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Greenhouse gases - Quantification and reporting of greenhouse gas emissions arising from transport chain operations (ISO 14083:2023)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

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English Version

## Greenhouse gases - Quantification and reporting of greenhouse gas emissions arising from transport chain operations (ISO 14083:2023)

Gaz à effet de serre - Quantification et déclaration des émissions de gaz à effet de serre résultant des opérations des chaînes de transport (ISO 14083:2023)

Treibhausgase - Quantifizierung und Berichterstattung über Treibhausgasemissionen von Transportvorgängen (ISO 14083:2023)

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**EN ISO 14083:2023 (E)**

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## **European foreword**

This document (EN ISO 14083:2023) has been prepared by Technical Committee ISO/TC 207 "Environmental management" in collaboration with Technical Committee CEN/TC 320 "Transport - Logistics and services" the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2023, and conflicting national standards shall be withdrawn at the latest by October 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 16258:2012.

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## **Endorsement notice**

The text of ISO 14083:2023 has been approved by CEN as EN ISO 14083:2023 without any modification.

**EN ISO 14083:2023 (E)****Annex S**  
(informative)

Table 1 lists the main technical differences between EN16258 and ISO 14083:2022. The terms used in this table are the ones of ISO 14083:2023.

A comparison of the terms used in EN 16258:2012 and ISO 14083:2023 is provided in Table 2.

Beyond these main technical differences, further minor differences exist, related to terms, structure of the documents, and methodological presentation.

**Table 1 – Main technical differences**

	EN 16258	ISO 14083
Title	Methodology for calculation and declaration of <u>energy consumption</u> and GHG emissions of transport <u>services</u> (freight and passengers)	Greenhouse gases — Quantification and reporting of greenhouse gas emissions arising from transport chain <u>operations</u>
Scope	Quantification and reporting of <u>energy consumption</u> and GHG emissions related to a transport <u>service</u>	Quantification and reporting of GHG emissions arising from the <u>operations</u> of transport chains of passengers and freight
Operations	Transport operations	Transport operations: Cable cars added Pipelines added Hub operations included to support full transport chain GHG calculations
Passengers, Freight	Both – focus is primarily on individual vehicle operation	Both – focus is on how the transport and hub operations combine to move a consignment or passenger from origin to ultimate destination.
Modes of transport	All modes (not listed)	Air, Sea, Inland waterway, Road, Rail, Pipelines, Ropeway
GHG sources (processes) included	Energy carriers combustion Energy carriers leakage Energy carriers production and supply	Energy carriers combustion Energy carriers leakage Energy carriers production and supply Refrigerant leakage <i>Use of ICT equipment and data servers (related to transport and/or hub operations) (optional)</i> <i>Packaging (optional)</i>

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		<i>Black carbon emissions from transport operations (optional)</i>
Cut-off criteria	No	Yes
Distances for transport activity	<u>Actual distances</u> should be used, except for collection and delivery rounds, where SFD or GCD should be used.	<u>SFD or GCD</u> should be used to calculate transport activity (activity distance). A <u>DAF</u> (Distance Adjustment Factor) shall be used to convert actual distance into activity distance if activity distance is not available.
GHG emission factor values	Detailed table of values for transport fuels ( <u>recommended if no value specified from energy supplies</u> )	Detailed tables of values for transport fuels and <u>electricity</u> for Europe and for North America ( <u>recommended if no value specified from energy supplier</u> ) Acknowledges emission factors may be specified in national or international legislation.
GHG emission intensity default values	List of sources in an informative annex	List of sources in an informative annex
Data categories	By order of preference: 1. Primary data for the TO 2. Primary data for the TOC 3. Primary data for the whole fleet 4. Default values	By order of preference: 1. Primary data 2. Secondary data: Modelled data 3. Secondary data: Default values
Scope of reporting	Transport services	Reporting may be: 1. at organizational level 2. at transport chain or transport chain element level
Report for a TCE or a TC	1. Total GHG emissions = vehicle use GHG emissions (energy carrier combustion) + vehicle energy provision GHG emissions 2. Vehicle use GHG emissions (energy carrier combustion) 3. <u>Total energy consumption</u> = energy consumption for vehicle use (energy carrier combustion) + energy consumption for vehicle energy provision 4. <u>Energy consumption for vehicle use</u> (energy carrier combustion)	1. Total GHG emissions = vehicle/ <u>hub</u> use GHG emissions (energy carrier combustion + <u>refrigerant leakages</u> ) + vehicle/hub energy provision GHG emissions 2. Total GHG emission intensity (total GHG emissions reported to transport activity)
Class of passenger transport	No	Optional reporting to distinguish differing emission intensity of

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		passenger transport classes
Allocation where passengers and freight are transported using the same vehicle	Detailed changes in the allocation mechanisms in these circumstances to align better between different modes	

**Table 2 – Main terms changes**

EN 16258	ISO 14083
tank-to-wheels (TTW)	vehicle use (includes leakages of refrigerant)
well-to-tank (WTT)	vehicle energy provision
well-to-wheels (WTW)	total (vehicle use + vehicle energy provision)
vehicle operation system (VOS)	transport operation category (TOC)
leg (of a transport service)	transport chain element (TCE)
specific measured values	primary data (for the transport operation)
transport operator specific values	primary data (for the TOC)
transport operator fleet values	primary data (for the whole fleet)





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STANDARD

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**Greenhouse gases — Quantification  
and reporting of greenhouse gas  
emissions arising from transport  
chain operations**

*Gaz à effet de serre — Quantification et déclaration des émissions de  
gaz à effet de serre résultant des opérations des chaînes de transport*



Reference number  
ISO 14083:2023(E)

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 207, *Environmental management*, Subcommittee SC 7, *Greenhouse gas and climate change management and related activities*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 320, *Transport — Logistics and services*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition cancels and replaces IWA 16:2015, which has been technically revised throughout to expand the framework to a methodology.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

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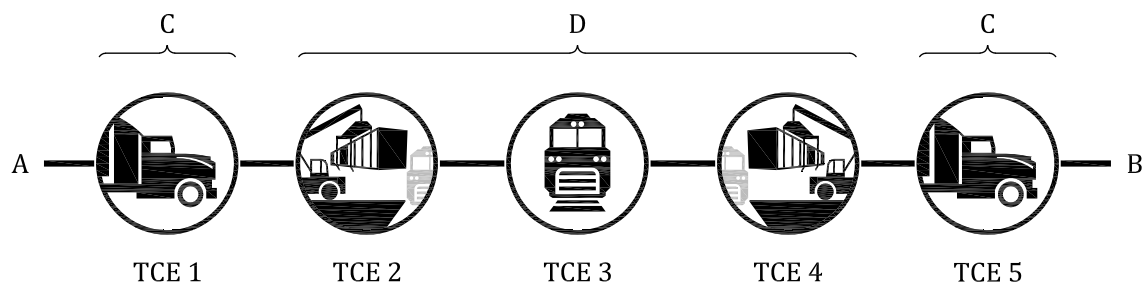
### Introduction

This document provides requirements and guidance for the quantification and reporting of greenhouse gas (GHG) emissions for transport chains for passengers and freight.

This document provides such a calculation with its related reporting. It specifies how to source data as input for the calculation, taking into account that transport operations vary hugely, from multinational organizations operating multiple transport modes to deliver transport services across the globe, through small local operators delivering a simple service to a single user; hence this document has adopted a structure to make it widely applicable. To ensure that values for GHG emissions that result from vehicle and hub operation and associated energy provision are considered, this document takes into account the GHG emissions associated with production and distribution of energy (including, for example, production and distribution of liquid energy carriers or grid transmission of electricity). As a result, calculation results can enable a consistent comparison of possible different energy carriers by transport service operators, users and any other interested parties. Calculation results are only directly comparable if all options chosen are internally consistent.

This document covers all modes of transport (land, water or in the air, irrespective of the means of transport, i.e. vessel, vehicle or pipeline) and includes the operational GHG emissions from hubs where they facilitate transfer of freight or passengers from one element of a transport chain to the next. It takes account of operation of empty trips required for subsequent transportation of freight or passengers. It is applicable at all stages along the entire transport chain (see also illustrative examples in [Figure 1](#) and [Figure 2](#)).

[Figure 1](#) provides an illustrative example of a freight transport chain from the point where freight leaves its last point of production or transformation (A, freight consignor) to the point where freight reaches its first non-transport related operation (B, freight consignee). This transport chain consists of five transport chain elements (TCEs), the GHG emissions of which are calculated separately. The first and last TCEs (TCE 1, TCE 5) represent road services (C) covering pre- and on-carriage; TCE 2 to TCE 4 represent a rail freight service (D) composed of road/rail terminal operations (TCE 2, TCE 4) and main carriage by rail transport (TCE 3).



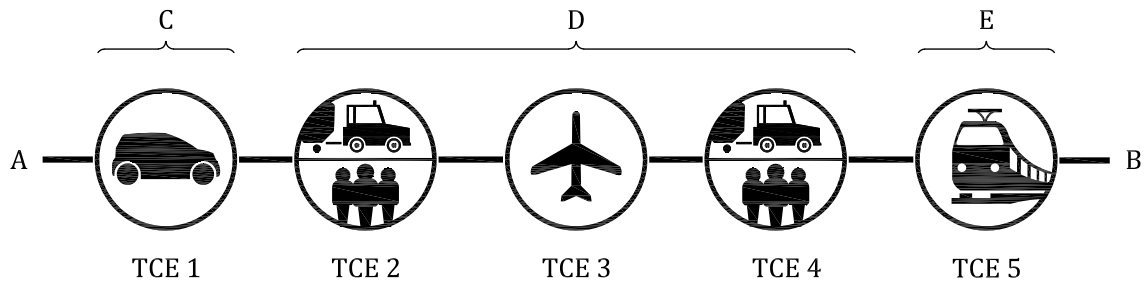
#### Key

- A freight consignor
- B freight consignee
- C road services
- D rail freight service

**Figure 1 — Illustrative example of a multi-element freight transport chain**

[Figure 2](#) provides an illustrative example of a passenger transport chain from the point where passengers leave their departure location, A, to their destination, B. This transport chain consists of TCEs, the GHG emissions of which are calculated separately. The first TCE (TCE 1) represents transport of the passenger from home to the airport by private car (C); TCE 2 to TCE 4 represent an air travel service (D) composed of passenger terminal operations for the passenger and luggage (TCE 2, TCE 4) and main carriage by plane (TCE 3). The on-carriage represented by TCE 5 shows shuttle express via rail (E).



**Key**

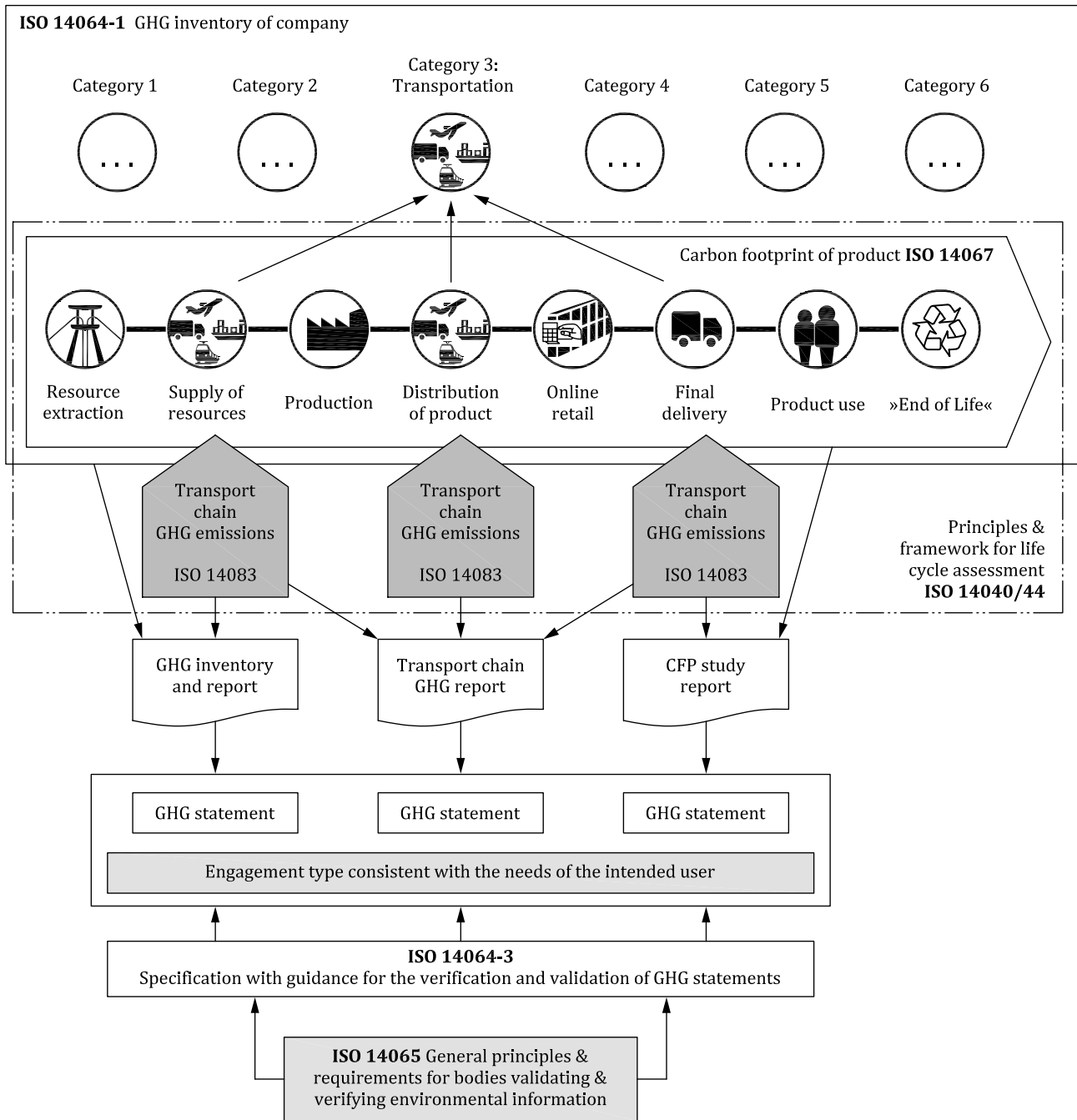
- A departure location
- B destination
- C private car service
- D air travel service
- E shuttle express service via rail

**Figure 2 — Illustrative example of a multi-element passenger transport chain**

The reporting set out in this document reflects the need to report information between the parties in a transport chain because information known to the transport or hub operator, when reported to the user of their service, helps the latter to quantify, better manage and reduce the impacts of their transport or hub activities. This is a standard for GHG emission calculation only; therefore, offsetting is not part of this document.

This document is complementary to several existing standards. It is aligned with the ISO 14064 series and ISO 14067 (see [Figure 3](#)). It contributes to the carbon footprint of products (see ISO 14067) and the life cycle assessment in accordance with the ISO 14040 family of standards and ISO 14044. [Figure 3](#) shows the relationship of this document to other International Standards of the ISO 14040 family of standards and the ISO 14060 family of standards, using the example of a freight transport chain and including possible stages within the life cycle of a product bought online as well as example topics to be covered by a company's GHG inventory.

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**Figure 3 — Relationship between the ISO 14040 family of standards and the ISO 14060 family of standards, using the example of a freight transport chain**

NOTE GHG emission intensity per tonne- or passenger-km calculated in accordance with this document can be used as primary or secondary data for GHG quantification projects in accordance with ISO 14067 and/or ISO 14064-1. These data require adaptation or modification if full life cycle based GHG-emissions are needed, e.g. vehicle manufacture or transport infrastructure provision.

The approach acknowledges, and is in line with, the valuable work conducted on GHG calculation and reporting that is documented in the aforementioned standards and by other protocols and organizations, including but not limited to, the United Nations Framework Convention on Climate Change (UNFCCC),<sup>[37]</sup> the GHG Protocol<sup>[16]</sup> and the Global Logistics Emissions Council (GLEC) Framework for Logistics Emissions Accounting and Reporting<sup>[15]</sup>.

# **Greenhouse gases — Quantification and reporting of greenhouse gas emissions arising from transport chain operations**

## **1 Scope**

This document establishes a common methodology for the quantification and reporting of greenhouse gas (GHG) emissions arising from the operation of transport chains of passengers and freight.

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**