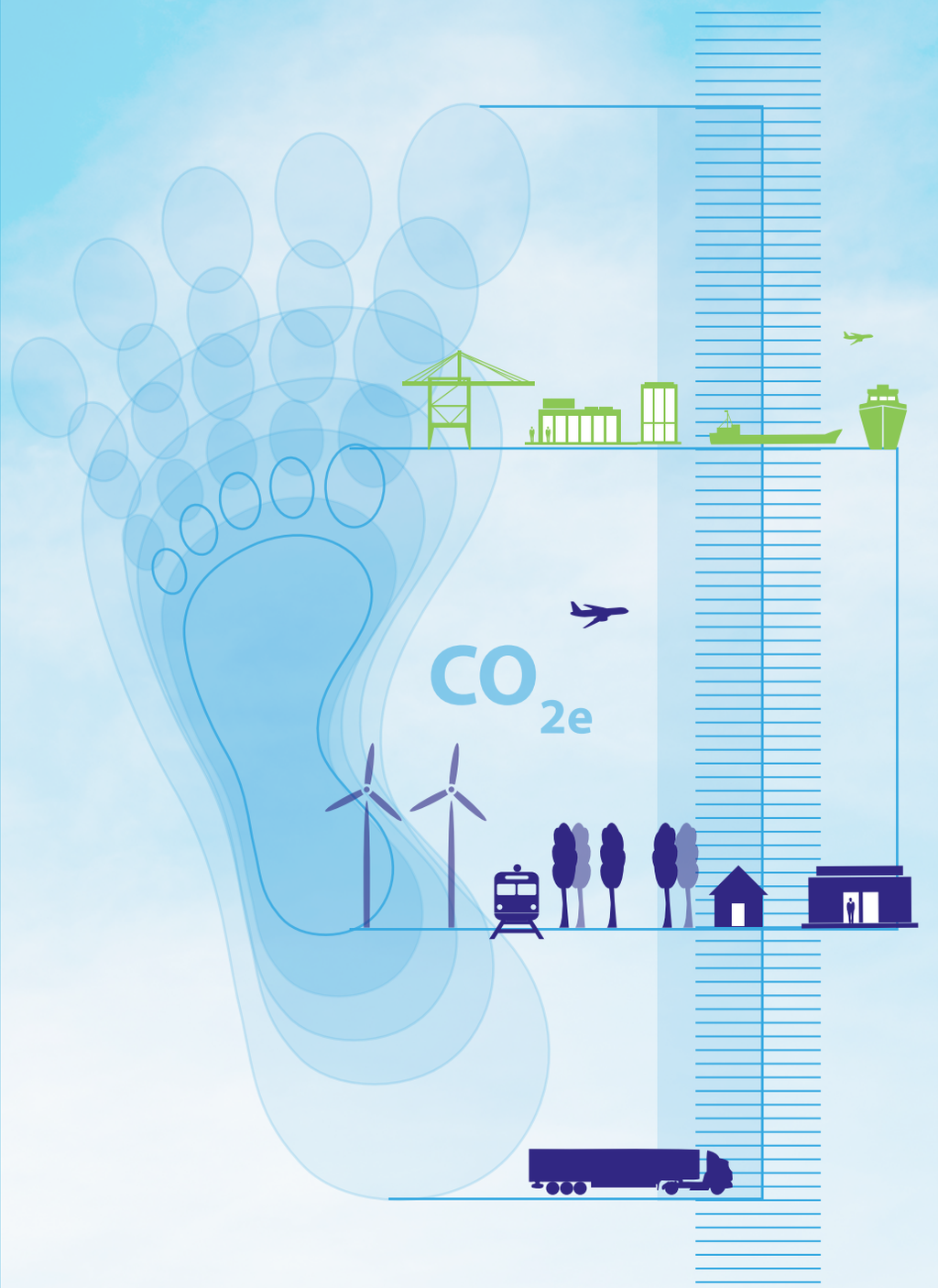
GUIDELINE 0 - CARBON FOOTPRINT IN LOGISTICS




# Measuring, calculating, allocating and reducing

Connekt

LEAN & GREEN EUROPE

Topsector Logistiek

# Colophon

***Guideline 0 - Measuring, calculating, allocating and reducing***

*Carbon Footprint in Logistics*

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# Measuring, calculating, allocating and reducing

## Carbon Footprint

Reducing greenhouse gas emissions[1] as quickly as possible is one of the most important social challenges we are facing today.

Carbon Footprinting is a method of analyzing greenhouse gas emissions ($CO_{2e}$) that allocates emissions to the activities that generate them. In the case of logistics they are allocated to the cargo to be transported.

Carbon Footprinting is characterized by:

***Keeping proper records of basic emissions data***
This allows an auditor to check later whether the reports are in order, as in the case of financial accounts.


***Calculating emissions using a standardized method***
And reporting to customers and authorities.

***Analyzing data in the records***
To identify and seize opportunities to reduce emissions.

In the logistics and transport sector there is an additional requirement: the allocation of emissions to cargo for each customer.

Allocating emissions to cargo is a necessary step to be able to answer a question from society: how much $CO_{2e}$ was emitted to manufacture and transport the product I am buying? This is a question that retailers will be putting to manufacturers. Manufacturers will collect information within their supply chain about emissions in different stages of production and in logistics. A price is expected to be attached to $CO_{2e}$ emissions: the consequence of this will be that transporters will be asked to precisely calculate the allocation of emissions to cargo and support this with audit opinions.

International agreements[2] require emissions from outsourced activities to be included in reports. A good transport company will combine different orders as efficiently as possible, with the aim of both bringing down costs and reducing emissions. Each customer will subsequently want to know the amount of $CO_{2e}$ emitted per order, without double counting.

Large companies, which often manage several (international) supply chains, will want to have access to the data for all parts of these supply chains, in a form that allows them to be aggregated and allows an auditor to issue an unqualified audit opinion. That means these companies will be able to present good emissions figures to their customers for each product.

1 *Emissions are expressed in $CO_{2e}$, $CO_2$ equivalents. For example: natural gas or liquids in refrigeration units have a much greater greenhouse effect per kilogram of gas than pure $CO_2$ and this approach allows them to be converted to the same measure.*
2 *The Greenhouse Gas Protocol requires emissions from outsourced activities to be included by customers in the Scope 3 report.*

The total emissions from logistics are the result of strategic, tactical and operational decisions:

- How much needs to be transported and using what kind of load carrier?
- When and under what requirements, e.g. timeslots, temperature control or inspections?
- From which location to which destination?
- How can this order be combined as efficiently as possible with other orders?
- Using which mode of transport and which type of fuel/energy?

These are some of the various 'knobs' that can be turned to reduce emissions, by the customer and contractor at the same time.

Keeping proper records of basic emissions data reveals how all these decisions affect each other and where the opportunities lie. The special aspect of logistics becomes immediately apparent: it requires details about the supply chain as a whole to be recorded and analyzed. Looking at one company or transporter individually is not enough.

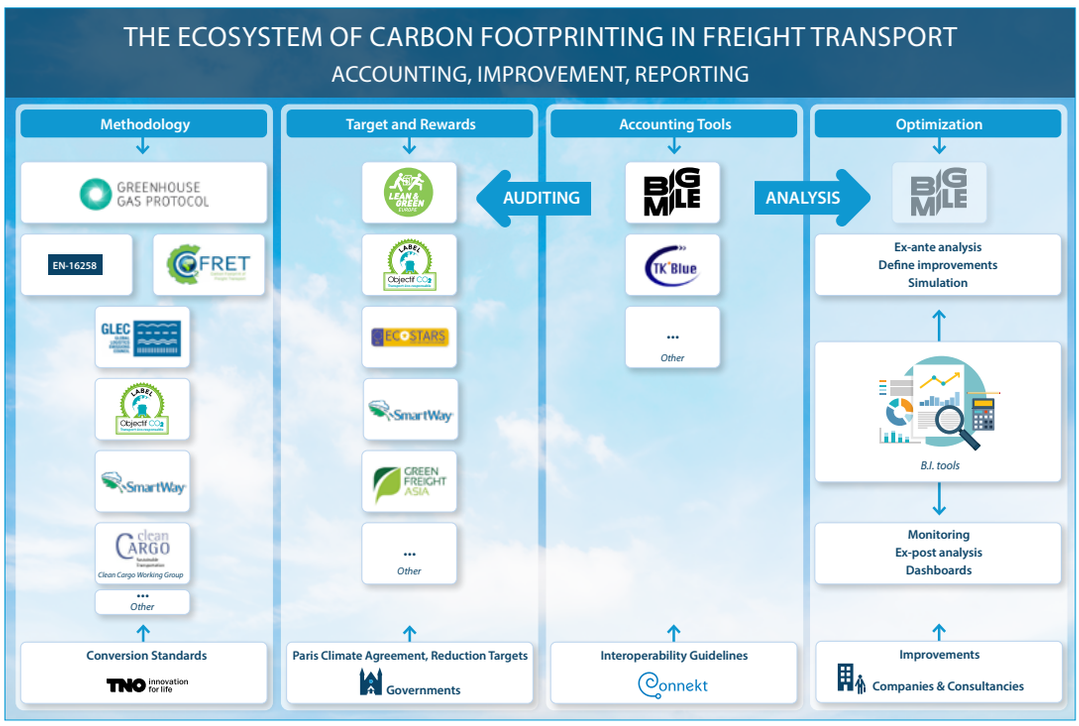
This special aspect of logistics led to the development of a specific European standard for the calculation and allocation of emissions: EN-16258. This standard still allowed plenty of scope for interpretation as far as the allocation of emissions to cargo is concerned. The allocation process has therefore been developed further as part of the European COFRET project.

There was a real need for a clearer description of definitions and agreements on the calculation of emissions in logistics. A detailed guide has been produced for the Objectif CO2 program outlining how emissions can be calculated on the basis of a model. Recently, the GLEC manual was published, which contains proposals relating to how international supply chains can calculate emissions. Both of these are based on European standard EN-16258 and COFRET.

### The COFRET approach has a number of practical advantages:

- The contractor only needs to keep records of a couple of types of data. These are data that are already required within the company: consignment note data and energy/fuel data;
- These data do not need to be converted in the records: all the different ways of identifying locations (address, UN/LOCODE, postcode, city, latitude/longitude), for example, or ways of referring to the cargo (parcel, TEU, roll cage, pallet, volumetric weight in tons, loading meter) can be used interchangeably;
- Allocation can be easily automated: the calculation is not something that people are keen to do, but it is a simple task for software;
- An auditor can check very easily whether the data tally and whether the reports are in order. If the computing software works as agreed, the audit is relatively simple.

TNO has established that if records are kept and allocation is calculated according to the COFRET approach, reports can be generated very easily in accordance with GLEC or other methods.




This series of guidelines provides practical and detailed instructions on how to put this approach into practice in a standardized manner.

There is considerable diversity within the logistics sector: the guidelines indicate how the general principles should be interpreted in all these specific situations and which data are then necessary.

The guidelines deal primarily with the collection of data and how these can be used and interpreted.
It is assumed that there are software systems in place that can be used for record keeping, allocation and reports.

Guideline 1 'Allocation' explains the basis of the COFRET approach.

# Carbon Footprint guidelines

**0. Measuring, calculating, allocating and reducing**

**1. Allocating**

**2. Cargo**

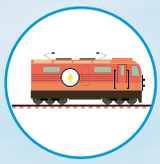

**3. Origin and destination**

**4. Fuel**


**5. Inland shipping - containers**

**6. Inland shipping - bulk**

**7. Freight transport by rail**



**8. Air freight**

**9. Maritime and short sea shipping**

**10. Transshipment**

**11. Storage**

**12. Parcel transport and post**

**13. General road transport**

**14. Perishable and temperature controlled**

**15. Outsourced transport**

**16. Repositioning and empty kilometers**

**17. (Inter)national supply chains**

**18. Benchmarking**

**19. Intermediaries and platforms**


**20. Auditors and accountants**


**21. Data quality**

**22. The relationship between social goals and corporate goals**

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