



**KOSKISEN**

Quality has a name.

# Carbon footprint and carbon handprint report 2022



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# **Greenhouse Gas Protocol standard - Scopes 1 and 2**

# Scopes 1 – 2

Scope 1 includes direct greenhouse gas emissions from the power plants and vehicles that are owned or controlled by the company. Direct emissions include fossil fuel consumption as backup fuel in the power plants and the emissions of transport by company-owned vehicles.

Scope 2 includes indirect emissions from the production of purchased electricity.

Carbon foot print tCO <sub>2</sub> e	Sawn Timber Industry	Panel Industry	Total Koskisen
Scope 1 Direct emissions	2	3,749	3,751
- incl. power plants	2	2,986	2,988
- incl. transport	0	763	763
Scope 2 Purchased electricity	5,377	10,894	16,271
Total Scopes 1-2	5,379	14,643	20,022

# Reporting according to GHG Protocol



- Reporting according to the GHG Protocol includes Scope 1-2 for the year 2022
- Koskisen has also started calculating the emissions resulting from purchases and value chains according the GHG Protocol Scope 3.
- Emissions from burning biomass were 133 807 tCO<sub>2</sub>e in 2022 reported as a separate information according the GHG Protocol.



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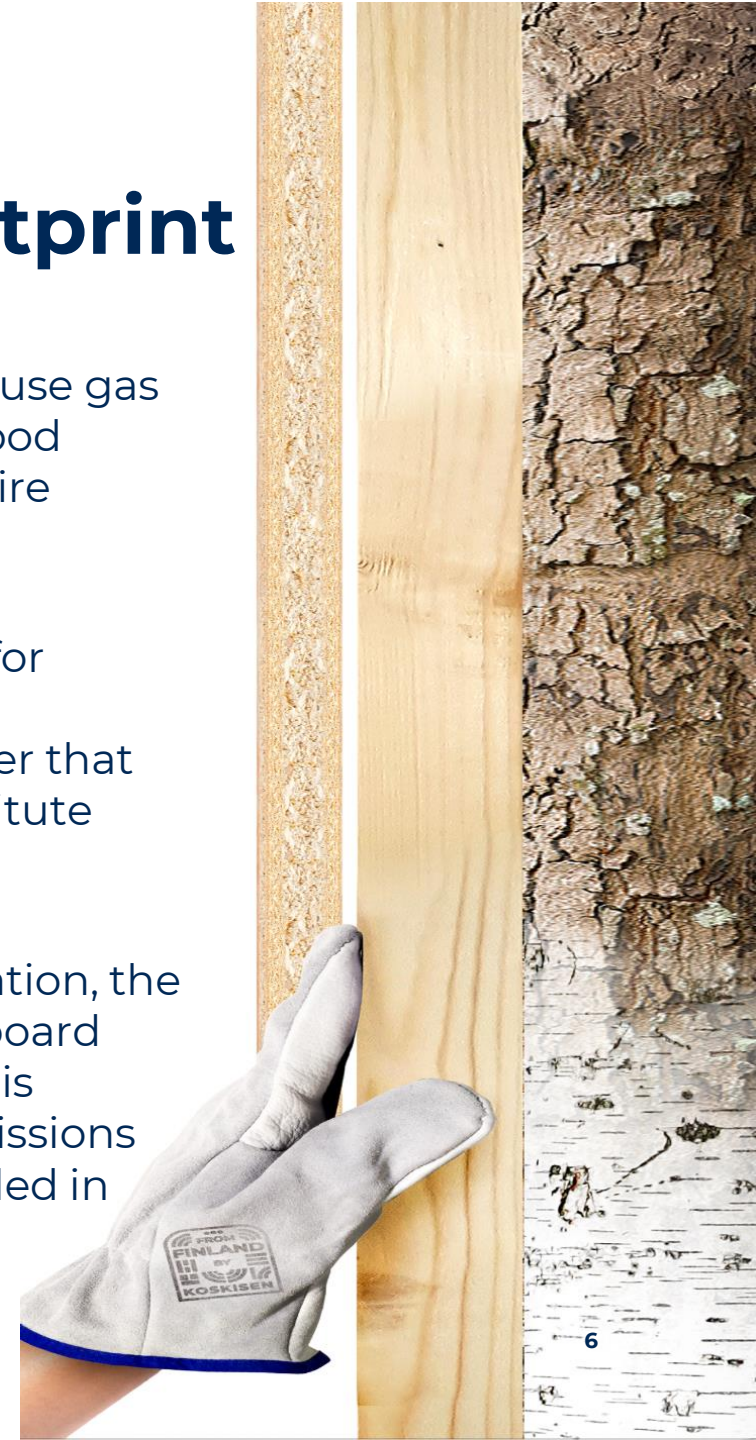
**ISO 14064 and ISO 14067  
standards  
- Total carbon footprint**

# A healthy environment – Our carbon footprint

By measuring the **carbon footprint**, a company can see the volume of greenhouse gas emissions resulting from a product or activity. While the carbon footprint is a good indicator of a company's greenhouse gas emissions, it does not capture the entire environmental impact. Wood is a renewable material that stores carbon.

Of our products, we have verified RTS (Building Information Foundation) EPDs for plywood and chipboard, prepared in 2019. Together with other companies, we participated in the carbon footprint RTS EPD for Finnish sawn and planed timber that was completed by the Finnish Sawmills Association and Natural Resources Institute Finland (Luke).

The main source of fossil carbon footprint at Koskisen is materials. In the calculation, the emissions from wood raw material are zero, but the resins and coatings of our board products increase our carbon footprint. The second-largest source of emissions is transport, including the harvesting and transport of the wood raw material. Emissions from transport are further increased by international freight, which is not included in the EPDs. The third-largest source of emissions is electricity used in production.





# Results

Koskisen Group annually keeps track of the Group's carbon footprint in accordance with the ISO 14067 and ISO 14064 standards.

In 2022, the Group's carbon footprint, i.e. fossil greenhouse gas emissions, amounted to 126,949 (116,530 in 2021) tonnes of carbon dioxide equivalent.

The Group's wood products sequestered 374,289 (394,573) tonnes of carbon dioxide equivalent, thus representing a carbon handprint that is 2,9 (3,4) times the carbon footprint.

## The Group's carbon footprint

tCO2e		126,949
tCO2e	/€ mill.	400
tCO2e	/pers.	137

## The Group's carbon handprint

tCO2e		-374,289
tCO2e	/€ mill.	-1,178
tCO2e	/pers.	-405

# Carbon footprint

Sawn timber industry	Carbon footprint kg CO2e/m <sup>3</sup>
Sawn timber, Järvelä	115.8
Sawn timber, Kissakoski	118.5
Processed sawn timber	93.2
Painted sawn timber	121.1
Sawn timber by-products	11.0
Logs (external customers)	9.6
Pulpwood	10.3
Energy wood	8.2
Logging residue	10.5
<b>Total tCO2e</b>	<b>42,453</b>

Panel industry	Carbon footprint kg CO2e/m <sup>3</sup>
Plywood, uncoated	357.8
Plywood coated	504.9
Particleboard, uncoated	361.0
Particleboard, coated	464.9
KORE products	1289.4
Plywood by-products	6.2
Veneer	138.4
Thin plywood	1314.5
Thin plywood by-products	9.5
<b>Total tCO2e</b>	<b>81,501</b>

Other	Carbon footprint tCO2e
Commute	2,655
Business travel	341
<b>Total tCO2e</b>	<b>2,996</b>



# Carbon handprint

Our wood products are largely destined for long-term applications, for instance in the construction industry, which results in a carbon handprint. Carbon handprint is the beneficial impact of a product or service on reducing carbon dioxide emissions. In terms of wood products, this means the sequestration of organic carbon in the products, out of the atmosphere.

Sawn Timber Industry	tCO <sub>2</sub> e	-172,476
Sawn timber	kg CO <sub>2</sub> e/m <sup>3</sup>	-576
Planed timber	kg CO <sub>2</sub> e/m <sup>3</sup>	-550

Panel Industry	tCO <sub>2</sub> e	-201,812
Uncoated plywood	kg CO <sub>2</sub> e/m <sup>3</sup>	-1,161
Coated plywood	kg CO <sub>2</sub> e/m <sup>3</sup>	-1,113
Uncoated particleboard	kg CO <sub>2</sub> e/m <sup>3</sup>	-1,138
Coated particleboard	kg CO <sub>2</sub> e/m <sup>3</sup>	-1,172



# Results by life-cycle stage

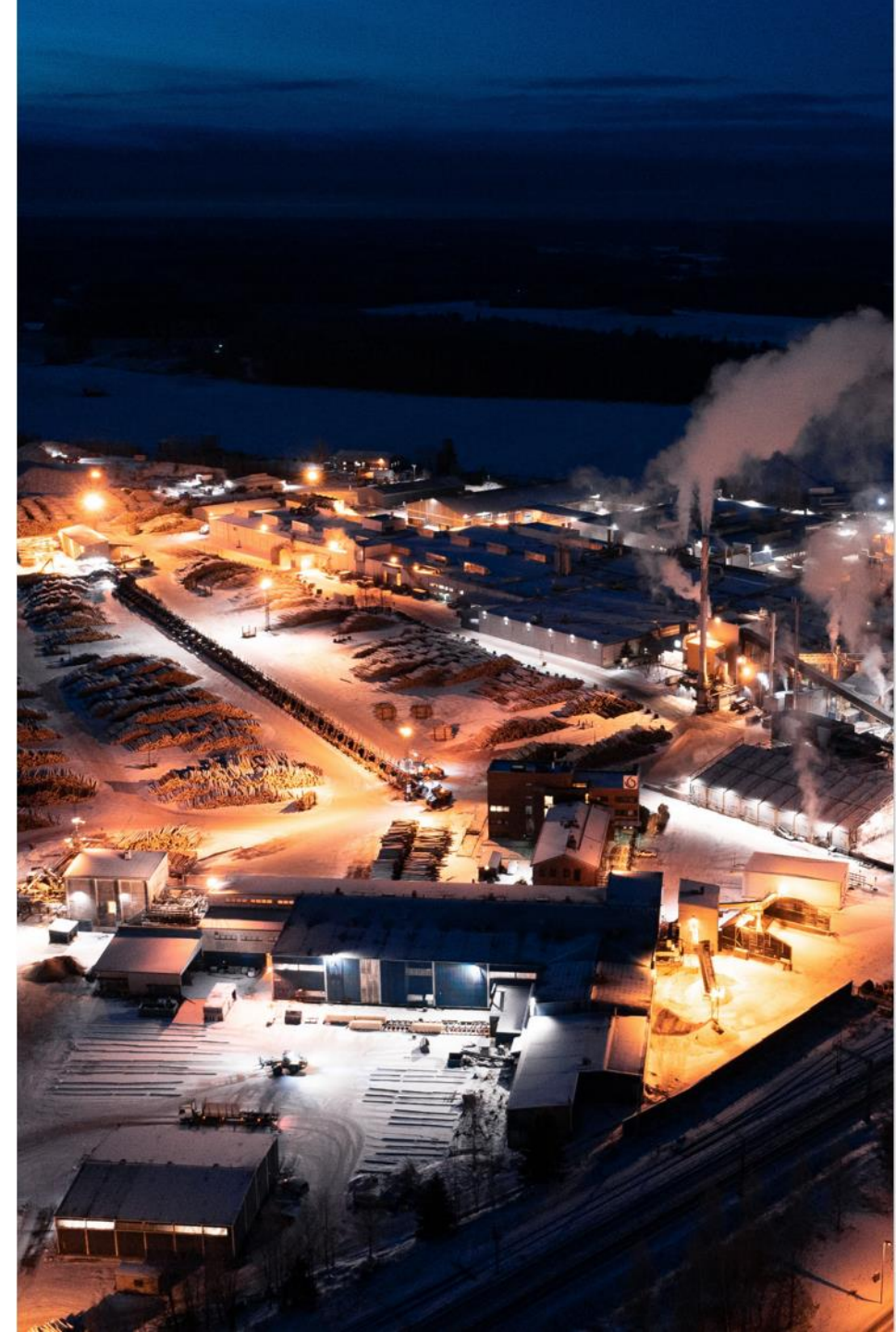
Production stage emissions	tCO <sub>2</sub> e	84,577
Sawn Timber Industry	tCO <sub>2</sub> e	14,283
Panel Industry	tCO <sub>2</sub> e	67,299
Other	tCO <sub>2</sub> e	2,996

Transport stage emissions	tCO <sub>2</sub> e	42,372
Sawn Timber Industry	tCO <sub>2</sub> e	28,170
Panel Industry	tCO <sub>2</sub> e	14,202

Transport by air	tCO <sub>2</sub> e	85
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Direct emissions*	tCO <sub>2</sub> e	3,751
Sawn Timber Industry	tCO <sub>2</sub> e	2
Panel Industry	tCO <sub>2</sub> e	3,749

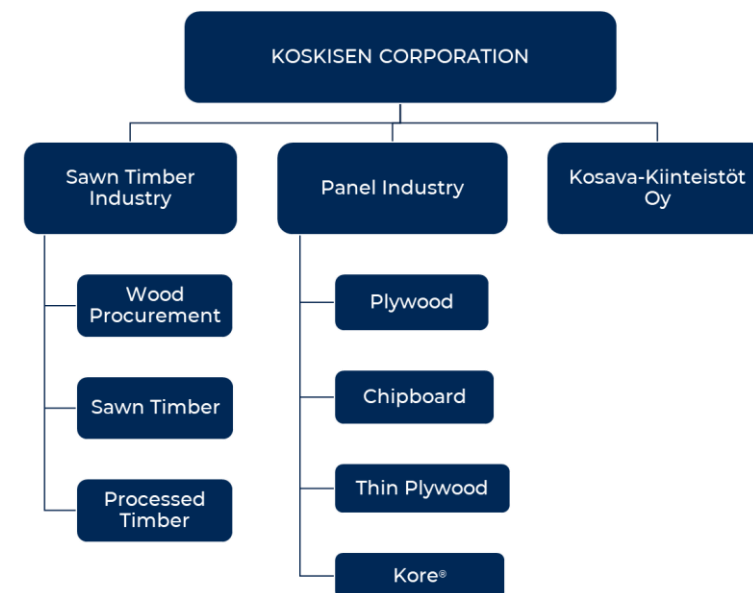
\*Direct emissions include emissions from fossil fuel usage as a back-up fuel in the power plants and transport in company-owned vehicles.



# Method

The calculation uses the carbon footprint calculated for the products and EPDs, which take into account the impacts of products throughout their life cycle. The calculation includes all the Group's products sold to external customers (sawn timber, board products, by-products, logs, wood fibre, energy wood), as well as emission sources included in fixed costs insofar as their impact is material and is not included in the products' calculation (commute, business travel). The calculation includes all products' life-cycle impacts in Finland and abroad, as well as salaried employee impacts in Finland.

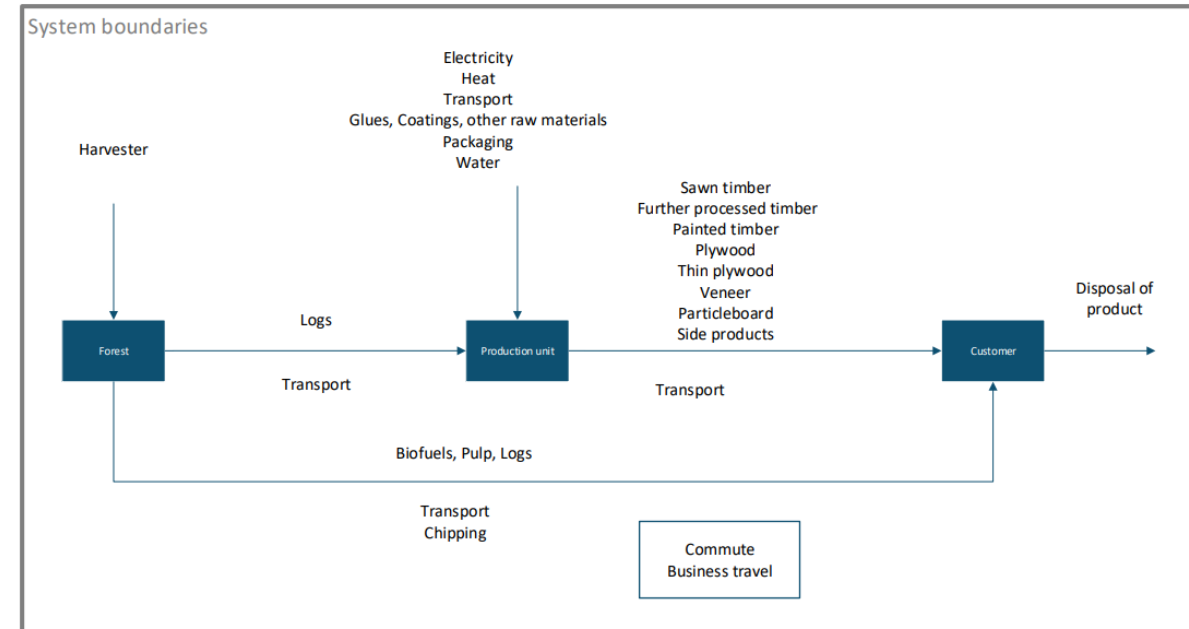
The system boundaries include all functions that are essential to the composition of the carbon footprint arising from business operations. The following are excluded from the calculation: Emissions from investments, emissions from the closed Paaskallio landfill, the impact of the company's own forests as a carbon sink, maintenance and spare parts for production machinery (incl. lubricants and other consumables), commuting by external personnel (e.g. contractors, agents) and emissions from properties outside the mill areas (e.g. rental flats, owned properties, wood procurement and sales offices).



# Method

The carbon footprint is calculated for one calendar year at a time. The process input data and output data are collected over the same period. The latest data available at the time of calculation are used as the emission factors. The calculation uses verified calculations per product group for the latest available period.

Wood raw material by default does not release carbon dioxide emissions during the useful life of the products, and at the end of their useful life the products are disposed of by incineration. The emissions from incinerating the wood material are zero, assuming that the forest regenerates and sequesters the same amount of carbon dioxide from the atmosphere as is released during incineration. Greenhouse gas emissions are expressed as carbon dioxide equivalents. Of greenhouse gases, only carbon dioxide is generated in the Group's operations in a significant amount.





# Method



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CO<sub>2</sub> emissions are broken down into main products and by-products in proportion to net sales due to the major price difference. For products moving within the Group, emissions are allocated to the end product to be sold to the external customer. This concerns, among other things, utilisation of the sawdust generated in sawn timber production as a raw material for chipboard, as well as the use of logs procured by wood procurement as a raw material for sawn timber.

The applications of the main products of Sawn Timber Industry and Panel Industry are assumed to be long-term wooden structures lasting more than a decade, which means the products sequester organic carbon during their useful life and create a carbon handprint. The carbon handprint has been reported separately.

The applications for Panel Industry's plywood and chipboard products are construction, transport vehicles, die-cutting, interior decoration and furniture, joinery industry, walls and floors. Kore products are floor solutions for transport vehicles of the automotive industry. Sawn Timber Industry's products are used in the construction (floors, walls, structural sawn timber), joinery and packaging industries, and are sold in timber stores.



# Method

The useful life of by-products and of wood procurement and thin plywood products is assumed to be less than ten years, and the impact of carbon sequestration is not calculated for them. By-products to be delivered externally go to pulp mills for use in pulp and energy production. Externally delivered logs go to the sawn timber and plywood industry, wood fibre to the pulp industry, and energy wood and residues to energy production. Applications for veneer and thin plywood include, e.g. aeroplanes, designer products, laser cutting and CNC machining, interior design elements, technical structural boards and instruments.

The electricity used by the production facilities is obtained from the electricity grid, and the emission factor of the electricity covers the emissions throughout the life cycle of electricity production. The Group's operations do not cause a change in land use in principle. Wood procurement is presumed to take place in forests that are retained as forest areas after harvesting. Greenhouse gas emissions from aeroplanes are included in the calculation mainly as part of staff business travel.





# Interpretation

The biggest source of emissions by business was Panel Industry, which accounted for 64% of the total emissions. The biggest single source of emissions in Panel Industry's operations is the production of adhesives used as raw materials, which means the choice of adhesive used and the emission factor used have a significant impact on the calculation.

Another major source of emissions is transport. The carbon footprint of transport has increased compared with last year due to changes in emission factors. The source of the earlier emission factors for transport was VTT Lipasto emission inventory which was removed from use. The source of the new emission factors for 2022 is Ecoinvent database in which the emission factors are general average emissions for the EU and in some cases distinctly higher than the earlier emission factors. The effect of the changes in transport emission factors to the results is +18%.



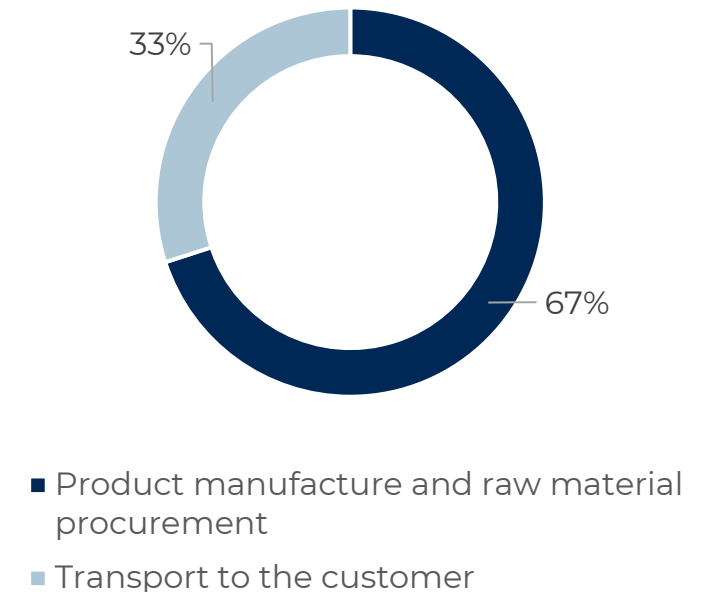
# Interpretation

Examined according to life-cycle stages, 67% of the carbon footprint arises from the manufacture of products and the procurement of raw materials, and 33% from transports to the customer.

Emissions from final disposal have not been taken into account separately, as it can be assumed that the carbon released from the wood raw material will be sequestered in the growing forest. Exceptions to this may be due to land-use changes, deviations in final disposals to landfill or possible recycling.

Land-use changes would reduce carbon sequestration back into the forests from which the wood raw material was sourced. Long transport distances to final disposal or the formation of landfill gases would increase the carbon footprint. On the other hand, the useful life of wood raw materials can be extended by recycling.

Composition of the carbon footprint



# Interpretation

Of the carbon footprint calculation's life-cycle stages, manufacturing (A1–A3) input data are well identifiable through our own operations' data sources. Outside of our own mills, the data is more approximative, including transport to construction site (A4) and transport of personnel. The calculation does not include possible transport related to the use of the product, construction or transport to final disposal due to the uncertainty in the assessment of these aspects.

The Group's calculation was compiled with the help of product EPDs, which include both direct and indirect mill emissions. Indirect emissions include emissions from electricity production, emissions from the manufacture of paints and adhesives and other raw materials, emissions from contractors' vehicles, and emissions from transport to sites and from the transport of personnel. The latest available calculations are used as EPDs, as the operations have largely remained the same. The latest version of the sawn timber EPD does not yet take into account the new reserve biofuel plant, which has eliminated the need for oil for heating, and as a result, the figures are prudent in terms of emissions.

# Interpretation



The carbon footprint calculation focusses on the analyses of only one environmental aspect. The most important other environmental aspects to be considered in the company's operations are the possible impacts of production plants on air quality and surface and groundwater pollution, as well as the possible impacts of forest use on biodiversity and the functioning of ecosystems, for instance, the sequestration of carbon in soil. By taking carbon sequestration into account as a carbon handprint, the company's impact in contributing to carbon sequestration is greater than its impact as a source of carbon emissions. However, other environmental impacts must also be taken into account in and reconciled with the environmental objectives.

The carbon footprint in 2022 has grown compared with 2021. The new sawmill investment is expected to improve the sawmill's energy efficiency. In the Panel Industry, the new Zero product family, which uses 100% bio-based binders, is creating opportunities to improve the carbon footprint. Carbon footprint calculation is part of the Group's environmental management system and is implemented in accordance with the guidelines. Third-party certification of the carbon footprint calculation has been carried out by Kiwa Inspecta.





# Additional information and source

Additional information: Business Controller Karoliina Koskinen [karoliina.koskinen@koskisen.com](mailto:karoliina.koskinen@koskisen.com)

EPD KoskiMel	<a href="https://koskisen.fi/wp-content/uploads/2022/03/EPD-KoskiMel.pdf">https://koskisen.fi/wp-content/uploads/2022/03/EPD-KoskiMel.pdf</a>
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EPD Phenol Plywood	<a href="https://koskisen.fi/wp-content/uploads/2022/03/EPD_Phenolcoated-Plywood-4.pdf">https://koskisen.fi/wp-content/uploads/2022/03/EPD_Phenolcoated-Plywood-4.pdf</a>
EPD Sawn timber and planed timber products	<a href="https://koskisen.fi/wp-content/uploads/2022/03/EPD-Sahatavara-ja-hoylatty-puutavara.pdf">https://koskisen.fi/wp-content/uploads/2022/03/EPD-Sahatavara-ja-hoylatty-puutavara.pdf</a>
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