

What is Carbon Neutrality?

Carbon Neutrality is the concept of achieving net zero carbon emissions by balancing an amount of carbon released, with an equivalent amount sequestered or offset from reforestation – i.e. new growth.

This accounting protocol is applied to biogenic sources of CO_2 emissions, and permits manufacturers to omit 100% of CO_2 emissions from biofuels from the carbon footprint of their products.

Is Wood-Based Energy Carbon Neutral?

It depends, this is a point of contention among researchers. The carbon footprint of a particular feedstock can only be determined after a detailed assessment of the supply chain for the fuel in question.

When wood is harvested, transported, converted to building products, or burned, it generates carbon emissions that have immediate climate impacts.

The full carbon impact of wood-based biofuel depends on sustainable forest management practices, and a strong commitment to reforestation. Some forests are managed sustainably, but many are not.

Carbon in the Atmosphere

Whether carbon in the atmosphere originated from a fossil fuel, or organic plant life, carbon is carbon. A unit of CO_2 in the atmosphere from crude oil, has precisely the same greenhouse gas effect as a unit of CO_2 from wood-based biofuel.

It's the same molecule.



While assuming biogenic emissions are completely 'carbon neutral' may be a useful accounting practice for certain sectors, no such distinction is made in nature.

Due to a variety of concerns emerging from current research, experts in both the private and public sectors are now challenging this assumption.

Fuel Efficiency

On a dry basis, coal and wood yield comparable results in terms of CO_2 emitted, per unit of energy produced. This means that generating power from wood results in slightly more CO_2 emissions than from any fossil fuel, including coal.

Studies have shown that converting a coal-fired plant to wood-pellets will increase CO_2 emissions for 40-50 years before any potential environmental benefit is realized.



Forest Carbon

Forests are the lungs of our planet. They absorb and store vast amounts of carbon. The carbon neutral label incentivizes forest managers to cut down trees, and grow them in short rotations, rather than allowing them to mature. There is growing concern over the impact that increased demand for wood pellets and other wood-based biofuels will have on forests in North America. To determine the carbon impact of a biofuel stock, we need to ask:

- What type of wood is being burned?
- Is it whole logs or branches, twigs and sawdust?
- Is it from a cool northern forest, or the warm south?
- Is it from a plantation or a natural forest?
- Carbon neutrality cannot be assumed for all biomass energy. It is a conclusion that can be reached only after considering a variety of factors.