Importance of Transports

HOLZ VON HIER

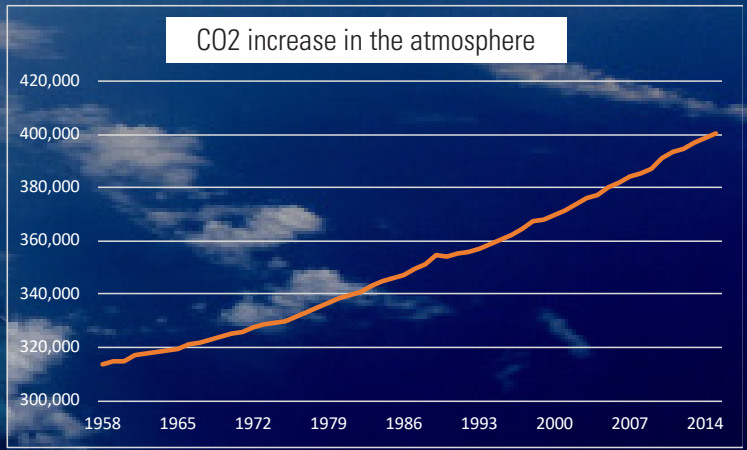
LOW CARBON TIMBER

We are proud to ba a part of the new European Climate and Environment Strategies.

Transports of the chain of custody have a decisive influence on the climate and environmental balance of products.

environmental label,
proof of origin
products, suppliers,
non-profit initiative

Climate protection now,
because failure is not an option !



Active climate protection is not a luxury, but a matter of survival

Climate change is one of the central political, economic and societal challenges of our time. The accumulation of climate- and weather-related catastrophes such as floods, heavy precipitation, droughts, forest fires, heat waves, storms and others, also in our latitudes, makes it clear that climate change affects us all fundamentally - also economically.

Job messages are piling up that climate change is not only not slowing down, but is actually increasing faster than the worst fears have outlined. The goal of limiting warming by 2° seems increasingly utopian. Yet more severe warming will result in global ecological, economic, and social changes that may exceed the scale of the imaginable.

The global scientific community therefore agrees that every effort must be made to reduce emissions of climate gases if the ambitious goal set is to be achieved and serious damage, including economic damage, is to be averted.

It is no longer a question of choosing between this or that strategy to reduce emissions, but whether there will be enough time, even if all possible and tangible approaches are pursued simultaneously.

As early as 2010, the then Secretary General of the UN (Ban Ki Moon) expressed, „Climate action now, because failure is not an option!" How much more is this true today in light of current developments.

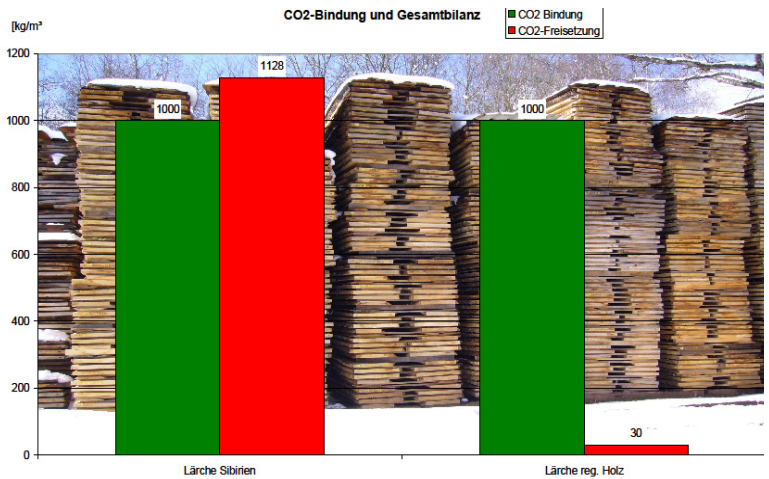

You can‘t see the transports in the upstream chains on wood.
Proofs such as LOW CARBON TIMBER resp. HOLZ VON HIER are therefore becoming increasingly important.

The contribution of wood to climate protection also depends strongly on transports

The increased use of wood is generally regarded as a contribution to climate protection per se. However, this is not true across the board; it depends on the circumstances.

Wood is a renewable raw material, so in principle it is ‚inexhaustibly' available. However, this is only true if the forests from which the wood comes also produce as much wood as is harvested on a permanent basis. This is by no means the case everywhere in the world.

Wood binds CO2 and thus represents a sink. However, this only applies as long as the wood remains in a product, i.e. only for long-lasting applications. In addition, CO2 is also emitted during the manufacture of wood products. How high this emission is determines what remains as a storage function. Here, the transports have the decisive influence.



Source: Own calculations based on generally accepted emission factors (EU 2009, UBA, 2014 et al.).


Transport already accounts for 20%
of total European CO2 emissions,
with a strong upward trend.

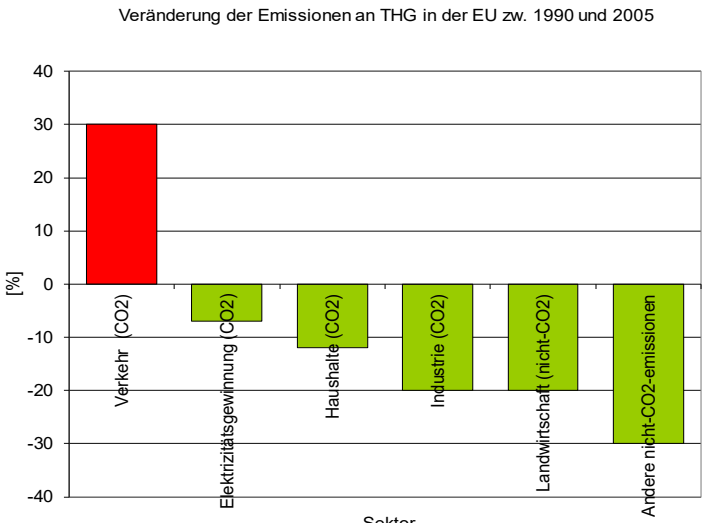
Transport is a major contributor to climate change

The third largest contributor to climate change worldwide is increasingly globalized transport. Globally, the EU ranks 3rd in the list of polluters. Road and air traffic in particular are contributing to this development, with emissions rising by almost four percent a year.

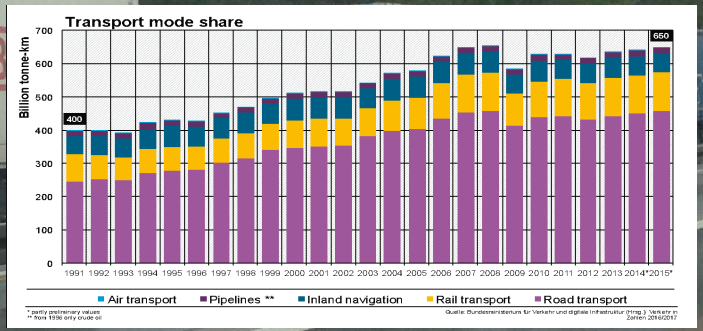
Transport is also the only sector in the EU in which CO2 emissions have increased significantly and will continue to rise (see figure). This applies above all to the transport of goods.

Today, transport accounts for 20% of total European CO2 emissions.

Source: KOMM (2011) 112.



Freight intensity has increased in the past ... especially truck transports



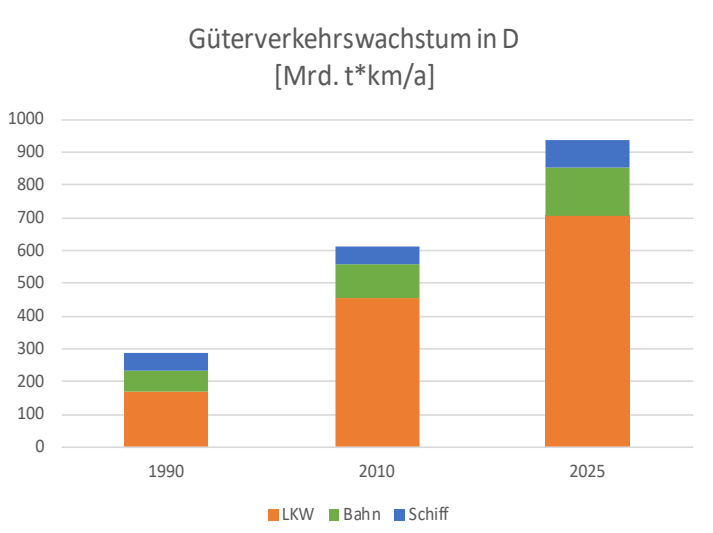
Freight traffic increases continuously - truck share remains unbrokenly high

The increase in freight traffic continues unabated. There is no slowdown in sight. More goods are being transported than in the past and over ever longer distances.

According to forecasts, the share of trucks in freight traffic will not decline, but rather increase.

This, in turn, has an impact on the eco-balance of products and our consumption. The share of transport processes in the total emissions of products will increase even further than is already the case.

EU studies show: there will be no significant change in the modal split. The demand for „goods on rail or ship" will not solve the problem, because in reality truck traffic will remain the main share of goods traffic.



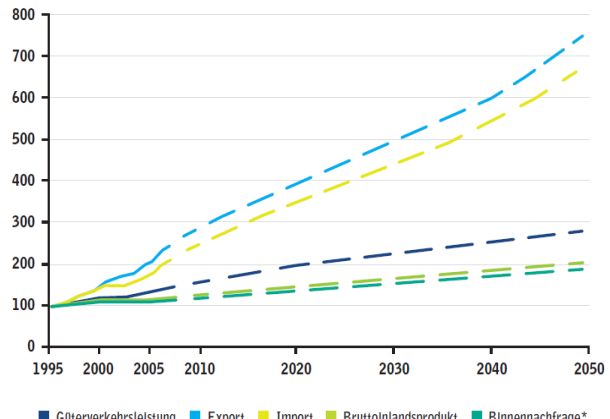
Source: after BMVBS, Progtrans 2007; own illustration


Only changes in transport intensity, i.e., a reduction in the number of kilometers driven, can make an essential contribution to climate protection.

Transport distances are continuously increasing

Without a targeted countermeasure, e.g. through demand for regional products, the distances over which raw materials and goods are transported are continuously increasing. This is neither economically necessary nor does it significantly increase economic performance. As evaluations by the Federal Ministry of Transport show, a rapid increase in both imports and exports is expected, which is completely decoupled from the increase in economic output (GDP).

This leads to a rapidly increasing climate impact through CO2 emissions, which would neither be economically necessary nor beneficial for the consumer in any way. This can only be counteracted by a targeted demand for regionally manufactured products (e.g. LOW CARBON TIMBER resp.HOLZ VON HIER).



Source: BMVBS (2007); Bundesverkehrsministerium und Verband der Automobilindustrie (2010).


Technical possibilities are already reaching their limits today and will not will not solve the problem ...
... and also the climate friendliness of electromobility is largely based on the type of power generation.

Specific CO2 emissions per kilometer stagnate

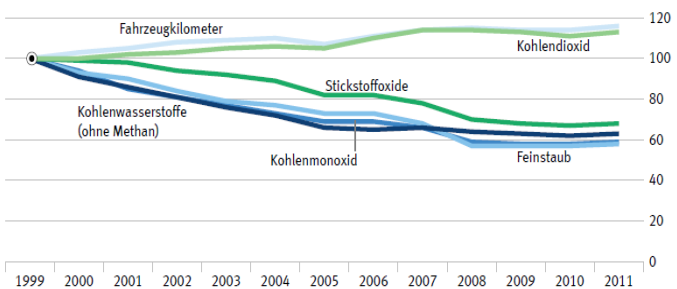
A lot is being done to reduce emissions, isn't it? In the EU, numerous efforts have been made to reduce the environmental impact of transport:

- More efficient engines
- Introduction of emission standards (EURO NORM for trucks)
- ‚Bio' fuels
- Electromobility, improved aerodynamics and others.

This has also had some effect on most exhaust gases, but not with regard to CO2, which is largely responsible for climate change. Here, emissions in relation to mileage have remained more or less the same for almost 15 years. While the EU has achieved successes with other emissions, the specific CO2 emissions from transport, especially the transport of goods, have remained the same.

Fahrleistungen und Emissionen von Fahrzeugen im Straßengüterverkehr

1999 = 100



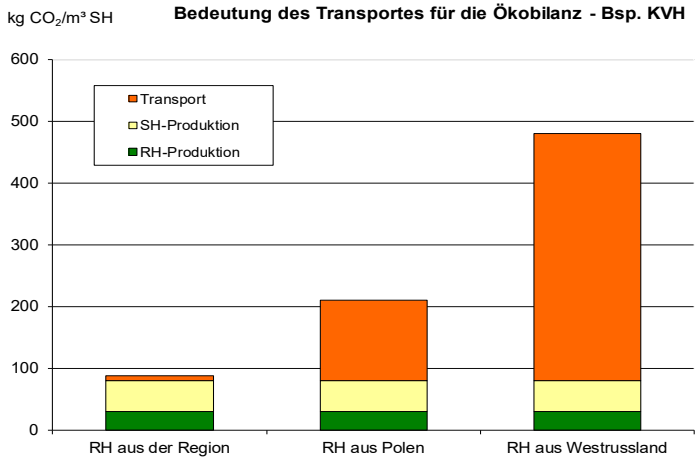
Statistisches Bundesamt, Verkehr auf einen Blick, 2013


For wood products, transport can account for the highest share of CO2 emissions in the entire process chain (A1 - A4).

Share of transport in the life cycle assessment of products

The CO2 emissions up to the provision of a wood product are caused by different processes. This ranges from the management and harvesting of the wood in the forest to the transport of the wood along the entire process chain and the various manufacturing processes. In most life cycle assessments, transports do not play a major role. However, this does not correspond to reality.

Depending on the origin of the wood in a later product, transports can indeed be negligible (wood of short distances) or, as shown by the example of two main import countries for softwood to Germany, they can account for the dominant and decisive share of total emissions.



Source: own calculations based on generally accepted emission factors (EU, 2009, UBA, 2014). Calculations using the example of KVH - sales in Germany / Austria

GWP-transports (examples)

Brasil to Centr-EU: 203 [kg CO_2/t]
China to Centr-EU: 473 [kg CO_2/t]
Sibiria to Centr-EU: 553 [kg CO_2/t]
USA to Centr-EU: 268 [kg CO_2/t]

more examples SAVE database
alle data to CO_2 in CO_2 Äquivalent

GWP-production (examples)

Timber: 112 - 167 [kg CO_2/t]
Brick: 151 - 282 [kg CO_2/t]
Concrete: 142 - 508 [kg CO_2/t]
Sand-lime-brick: 134 [kg CO_2/t]

Data from ökobaudat and EPD timber without credit sun

Transport is a crucial and effective lever for reducing CO2 emissions.

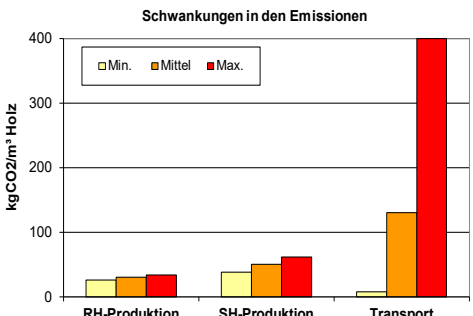
Climate efficiency of industrial production, examples: 170 t CO2/$ Germany, 350 t CO2/$ USA, 390 t CO2/$ Brazil, 1,210 t CO2/$ China or 1,250 t CO2/$ Russia.

Transport as the most effective control lever for reducing CO2 emissions

Today, the highest improvement potentials for climate protection are still achievable in transport. In the case of wood products, transport has the highest variation in product-specific CO2 emissions, even though the material flows here could easily be closed in short processing chains. This is not so easily possible for many other raw material groups. Reducing transport distances is the main lever for maintaining an optimal climate balance for wood products, because:

(1) For long distances, transportation accounts for the lion's share of the upstream carbon footprint (see Fig).

(2) The emissions between different producers (Central EU) differ only slightly by an average of 25% upwards or downwards. Technical conversions for (even) lower-emission production technology are not easily feasible and involve considerable investment, which puts many companies at a disadvantage. The climate efficiency of industrial production in Central-EU is already far better than in other parts of the world.



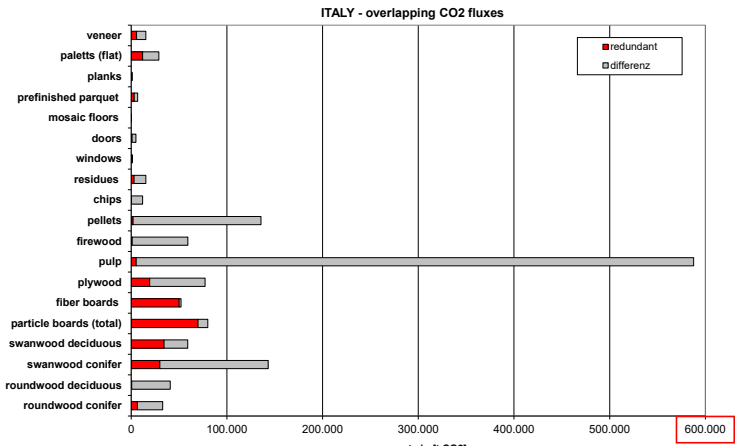
More examples SAVE database; figure with data from Thünen Institute study (2012).


Large shares of foreign trade flows would be avoidable, especially for wood products.

The importance of global commodity flows also for wood products

The market for the manufacture of wood products has also become global. Although regionally sufficient wood would be available in the domestic forests. The enormous quantities of different wood assortments that are both exported and imported at the same time each year are not due to shortages. In purely commodity terms, most of these mutually overlapping commodity flows would be avoidable. This is particularly evident in the case of softwood lumber.

By avoiding overlapping goods flows in the import and export of wood products alone, approximately 245,000 tons of CO2 emissions could be avoided each year in Italy. The reduction of transports thus has a CO2 reduction potential for which national programs would otherwise have to be launched.



calculated with data from Eurostat.

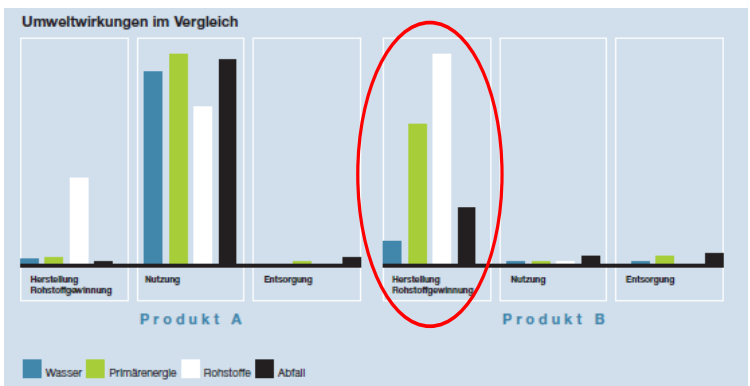

With wood building materials, the
gray energy is decisive for the
climate balance of the life cycle

The chain of custody is crucial for the carbon footprint of wood products

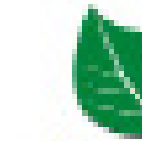
Wood products for construction, interior finishing and housing in particular have their main environmental impacts almost exclusively in the upstream chains (life cycle phases A1 to A4).

Building materials and products in interior design or furniture are inert in the use phase (B). This means that they consume neither energy nor raw materials here, unlike electrical appliances, heaters or lighting, for example. In the after-use phase (C), solid wood products in particular are very climate-friendly. Timber is almost completely recycled or can even be reused. This is also illustrated by the adjacent figure from a study by the German Federal Environment Agency. Product A is an electronic product, product B is wooden furniture.

The more energy-efficient buildings or even individual building elements such as windows are today, the more important the upstream chains, origin and type of building materials used become for the climate balance of the building. Products with a LOW CARBON TIMBER resp. HOLZ VON HIER certificate can develop their optimum climate protection effect in the building here.



picture Umweltbundesamt.



HOLZVON HIER

Zertifiziertes Produkt

D/X-D-00000-1

Timber products with a
LOW CARBON TIMBER resp.
HOLZ VON HIER certificate [example]
are optimally climate friendly
and sustainable

LOW CARBON TIMBER (LCT), HOLZ VON HIER (HVH) certified products are ...

ENERGY efficient and therefore optimal CLIMATE friendly

Short distances in the processing chains generally save considerable „gray energy". In the case of products made of wood and other renewable resources, the largest contribution to the climate footprint of products is achieved through short distances in the entire material flow of the processing chain. The energy and climate (protection) efficiency of industrial production in Central-EU compares favorably with the rest of the world.

.... from renewable raw materials (NaWaRo) that originate from sustainable forest management

The timber originates from sustainable forestry and not from tropical and boreal primeval forests or from globally endangered tree species (see IUCN, CITES). As an entry requirement for the chain of custody certification of LCT/HVH, a forest management certificate for sustainable forestry is required for the logs.

WATER efficient

In the case of wood products, indirect water consumption due to transport is considerable. In terms of water consumption in production, wood products can score ahead of other products.

BIODIVERSITY friendly

Almost as many species are threatened by worldwide transport as by overexploitation. Shipping on the main trade routes also plays a very negative role. Overexploitation of tropical virgin forests dramatically reduces species diversity. In contrast, targeted demand for a wide range of tree species from native forests strengthens incentives to increase tree species diversity in managed forests.


The societal costs of long transports are almost as high as the direct costs

Direct and social costs of transportation

Transportation causes direct costs that are also reflected in the product price. On the other hand, indirect social costs arise that are not included in the product price. So far, they have been borne as „external costs" by the general public and consumers and not by the economic actors along the process chain.

Direct Costs

On average, transport of sawn timber directly in Central-EU costs about €1/km. Thereby, fuel costs have the lowest share with 18% for short distances and 23% for long distances. This means that fuel costs offer little incentive to source or market goods as close as possible.

Indirect social costs

External societal costs include costs due to environmental pollution (air, climate, landscape consumption, etc.) as well as other economic costs (health, loss of productivity due to congestion, noise, etc.). According to European studies, these costs amount to:

~ 0,5 – 1,0 €/km for trucks,

~ 0,7 €/km for electric freight trains

~ 4,0 – 5,8 €/km for diesel freight trains

This means that the external costs of transport, which have to be paid additionally by society, e.g. via taxes, are as high (or higher for diesel trains) as the direct costs.

Source: UBA, 2014; EU Generaldirektion, 2009; EU Parlament, 2007.

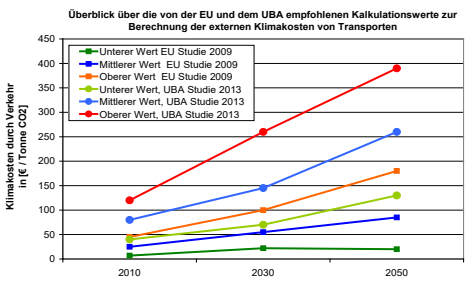

Long transports cause high costs
for society. These are usually not
internalized in the product price.

Societal costs of transportation paid by all European citizens

Rising social costs for transportation.

EU studies (2009) calculate transports at an average of 7 €/t (lowest value for 2010) to 100 €/t (upper value for 2030), on average 40 €/t. A later study by the German Federal Environment Agency (2013) calculates values from 40 €/t (low value for 2010) to about 260 €/t (high value for 2030), on average currently 113 €/t.

In principle, these societal costs should be integrated into the product price, because every kilometer saved saves our economy real money.



Long distances cost society real and lots of money.

From the studies of the UBA and the EU, average transport-related economic costs can be determined in total as well as for the climate change caused thereby.

Costs of (a) climate change (for CO2eqv) and (b) total economic costs of transporting goods from different countries to Germany. Examples:

Brasil to Centr-EU:	(a) 21 [€/t] bzw. (b) 242 [€/t]
China to Centr-EU:	(a) 44 [€/t] bzw. (b) 491 [€/t]
Belarus to Centr-EU:	(a) 10 [€/t] bzw. (b) 241 [€/t]
USA to Centr-EU:	(a) 25 [€/t] bzw. (b) 379 [€/t]

Calculations with data from UBA (2014), EU Generaldirektion (2009) u.a.

Timber does not look like it has been transported in the upstream chains, which is why certificates such as LOW CARBON TIMBER resp. HOLZ VON HIER are becoming increasingly important today.

The LOW CARBON TIMBER (LCT) resp. HOLZ VON HIER (HVH) certificate as a benchmark for climate-optimized wood.

You can't tell by looking at wood the distances over which it has been transported along the value chain from the forest road to the object. In order to optimally protect the climate and the environment with the use of wood and NaWaRo, it is important that the wood product has been sourced and traded in the shortest possible distances along the entire processing chain. This requires a specific control and a proof like the certificate LOW CARBON TIMBER resp. HOLZ VON HIER.

LOW CARBON TIMBER (LCT) resp. HOLZ VON HIER (HVH) is the only eco-label that records, balances and documents transport processes and their environmental impacts.

The LCT/HVH Environmental Footprint provides LCA baseline data for the specific product or object along the entire real processing chain in real time.

The eco-label LOW CARBON TIMBER (LCT) resp. HOLZ VON HIER (HVH) with the CoC certificate, sets benchmarks for wood products for climate-optimized wood, because:

- The criteria for recording and evaluating environmental impacts were developed on the basis of scientific studies and analyses.
- As an instrument that is not geographically but climate and environment related, LCT/HVH is also relevant for public procurement.
- LCT/HVH covers not only the transports along the process chain but also those up to the point of use.
- LCT/HVH refers to the specific delivery that the buyer purchases. The control of the criteria takes place in real time and not after the fact.

LOW CARBON TIMBER resp. HOLZ VON HIER - Climate protection and regional value creation in Europe

LOW CARBON TIMBER (LCT) resp. HOLZ VON HIER (HVH): non-profit cross-border initiative in Europe.

LCT/HVH is a cross-border, non-profit initiative that reduces the environmental footprint of products in various countries. In addition to various expert committees at LCT/HVH, some of which are international, the control and verification system of the certificate also functions and operates independently of borders and across borders. It is thus the first eco-label with pan-European potential that specifically evaluates the environmental footprint of the process chain.

To achieve this, many have contributed. We therefore extend our sincere thanks to all of them:

Network companies that produce, trade and use appropriate products! Without such products, which are awarded with the LCT/HVH certificate, climate protection remains only theory.

Partners who work with us to promote LCT/HVH.

Planners and municipalities who plan, use and tender products certified according to LCT/HVH! They create best practice examples for climate protection and sustainability.

Funding providers, because without you the initiative would not have been able to launch many things that contribute massively to climate and environmental protection, regional value creation, material flow management, circular economy and innovative approaches.

Holz von Hier / Low Carbon Timber - gemeinnützige Initiative mit Stakeholder-Kuratorium, Beiräten und Expertenpanel, offenem Partner- und Betriebsnetzwerk

sowie gleichnamigem Klima- und Umweltlabel
HOLZ VON HIER© resp. **LOW CARBON TIMBER©**

Holz von Hier / Low Carbon Timber
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