

# Question: Is the carbon in trees emitted when they're cut?

Answer: No, this is **false**.

The facts: Trees absorb carbon from the air as they grow, store carbon in the solid form of the tree, and the carbon is not released unless trees or wood decay or burn.

**The solid carbon in wood is not emitted when a tree is cut. It is preserved in wood building products.**

## Cutting trees does not release carbon.

Through the well-understood process of photosynthesis, growing trees absorb carbon dioxide that exists in gaseous form in our atmosphere and converts the carbon into a solid form within the tree. (About 50% of the dry weight of wood is stored carbon.<sup>1</sup>) As the tree grows, its accumulated mass of stored carbon increases as well. It's true that when a tree is cut it will stop absorbing carbon from the atmosphere, but solid carbon is still locked away in the wood.

As trees get older and grow more slowly, the amount of carbon absorbed and stored decreases, too. And the older a tree becomes, it faces greater risk of releasing its carbon in the form of emissions because of disease, decay and mortality.<sup>2</sup> The public is most familiar with mass emissions during wildfires, when trees burn and their stored carbon is released immediately and violently into the atmosphere.

## Harvesting trees to produce wood products transfers forest carbon stored in wood into the built environment.

Science reveals that growing, harvesting trees, using wood products, replanting, and then repeating the cycle stores more carbon over time than unmanaged forests, and generates a net sequestration of carbon which can offset other large emissions, such as in energy creation or transportation.

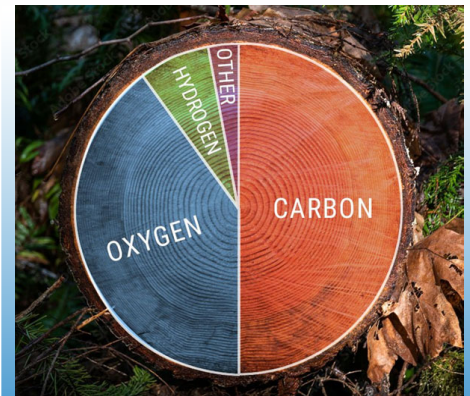
University of Washington scientists studied the process of growing, harvesting trees and utilizing wood as a substitute for more energy-intensive materials. They found that, after all emissions associated with harvest and manufacturing are accounted for, **the private forestlands of Washington state offset 12% of the state's total annual carbon emissions.**<sup>3</sup>

## Today's forest industry is highly efficient.

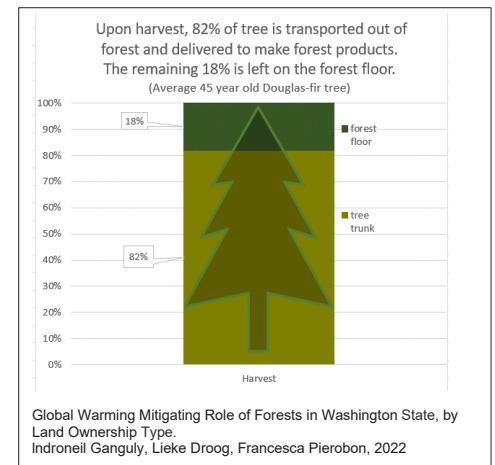
When a tree is harvested, 82% of the tree trunk is transported out of the forest and delivered to make forest products--18% remains on the forest floor to restore nutrients to the soils or is available to developing biomass markets for fuel. This "logging slash" can be converted into energy and long-lived products that also keep carbon stored, like biochar. Utilization of biomass for energy displaces less carbon friendly fossil fuel energy sources.

In the case of an average 45-year-old Douglas-fir tree, about 53% of the tree's carbon ends up in long-lived wood products like lumber, plywood, and poles. The remainder becomes chips used for paper or biomass (bark or sawdust), which can be used to create green energy.

And when wood products are used in construction, more fossil-intensive materials are displaced, like concrete and steel. This long-term substitution more than doubles the carbon benefits of using wood.



The dry weight of tree wood is composed mostly of solid carbon which remains in this solid stored state until the wood decays or is destroyed by burning.



1 Source: <https://www.janickilogging.com/carbon-capture-forestry>, accessed 1/27/23

2 Source: <https://sage-advice.com/how-do-trees-remove-carbon-dioxide-from-the-atmosphere-what-happens-to-it/>, accessed 1/28/23

3 Ganguly I, Pierobon F, Sonne Hall E. Global Warming Mitigating Role of Wood Products from Washington State's Private Forests. *Forests*. 2020; 11(2):194. <https://doi.org/10.3390/f11020194>