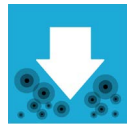




TRANSPORTATION ACTION GUIDE



**How to cut emissions from
companies' transport of goods**

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INTRODUCTION

To reduce the worst impacts of climate change and reach net zero by 2050, the world needs to [halve emissions by 2030](#) and every decade after that. This trajectory is called the [Carbon Law](#).

Transport makes up [14% of global fossil CO2 emissions](#) and is the fastest-growing source of emissions worldwide. We urgently need to [bend the curve and start reducing these emissions](#).

According to the International Energy Agency (IEA), we are not on track for the [net zero emissions by 2050 \(NZE\) pathway](#). Thus, leading companies have an instrumental role to play in response to the accelerating demand for low-emission transport solutions.

Companies with science-aligned targets to halve emissions before 2030 need to reduce their Scope 3 emissions right across the value chain. Transport is an important component of Scope 3 emissions for many companies.

The good news is that [solutions are available](#), and companies have the opportunity to both cut emissions and contribute to the net zero transformation by implementing and scaling these solutions.

ABOUT THIS GUIDE

This guide develops the key recommendations from the [1.5°C Business Playbook](#) on how to drastically reduce transportation Greenhouse Gas (GHG) emissions.* It offers practical steps for companies to tackle these emissions, align their logistics and fully integrate sustainability actions into their strategic business functions, to support the wider transformation of the transportation sector towards net zero targets.

This action guide is grounded in science and has been developed together with world-leading companies, integrating some of their best practices. It is for anyone who plans to reduce their company's transportation emissions both internally and across their value chain.** This includes managers and employees in eg logistics, planning, procurement, sustainability and corporate social responsibility (CSR) roles.

* Highlighted as part of Pillar 2 key actions on how to reduce transport (Scope 1) emissions and value chain emissions (Scope 3) in the 1.5°C Business Playbook.

** Including transport emissions in Scope 1, 2 and 3 – both upstream and downstream.

KEY ACTIONS TO ELIMINATE TRANSPORT EMISSIONS

Most of the emissions reductions required for the transport of goods sector to align with the 1.5°C ambition can be achieved with the right mix of efficiency, electrification and fuels. It is essential for companies to send the right demand signals, encouraging steps towards the common goal of halving emissions by 2030 and accelerating

the development of new solutions required to reach net zero beyond 2030.

In what follows, we provide a step-by-step guide for reducing transport emissions that will get your company a long way towards reaching its overall emissions targets. Figure 1 summarises these five action steps.



Figure 1. Proposed steps to reduce transport emissions

ACTION 1: Assess your company's transport emissions



Mapping your company's current transport emissions is important, not only to enhance general understanding, but also to set baselines and plan for reductions.

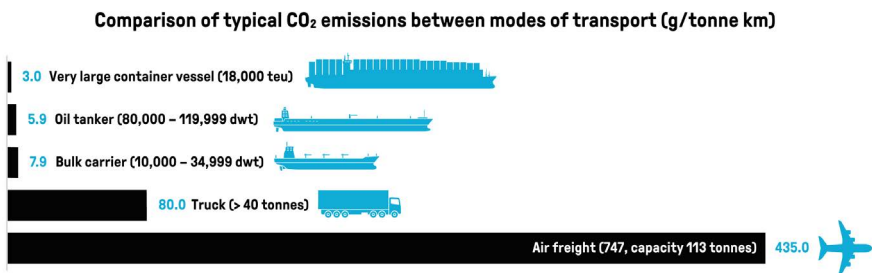
When calculating* these emissions, make sure to include emissions for each transport mode, transport lane and transport leg (typically pick-up, main transport and delivery of the cargo). This will enable you to choose the right emissions reduction solution for each stage.

Note that transport modes vary dramatically in how much carbon they emit. Shifting away from air and towards road, rail or sea transport can

prevent substantial emissions, as the contribution of Working Group III to the [Intergovernmental Panel on Climate Change \(IPCC\)'s 6th Assessment Report](#) reveals. Figure 2 compares typical emissions and makes clear the magnitude of the impact that reducing and replacing transport modes can have.

Selecting modes of transport is a strategic choice, and requires effort, planning and coordination between all involved parties to reduce emissions while still aligning with customer expectations. But once these logistics are in place, businesses can both reduce costs and their environmental footprint.

* Some examples of tools for calculating emissions include: [EcoTransIT World](#), [LogEC](#)



Source: ICS based on IMO, Second GHG Study, 2009

Figure 2. Comparison of typical CO₂ emissions between modes of transport, in grams/tonne-km. Source: ICS Fuelling the Fourth Propulsion Revolution: Full Report, based on IMO, Second GHG Study, 2009, AP Møller-Mærsk, 2014

ACTION 2: Secure company commitment to reduce emissions



A clear strategy – with well-defined responsibilities assigned to employees within the business – is necessary in achieving your goal to reduce transport emissions. Multiple departments may need to be involved in this effort.

To integrate transformation towards net zero into your company’s overall business strategy, it is therefore essential that you secure buy-in on the importance and urgency of tackling climate change from top-level management. You can do this by:

- Explaining the relevance of reducing transport emissions to deliver on the company’s overall climate transition plan.
- Preparing for a discussion about the expected savings, costs, risks and opportunities.
- Ensuring that the sustainability, transportation and procurement departments agree on priorities for the transition and on ideas for how to implement actual reductions.

We strongly recommend that you act as quickly as possible, based on a high-level understanding of your transport emissions. Identify at least one champion internally to drive the work, showcase results and upscale ambition and action over time.

ACTION 3: Implement solutions

– Reduce, Replace, Rethink

RRR

The action of implementing solutions can be broken down into three strategies: reducing transport, replacing fossil fuels and rethinking transportation.

Reduce transport

Effectively reducing unnecessary transportation can be done in a number of ways:

- Optimising networks to ensure a smoother flow of goods, reducing unnecessary movements.
- Optimising space usage by increasing utilisation of equipment, to reduce the number of units needed. This will result in both lower costs and a decreased carbon footprint.
- Incorporating larger equipment to boost capacity and decrease shipment frequency.
- Ensure that your business model minimises transportation-heavy services such as return of products.
- Collaborate with your transport service providers to reduce fuel and energy consumption by increasing efficiencies. Service providers might, for example, enact a “no idling” policy and provide training for drivers to help them follow new regulations.

Whenever applicable, ask your service providers (existing and new) to set science-aligned targets and plans, and join organisations such as the [UN Climate Change High-Level Climate Champions’ Race to Zero](#). The purpose is to ensure that these service providers actively work to drive down emissions in their supply chains, which will be essential for you to reach your own targets.

Replace fossil fuels

Replacing fossil fuels can be achieved with a two-pronged approach: 1) shifting modes of transport and 2) shifting the type of fuel used in transport.

Replace by shifting modes of transport

The first component of the Replace strategy is to shift modes of transport. Specifically, this can be achieved by:

- **Shifting away from air transport:** This can significantly reduce emissions, as Figure 2 shows. This modal shift requires careful planning and logistics management to ensure the maintenance of efficient and on-time deliveries, and may require additional storage capacity closer to the final market.
- **Shifting from road to rail transport:** Trains are [significantly more energy-efficient \(per tonne-km\) than trucks](#), so shifting goods from trucks to trains can substantially reduce emissions, particularly in long-distance transportation.
- **Shifting from road to sea transport:** Maritime shipping, especially for long distances, is [one of the most carbon-efficient modes](#) of freight transport. Shipping will however take longer, so extensive planning and coordination will be needed. You also need to consider the distance and the mode of transportation for the “last mile” transportation, where goods are transported to and from ports.
- **Intermodal transport:** Given that not all air-covered distances can be shifted to sea, we must account for intermodal transportation, which means using multiple modes of transport, such as a combination of trucks, trains and ships. Intermodal transportation provides an opportunity to take advantage of the best of each mode, such as the flexibility of trucks, the efficiency of trains and the low emissions of marine transport. This often results in lower overall emissions (per tonne-km) than relying on just one mode of transport.

Note that while these shifts in transportation modes can reduce emissions, other factors will also play a key role, such as the sorts of technologies and fuels used by the particular transportation mode, the distance covered and the efficiency of the specific vehicles. Optimising routes, improving vehicle efficiencies and investing in cleaner technologies can further reduce freight transport emissions.

Replace fossil fuels in modes of transport

The second component of the Replace strategy is to shift away from fossil fuels and towards cleaner energy sources. Companies can use the following list of solutions, where electrification and hydrogen would be the recommended alternatives.

- **Electrification:** Electrification is key to decarbonising transport in the long term. In the case of [electric trucks](#), the technology is developing fast and it is already possible to electrify in many cases today. Requisites to electrifying a heavy-duty fleet include access to fossil-free electricity, grid capacity and land for charging infrastructure.
- **Hydrogen* and fuel cells:** [Hydrogen is one option](#) for replacing fossil fuels and reducing a significant portion of emissions. Fuel cells avoid air pollution and reduce emissions at the point of operation, but their produc-

tion requires a lot of energy. Hydrogen should specifically be applied for hard-to-abate sectors.

- **Biofuels:** Biofuels** are another option for replacing fossil fuels and reducing emissions in the short term, but only if their source is sustainable across the whole lifecycle. Biofuels should primarily be used for hard-to-abate sectors such as aviation.
- **Electrofuels (e-fuels):** As a long-term alternative to replacing fossil fuels, e-fuels can be considered. Currently, [due to high costs and limited scales \(p.1068\)](#), the adoption of synthetic fuels (such as e-methanol) will likely focus on hard-to-abate sectors.***

** Sustainable biofuels are those produced and used in an environmentally, socially and economically sustainable manner. Important considerations:

- Protecting biodiversity
- Conserving water resources,
- Minimising emissions, eg avoiding long-haul transportation of biofuels

*** When using renewable energy for e-fuel production, we should ensure that renewable energy generation is **additional** to existing supply. For example, we should try to purchase that energy from companies responsible for financially supporting new or developing renewable generation sources – as opposed to buying into renewable energy that is already available or planned.

* Referring to fossil-free hydrogen.

Biofuel selection guidance

Assess the sustainability impacts of a biofuel at all levels: The environmental, social and socio-economic impacts of producing biofuels, both positive and negative, should be assessed not only at the global level, but also at the regional and local levels.

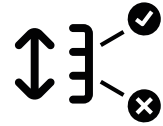
Assess the sustainability impacts of a biofuel throughout its entire lifecycle: When comparing fuels – both fossil fuels and biomass/biofuels – and how they contribute to climate footprints and reduction targets, the full lifecycle needs to be considered, not just the emissions at combustion (end use, or “tank-to-wheel”). In other words, no “tank-to-wheel” comparisons should be made, only holistic “well/farm-to-wheel” ones.

Rethink transportation by collaborating and innovating

Get creative with incorporating innovations and emerging technologies into your transportation emission-reduction strategies. Pilot new innovations, evaluate their impacts and if successful, expand them within your operations. For example, in addition to the Reduce and Replace solutions suggested above, you might experiment with the following approaches:

- **Review transportation strategies:** Explore alternative logistics setups, such as producing goods closer to market warehouses rather than manufacturing to order for long-distance shipping. As a bonus, this may also result in lower production emissions and higher supply chain resilience.
- **Digital and automated optimisation:** Apply digital and automated solutions including AI to optimise routing and maximise capacity utilisation in your transportation processes.
- **Considering local technological advancements:** Take into account local technology and infrastructure advancements that can enhance the efficiency and sustainability of your operations.
- **Collaboration:** Work with suppliers and purchasers to share logistics solutions, such as co-shipping, cold chains and recycling products. For instance, medical companies can reclaim plastics for reuse, while fashion retailers can repurpose clothing as second-hand items.

ACTION 4: Measure and evaluate results continuously



Swift, targeted actions are essential for impactful change. Your company will need to rigorously measure results as it goes along. Setting interim goals is crucial for tracking progress, adjusting strategies and ensuring steady progress towards long-term objectives. When measuring, you may also want to collect data from suppliers, customers and other partners to get a broader and more comparative view of your company's results.

Defining and agreeing on a common language and metrics to be used internally will improve alignment and comparison of a project's return on investment (ROI), and help suppliers communicate consistently even when from different departments (see also [Smart Freight Centre](#)).

Constant evaluation of your company's actions to reduce transportation emissions will lead to a better understanding of what can be achieved. The first pilot or experiment may not be perfect, but it will always be something that your company can learn from and build upon. Also, be sure to keep an eye out for new and emerging concepts and technologies that are not yet on the table. Adopting them may be helpful for your company in refining activities down the line.

ACTION 5: Report progress and communicate results internally and externally



Your company should be public about its actions, ambitions and results. That includes being open about the challenges it is facing in reducing transport emissions. Externally, sharing these outcomes not only sets benchmarks for other businesses, but also encourages transparency and accountability among others. And remember, if you are facing difficulties in this area, it is likely that most of your partners and competitors are too.

Encouraging suppliers and customers to prioritise emission reduction, and collaborating with their transport partners are crucial for success, as you are all in the same value chain. Additionally, discussing the significance of transportation emissions reductions within business networks can inspire collective action for common problems. Sharing success stories throughout the business also strengthens internal engagement, which will help to ensure better results for your company.

EXAMPLE ON HOW TO REDUCE TRANSPORT EMISSIONS

Scan Global Logistics has developed the following real-world example, based on a real company's data, to show that building a reduction roadmap is both possible and achievable for any company. This example illustrates that a total of 30% transportation emission reduction can be achieved through a 10% annual reduction over three years.

clear actions to take over a period of time. It shows that by taking such an approach, companies can begin to cut transport emissions immediately. Of course, note that the optimal choice of decarbonisation solutions will differ between companies, depending on eg logistics and budgets.

Figure 3 shows how a company can take a step-wise approach to cutting emissions by building a roadmap with

The way the company in figure 3 achieved a 30% reduction demonstrates how the solutions we outlined above – Reduce, Replace, Rethink – can

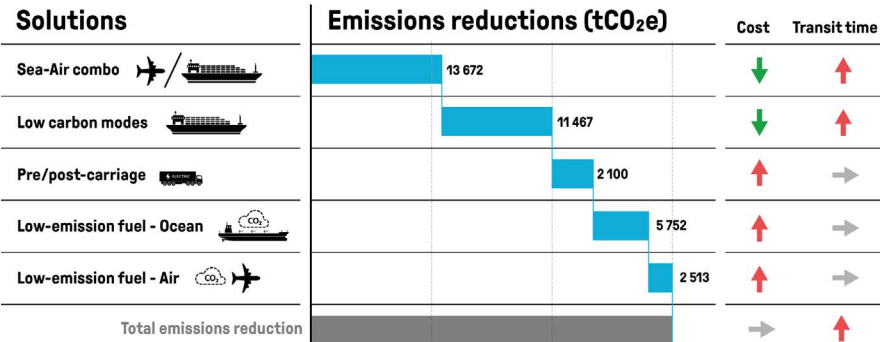


Figure 3. Real-world example of reduction roadmap

be creatively and concretely applied in the real world:

- **Sea-air combo:** The company substituted air-corridors from the Nordics and Central Europe with a Sea-Air corridor, flying to Dubai and sailing from Dubai to end destinations (50% reduction in emissions).
- **Low carbon modes:** The company shifted from air transport to ocean transport on all outgoing freight from Asia and the US. This solution can be applied to all freight that is not highly time sensitive (98% reduction in emissions).
- **Pre/post-carriage:** The company inserted e-trucking lanes from key production sites in Germany and Belgium to the port of loading (30% reduction of total trade lane emissions).
- **Biofuel:** The company purchased low emission biofuel for 20% of existing ocean freight trade lanes (100% reduction in emissions).
- **Sustainable aviation fuel:** The company purchased low emission sustainable aviation fuel for 5% of its existing air freight trade lanes (80% reduction in emissions).

SCAN GLOBAL
LOGISTICS

SUMMARY

In this guide, we have outlined how your company can reduce its carbon emissions from transport. The five main actions to take are:

1. Assess your company's transport emissions
2. Secure company commitment to reduce emissions
3. Implement solutions – Reduce, Replace, Rethink
4. Measure and evaluate results continuously
5. Report progress and communicate results internally and externally

The sooner you take these actions, the closer your company will be to halving GHG emissions by 2030 and reaching net zero by 2050.

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AUTHORS AND CONTRIBUTORS

LEAD AUTHORS

Johan Falk, Exponential Roadmap Initiative

Laura Perez Casado, Exponential Roadmap Initiative

CONTRIBUTORS

Martin Andersen, Scan Global Logistics

Mads Drejer, Scan Global Logistics

IKEA Supply Chain Operations

Julien Bictel, Smart Freight Centre

Nikola Medimorec, SLOCAT

Emilia Käck, Scania

Maria Jobenius, Scania

Louise Rehbinder, Exponential Roadmap Initiative

Claire Wigg, Exponential Roadmap Initiative

EDITORS

The Content Creation Company

DESIGN AND LAYOUT

Jerker Lokrantz, Azote



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