse gas emissions when diverting existing waste materials and gases from organic decomposition from being released into the atmosphere. The collection of animal excrement can also prevent harmful runoff from agricultural sites from contaminated waterways.

To maximize the emission reductions of biofuels, the bioenergy sector requires strong monitoring processes to ensure that biofuels entering supply chains are not coming from the harvesting of healthy forests or emissionsintensive agricultural production of crops grown specifically for the bioenergy market.

[2] EESI (2017), Fact Sheet | Biogas: Converting Waste to Energy, Environmental and Energy Study Institute, 4.



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