TRANSPOREON

KLU
KÜHNE LOGISTICS UNIVERSITY

Smart Freight Centre

Decarbonizing Freight 2022

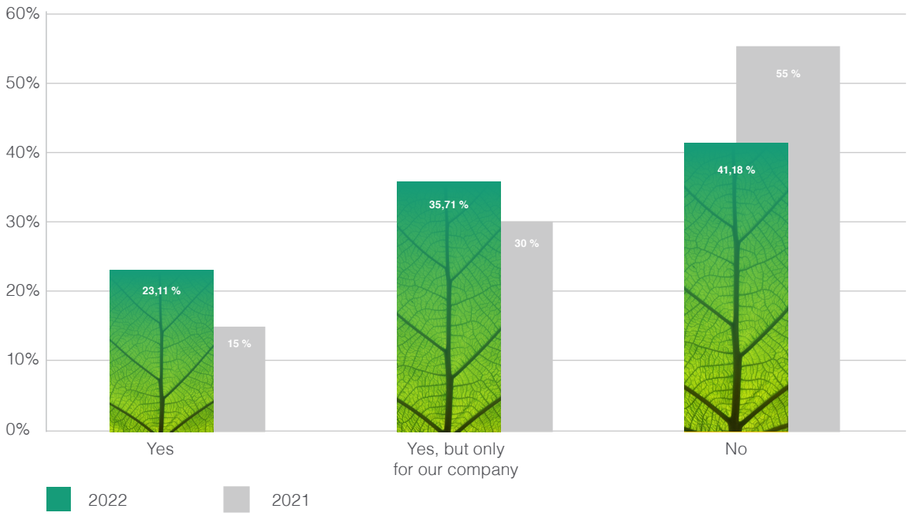
Where shippers and carriers stand on the road to net zero

Executive Summary

The decarbonization of freight is well underway. We may come to this conclusion by looking into this survey, that has now been conducted for the third year in a row (2020 on carriers only)[1]. Comparing the answers provided in 2021 with 2020, we could hardly identify any significant differences. The 2022 report, however, brings some major changes.

The number of carriers that claimed they were able to calculate transport-related CO_2 emissions increased from 46% in 2020 (from no change in 2021 [45%]) to 59% in 2022. Furthermore, 23% confirmed they can even do so in detail in 2022, which is 8% higher than in the previous year.

Carriers: Is your company able today to calculate its transport-related CO_2 emissions?



[1] "The Kuehne Logistics University, the Smart Freight Centre and Transporeon undertake this annual report in partnership since 2020. This year the survey was conducted in May 2022. 252 carriers and 87 shippers answered with European entities being overrepresented."

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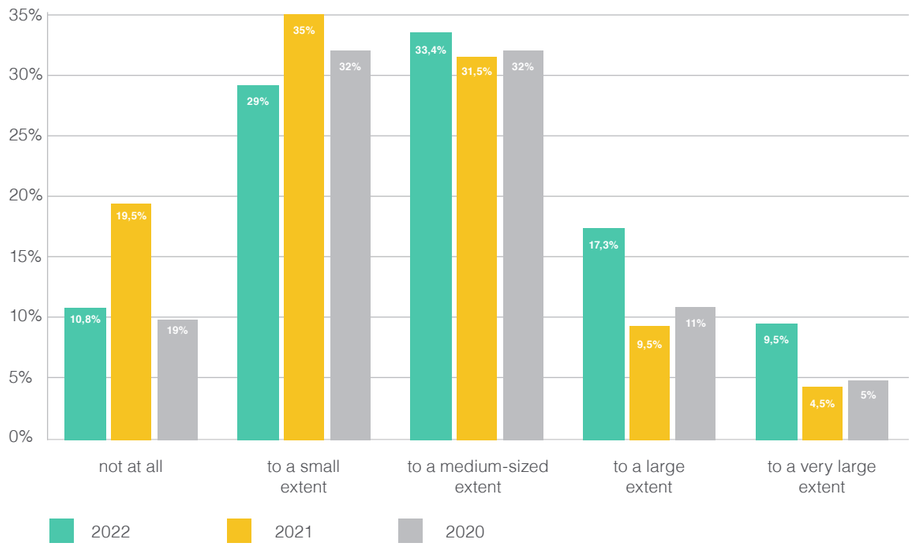
Carriers have significantly improved their ability to **calculate CO_2 emissions in comparison to the previous years (by 14% points).**

Carriers' broader views on sustainability became more positive as well. In 2022, 27% of all carriers saw sustainability as a large or very large business opportunity, compared to 16% in 2020 and 14% in 2021.

Carriers: To what extent can environmental sustainability efforts be a business opportunity for your company?

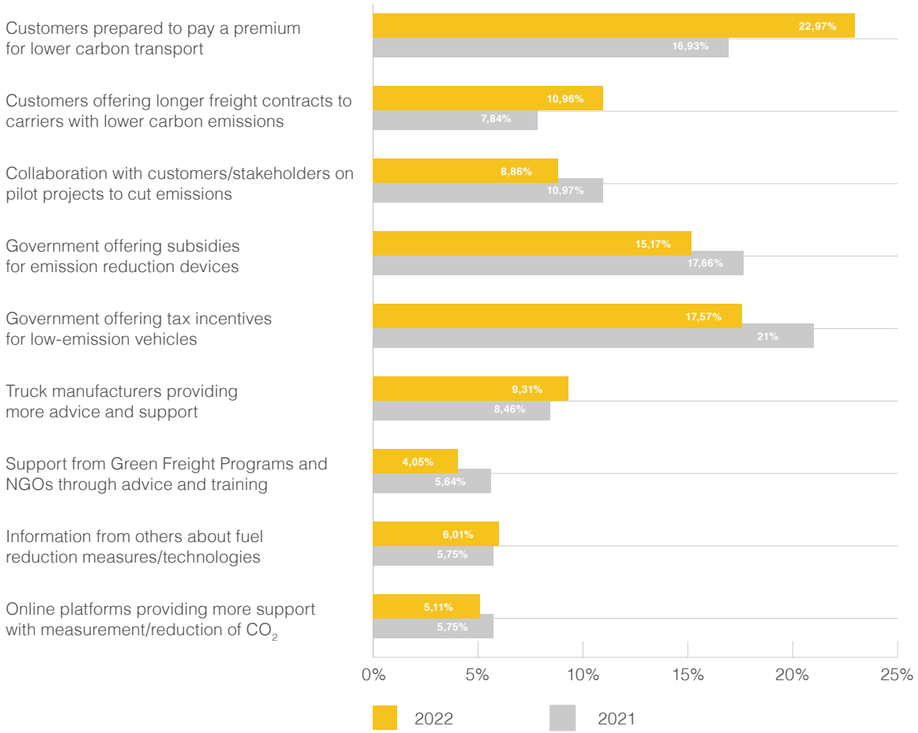


These rising percentages represent a significant step in the right direction for carriers, the group that has direct responsibility for the majority of road freight CO_2 emissions (also known as Scope 1 emissions).

When we look into what could motivate carriers to decarbonize, then financial incentives stay in the lead, followed by a lengthening of freight contracts allowing time for decarbonization-related investments to pay back.

The extent to which carriers see a business opportunity in environmental sustainability has increased versus previous years.

Carriers: Which of the following would most likely encourage your company to cut its carbon emissions?

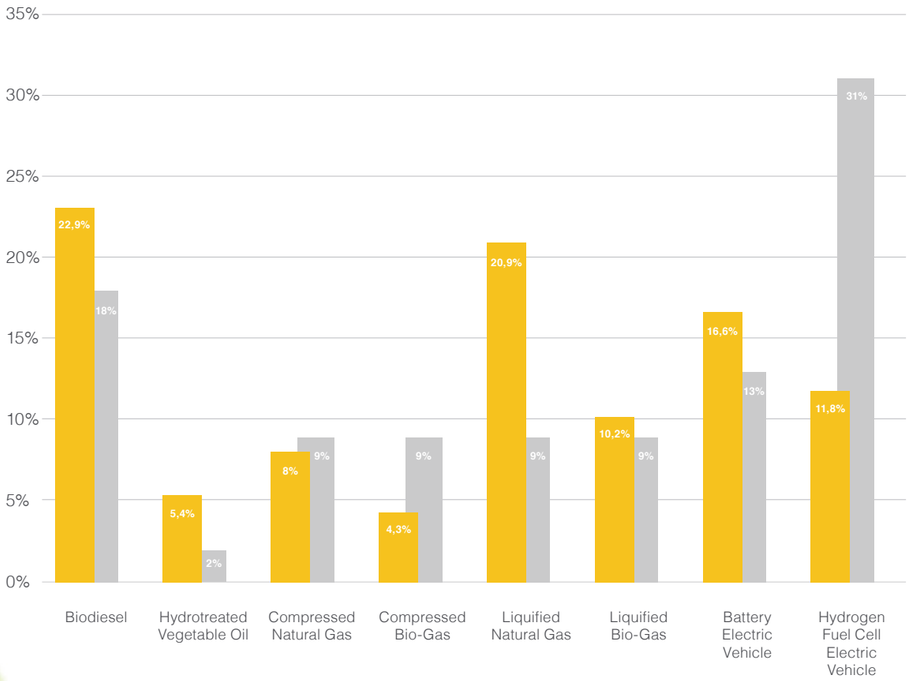


In 2020, carriers stated the most popular alternative energy source was hydrogen, followed by hybrid engines and biofuel. Two years later the picture has changed drastically: biodiesel now gets top rating (23%) followed by LNG (21%) and battery electric (17%). The use of hydrogen fuel cells has dropped to fourth place, with only 12% favoring it.

Shippers paying more for lower carbon transport, extending contracts, and tax incentives and subsidies are still the leading motivators for carriers to decarbonize their operations.

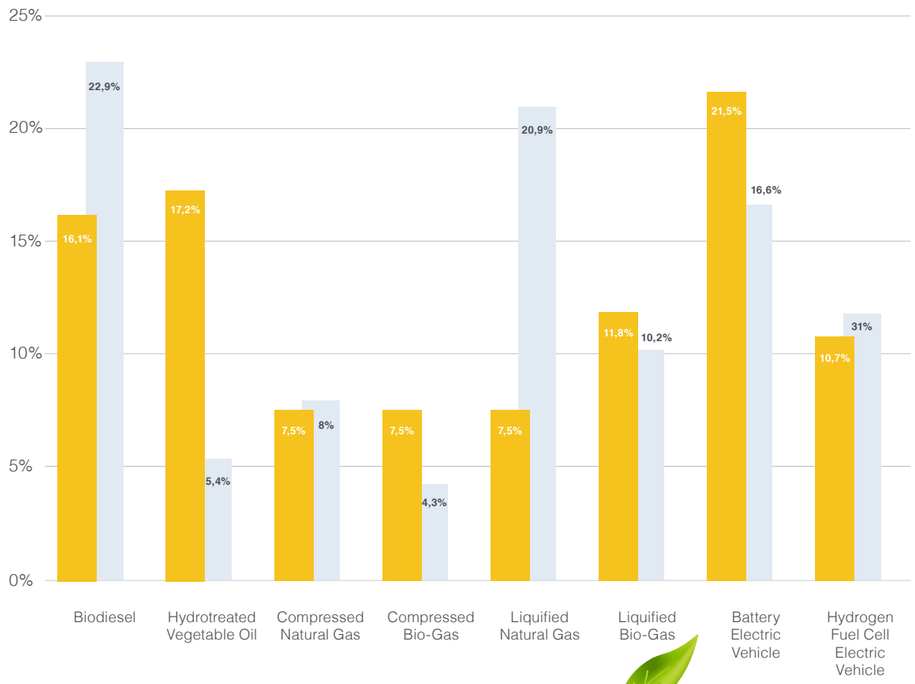
For many carriers, biodiesel is the easiest option as it is a drop-in fuel already being blended with diesel and not involving any capital investment. The steep rise in diesel fuel prices, the tightening of carriers' margins and uncertainty about future business conditions may have dampened interest in re-equipping fleets with low carbon vehicles.

Carriers: What low carbon energy/fuel solutions are you prioritizing?



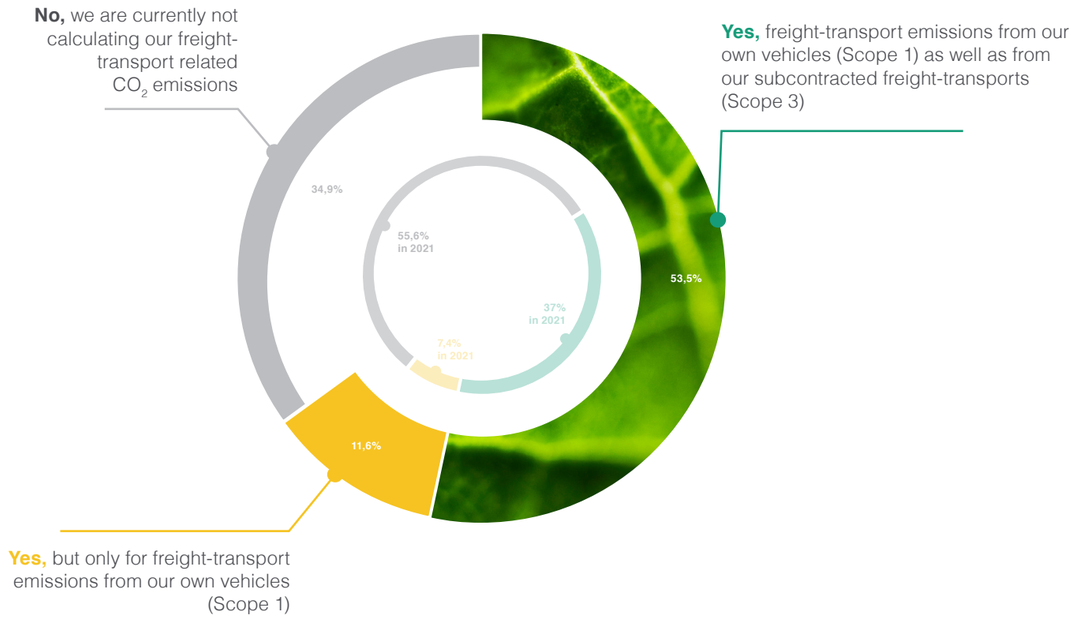
The shipper community express markedly different preferences: Battery electric seems to be their preferred solution (22%) followed by hydrotreated vegetable oil (HVO) (17%) and biodiesel (16%). LNG comes last with less than 8% support.

Shippers: What low carbon energy/fuel solutions are you prioritizing?



The differences in opinion are understandable given the large amount of conflicting information in the market about the options that's not always consistent with the latest scientific opinion. These results may also reflect different impact timescales and thinking among carriers and shippers, given that drop-in biofuels such as biodiesel can be implemented quickly with minimal changes to existing equipment, whereas electrification requires changes in vehicle technology, energy supply, system thinking, and support from a broader range of actors.

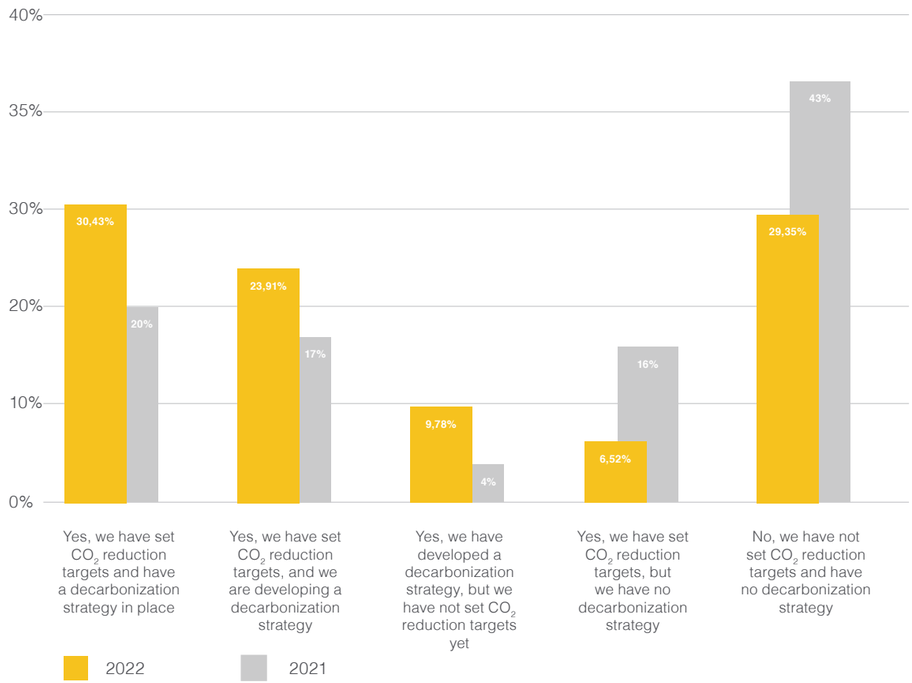
Shippers: Is your company calculating its freight-transport related CO_2 emissions?

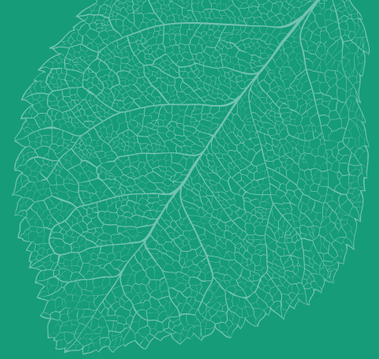


Shippers have made very significant progress in carbon auditing **– 45% now actively calculate emissions from freight**

In 2022, 54% of all shippers claimed they were calculating their transport-related CO_2 emissions, compared to 37% in 2021. The proportion of shippers with a decarbonization strategy and science-based reduction targets in place increased by 50% from 20% (2021) to 30% (2022).

Shippers: Has your company implemented a decarbonization strategy and set CO_2 reduction targets for its freight-related activities?





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At PepsiCo we aim to inspire positive change for the planet and people. With PepsiCo Positive we have been changing how we source our ingredients to make and sell our products, and how we inspire people through our brands. We are following science-based reduction targets and advancing our goal to achieve net-zero emissions across our value chain by 2040. **We´re excited to see that the industry is also accelerating efforts in the same direction and value the joint efforts to decarbonize freight.**

Katharina Stenholm,
Chief Sustainability Officer at Pepsico

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What do other outputs from this survey look like?

Other outputs from the Carrier Survey

The survey confirms an increase in interest from shippers in their carriers' GHG emissions. In 2021, less than 30% of all carriers reported that they were asked about emissions by more than 10% of their customers, whereas in 2022, almost every second carrier fell into this category. However, the increase still isn´t as strong as the answers provided by shippers would suggest. Requesting information from carriers that is relevant to a GHG calculation may take place in very different ways and may not always be obvious: shippers can ask for GHG information calculated by the carrier, or to share primary data (e.g. on fuel consumption and fuel type) that can be converted directly into a GHG value, but they can also ask for other operational information about vehicle type, distance travelled, load utilization, and data required to model the link between GHG emissions and transport operations.

Requests can come in different ways - by email, completing a spreadsheet or a request to supply data by online transfer - and can result in one combined or several individual reports for one or many transport activities. Future research will have to differentiate these various options as the discussion on exchanging data gathers momentum, particularly about the pros and cons of sharing primary data.

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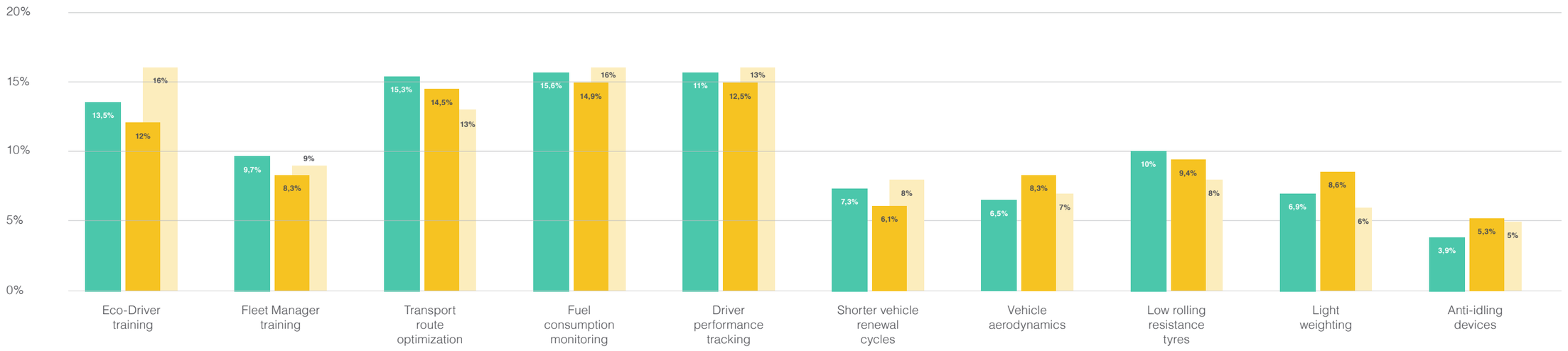
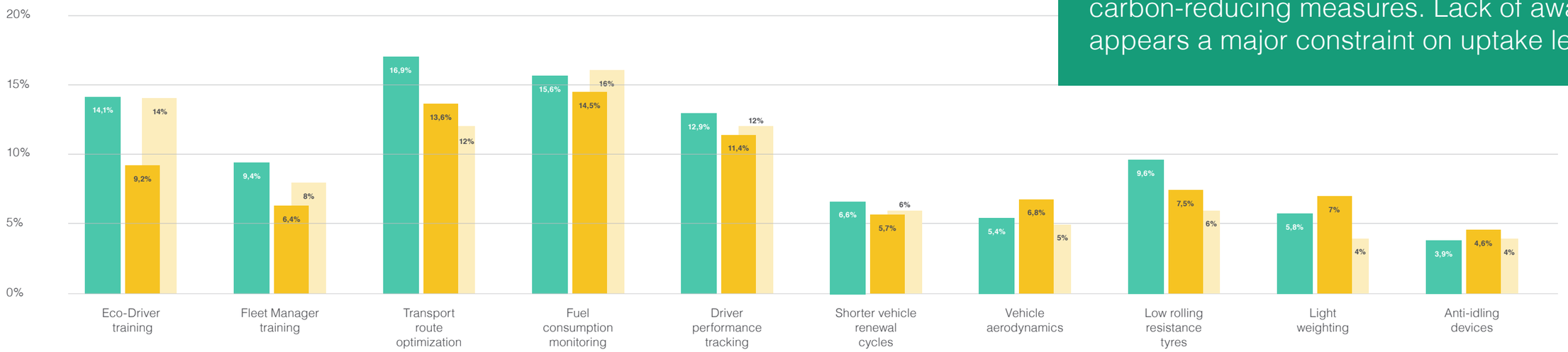
> Sustainability and environmental responsibility awareness has definitely increased. **Our network experiences rising demand from shippers asking first transparency, and second, reduction initiatives on GHG emissions, particularly the carbon footprint.** Where monitoring and reduction of GHG emissions might have been limited to own business activity, this expands to all parties along the cross-border transport chain.

Stefan Kuebler,
Network Director, EURODIS

Carriers: Please select the measures your company is aware of for increasing fuel efficiency:



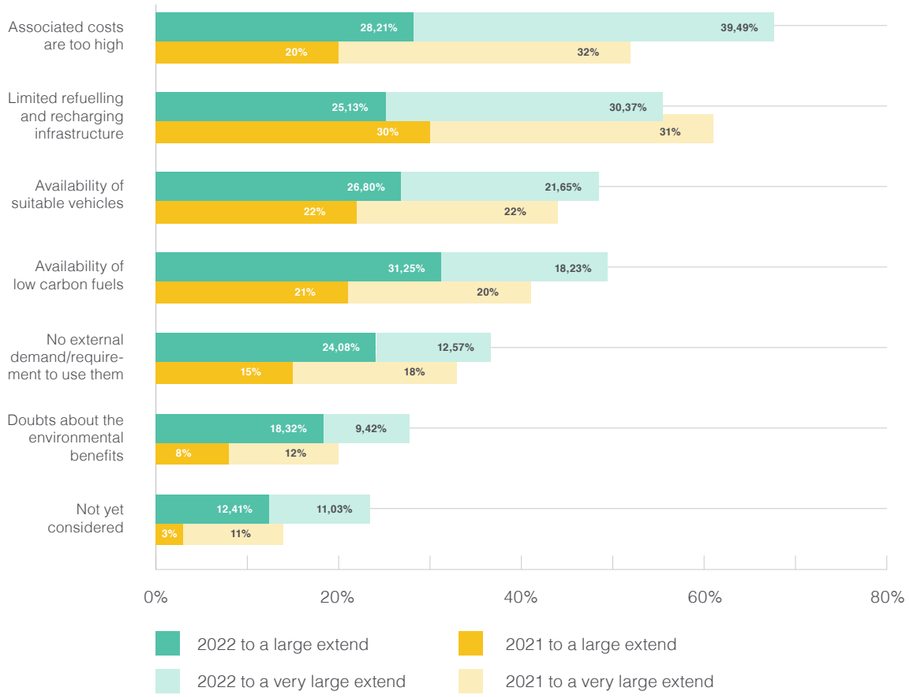
Carriers: Please select the measures for increasing fuel efficiency that are in use at your company:



The 2022 survey confirmed a close correlation between knowledge and implementation of carbon-reducing measures. Lack of awareness appears a major constraint on uptake levels.

Views on the factors constraining the adoption of low or zero emission fuels and vehicles haven't significantly changed over the last year. High costs are still identified as the main barrier to adoption. Government action may be required to financially incentivize the switch to lower carbon energy. Currently the primary driver of this transition appears to be the involvement of some shippers in an industry initiative to promote the switch from diesel; however, these are still just first steps and the pace of change needs to be accelerated.

Carriers: What will limit the implementation of low/zero CO_2 emission fuels and vehicles in your operations?



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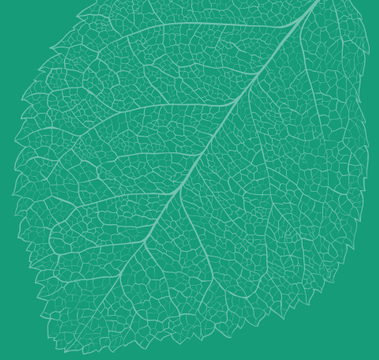
Cost and infrastructure concerns have increased by 15% since 2021, and remain the largest barriers constraining the transition to low carbon energy and vehicles.



Sustainability is embedded in Cargill's purpose to nourish the world in a safe, responsible and sustainable way. **Reducing the green house gas emissions in our supply chain by 30% in 2030 is one of our many sustainability targets.** Delivering measurable outcomes in transport has a priority focus with my team, for which accurate carbon emission tracking in transport is essential.

Rob Moen,
EMEA Land & Water Lead Cargill Procurement & Transportation

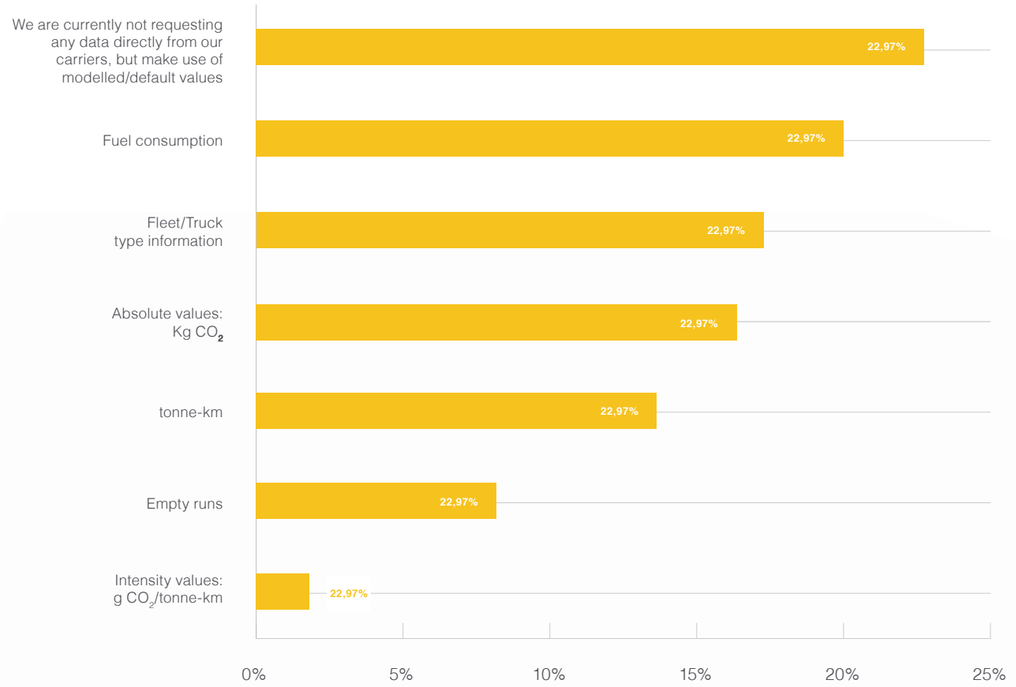
Other outputs from the Shipper Survey

The type of information requested by shippers from carriers suggests that they prefer to take responsibility for the calculation of the GHGs that come from their contracted transport operations, rather than leaving it to carriers.This reflects an ongoing debate about whether or not this responsibility should be outsourced along with the transport itself. There are pros and cons to both situations. Division of responsibility for measuring emissions will depend on the relative willingness and ability of carriers and shippers to do the job. Either way, there will be an increasing role for a form of verification in the future to ensure calculations are accurate.

There is still a gap in terms of the level of engagement between shippers and their carriers that will need to be addressed to drive further decarbonization, and to ensure that the longer-term thinking of the shippers is reflected in the actions of their carriers. This is likely to drive the move from transitional liquid biofuels and LNG towards electrification options that offer greater potential for zero GHG emission transport on a life-cycle basis.

Although initial decarbonization steps are being taken, there is a gulf between leading companies' level of understanding and the majority of shippers. The survey results indicate that there is a need for more training (both internal and of the carriers) and expert reviews.

Shippers: Please indicate what data you are currently requesting from your subcontracted carriers for these calculations.



The survey results reflect the need for more training and expert reviews.

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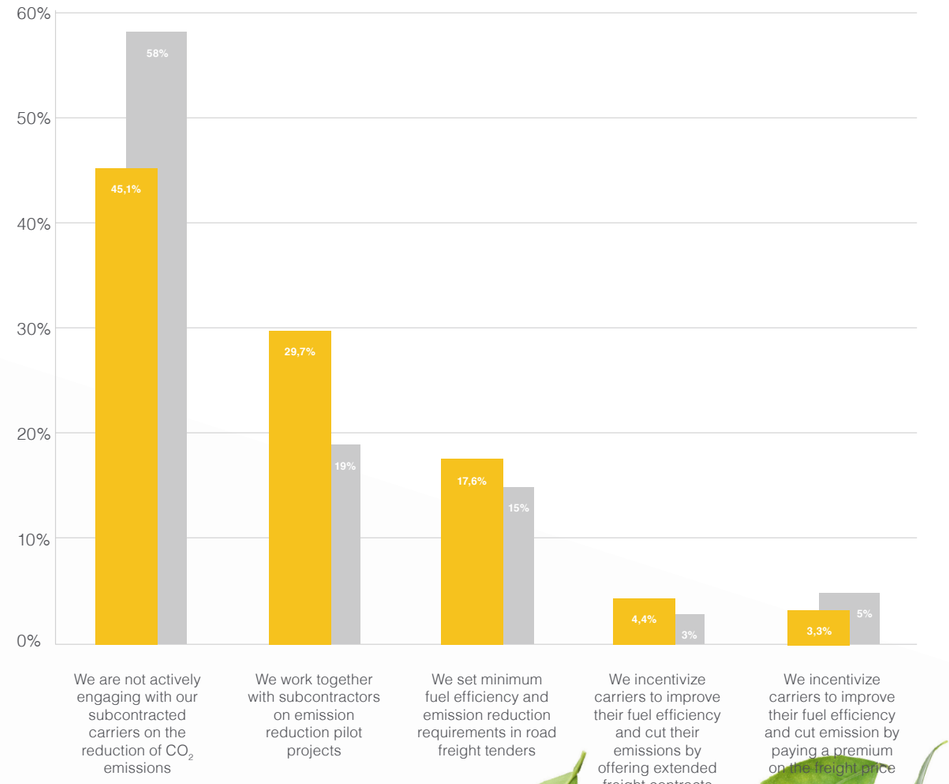
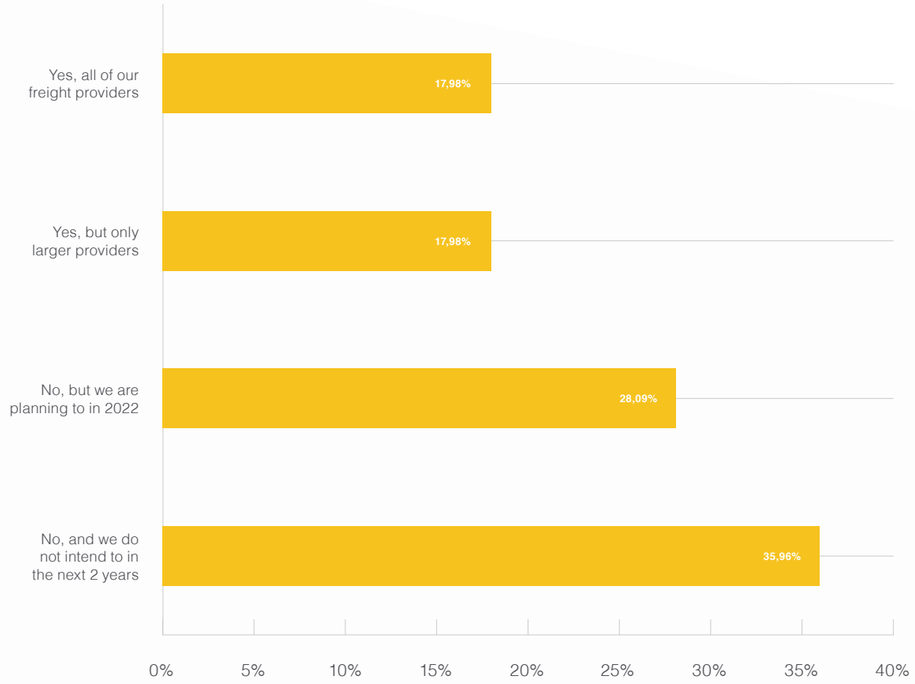
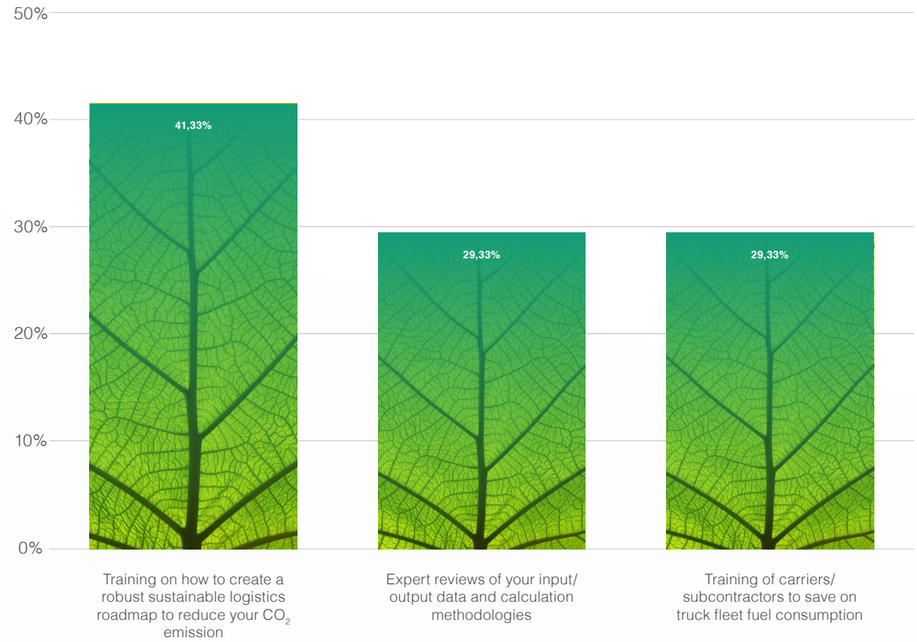
Shippers: How are you currently engaging with subcontracted carriers with reference to decarbonizing your transport operations?



Shippers: Do you evaluate your freight providers against any external (like CDP, EcoVadis) or internal (e.g. based on the Smart Freight Procurement Questionaire) compliance schemes?



Shippers: Is there a need for any of the following support items within your organization?



I am very pleased to see that the results of the survey indicate a step-change in awareness and green agenda setting! We should keep this trend going and importantly, ensure that both shippers and carriers will live up to their aspirations. I reckon that the Commission's initiative CountEmissionsEU, **which aims to establish a common methodology for measuring door-to-door GHG emissions** and which we plan to propose early next year as a part of the Greening Freight Package, will come just in time to help keep track of the progress.

Magda Kopczynska,
Director at the European Commission´s Directorate for Mobility and Transport (DG Move)

Key takeaways

In 2022, the decarbonization of freight has gained pace indeed. While carriers and shippers are not perfectly aligned, the gap has started to narrow. With extended sustainability reporting requirements and carbon taxation ahead, close collaboration may be in the interest of all parties. There has been a significant increase in the number of companies that reported having a decarbonization strategy and / or science-based reduction targets already in place. This creates some urgency for strengthening carrier-shipper alignment.

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Alan McKinnon,
Professor of Logistics,
Kuehne Logistics University

Smart Freight Centre

Alan Lewis,
Technical Director,
Smart Freight Centre

When carriers tell you that costs and availability of clean vehicles, fuels and infrastructure are holding them back from taking action, and only half of shippers tell you that they're engaging with their carriers, **then you know where the biggest opportunity lies: COLLABORATION!**

Sophie Punte,
Director at We-mean-business and founder of the Smart Freight Centre

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