

Your Essential Guide to ISO 14083:2023

'Quantifying and Reporting Greenhouse Gas
Emissions from Transport Chain Operations'





A handy and easy-to-read guide to this landmark new ISO document, intended for sustainability teams, supply chain professionals and haulage firms.



In March 2023, the International Organisation for Standardisation (ISO) published a pivotal new standard: ISO 14083 "Greenhouse Gases – Quantification and Reporting of Greenhouse Gas Emissions Arising from Transport Chain Operations".

This new standard is a significant milestone in the drive towards accurate and standardised reporting of greenhouse gas emissions from transport activities. It builds on the excellent and already widely-accepted GLEC Framework developed by the Global Logistics Emissions Council, and offers more detailed guidelines and a broadened scope. The ISO 14083 covers both freight and passenger transport and includes guidance on accounting for important 'fugitive emissions'.

This short guide will tell you everything you need to know about the new standard, and how to go about adopting it in your business.

Dr Christopher de Saxe
Head of Sustainability
Zeus® - The Future of Freight

The full ISO document can be purchased from the ISO website here:
www.iso.org/standard/78864.html





CONTENTS

- > ISO 14083 explained: what it is and who it's for
- > 7 takeaways from ISO 14083
- > Benefits of implementing ISO 14083
- > How to implement ISO 14083
- > The origins: GLEC's role in ISO 14083's development
- > How it differs to the GLEC framework



ISO 14083 explained: what it is and who it's for

As the drive for sustainability accelerates, companies are having to look more closely at the emissions stemming from their commercial activities. To date, the focus has been very much on so-called Scope 1 and Scope 2 emissions (direct emissions resulting from owned assets and indirect emissions associated with the energy consumed by owned assets). However, there is now increasing scrutiny on Scope 3 emissions associated with the supply chain, and chief among these are the logistics of transporting procured and produced goods and materials.

Logistics operations involve a complex system of multiple actors and transport modes, which presents a challenge for accurately measuring and reporting greenhouse gas emissions. This is where ISO 14083 comes in.

What is ISO 14083?

ISO 14083 is a new international standard developed to provide a consistent method for calculating and reporting greenhouse gas emissions from all transport operations. This includes the movement of both goods and passengers, and covers all modes of transport - by land, water, or air - and activities at transport hubs.

Comprehensive, clear and adaptable - ISO 14083 is a crucial tool for the future. By providing a universally applicable methodology, it's more than a standard: ISO 14083 is a global call to action for greener, cleaner, and more responsible transport operations.



Who is the ISO 14083 intended for?

Any organisation stands to benefit from adopting ISO 14083. If transportation features anywhere in your business—from your own direct operations, to contracted operations in your upstream and downstream supply chains, to the travel of your employees—the standard will guide you in calculating your emissions footprint associated with transport activities. You may already be required to do so by your employer, and if not, this is likely to be mandated in future. The standard will be particularly beneficial to sustainability and supply chain professionals within retailers, manufacturers, and logistics service providers, but will also guide regulators and policy makers in standardising future emissions reporting requirements.



7 Key takeaways from ISO 14083

Essential insights

International consistency

ISO 14083 offers a standardised and globally accepted methodology for measuring and reporting greenhouse gas emissions from logistics operations, ensuring that comparisons and assessments are consistent across different regions and transport operations.

Wide applicability

ISO 14083 is relevant for all types of transport operations, regardless of their size or complexity - from multinational corporations to small local operators.

Complete transport application

ISO 14083 applies to all modes of both freight and passenger transport and is relevant at all stages of the transport chain. Whether by land, water, or air, and regardless of whether it's by ship, vehicle, or pipeline. It also considers the emissions from 'empty miles' (empty, return truck journeys, for example).

Flexible quantification

ISO 14083 enables organisations to select the greenhouse gas sources, data, and methodologies that best meet their specific needs, making it adaptable and effective in diverse contexts and operations.

Calculation, not offsetting

While ISO 14083 underscores the need for information sharing across transport chains, its primary purpose is to calculate emissions. It does not provide provisions for offsetting these emissions.

Enhanced data visibility

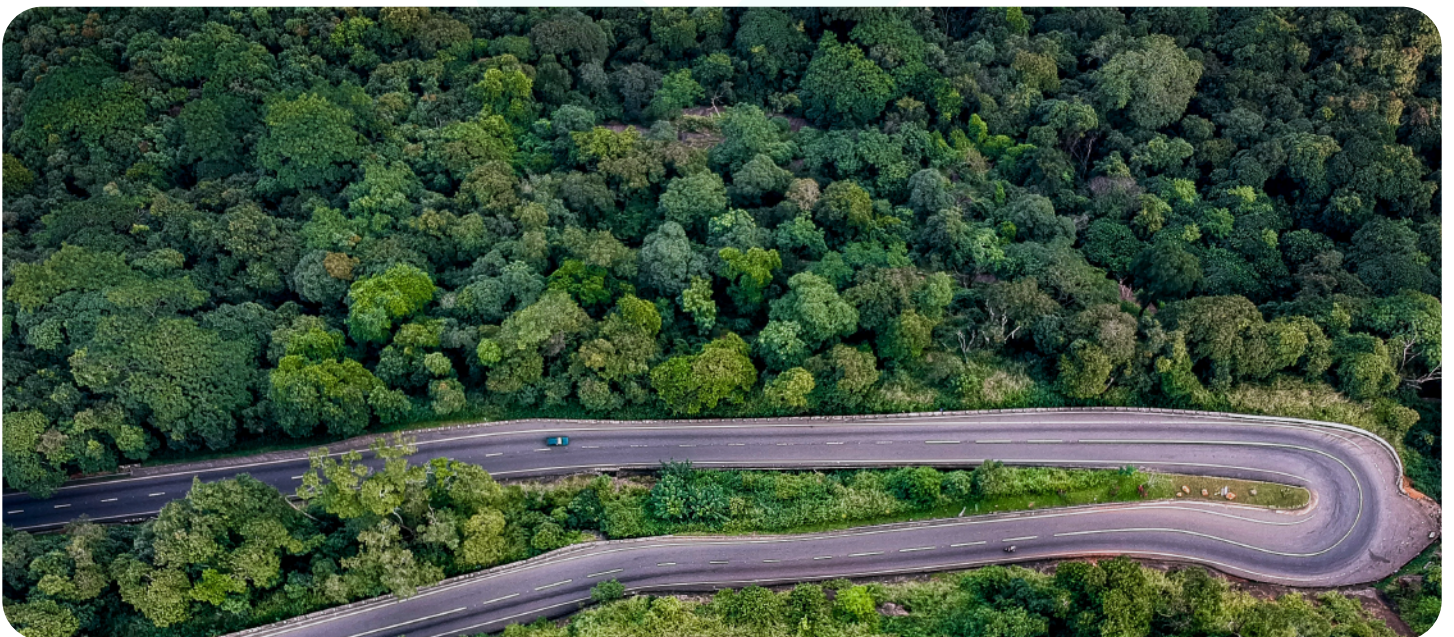
ISO 14083 highlights the growing importance of data visibility up and down the value chain for better environmental impact management.

Comprehensive emissions assessment

ISO 14083 doesn't only consider emissions from vehicles and transport hubs operation. It also includes those associated with the production and distribution of the energy used.

Benefits of implementing ISO 14083

- Reducing greenhouse gas emissions from transport chain operations can help companies improve their environmental performance and enhance their corporate social responsibility.
- Implementing the ISO 14083 standard now can help companies prepare for upcoming regulatory requirements and stay ahead of evolving environmental standards.
- The standard can help companies identify opportunities to improve logistics efficiency in their operations, which reduces both emissions and costs, hence having a positive impact on their bottom line.
- Future transport tenders may soon start to include certification as a tender requirement, and so early preparation in accordance with the standard will put companies at a competitive advantage.



How to implement ISO 14083

Implementing ISO 14083 can be done with a four-step approach.

Conduct a Gap Analysis

Every organisation's transport-related activities and internal procedures will differ, and so you'll need to position the standard in the context of your business. You'll then need to identify what you're already doing in line with the standard and what gaps remain .

Start by examining the current state of your organisation's logistics processes and their associated GHG emissions tracking. What systems and methodologies are currently in place? How accurate and comprehensive are they? What data is available to you from your upstream and downstream supply chains? Next, compare this to the criteria outlined by ISO 14083. Where are the gaps? Analysis will provide you with a clear picture of your organisation's current standing and the necessary steps to achieve ISO 14083 compliance.

Implement Quantification Requirements

With gaps identified, begin addressing them. Implement the quantification methodologies outlined in ISO 14083 (see Clause 7, ISO 14083:2023). This may mean modifying existing systems or introducing new ones. The first crucial step, however, is to gain a detailed understanding of the transport chains within your organisation.

"Transport chain" is a core concept for emissions calculation in ISO 14083 (see Clause 3.1.25 and 6.1, ISO 14083:2023). It is the multi-stage process that moves freight, or passengers, from their starting point to their destination. It includes not just the individual stages of transport (each can involve a different mode of transport) but the transfer processes that take place at the linking hubs. ISO 14083 refers to each of these as "transport chain elements" (TCEs). By quantifying the emissions from each element and then adding them up, you can calculate the total emission of the complete transport chain.

To accurately calculate the emissions from a specific element within a transport chain, you must first identify its operational characteristics. These include things like the type of transport (e.g. HGV, rail, ship, plane) and the energy source used (e.g. diesel, electric, biofuel). Following that, determine the emission intensity (the amount of greenhouse gas emissions produced per unit of transport activity; see Clause 3.2.10, ISO 14083:2023). Finally, by understanding the overall transport activity (such as total miles travelled or tons transported) - you combine these pieces of information to yield the total greenhouse gas emissions for that specific transport chain element.



Implement Reporting Requirements

Putting ISO 14083 into practice involves generating a comprehensive emissions report in accordance with the standard. To simplify and streamline this task, ISO 14083 provides two standardised templates (see Clause 13, ISO 14083:2023).

Depending on your operation's size and complexity, this report can fall into one of two categories:

Organisation Level Reporting (see Clause 13.2 ISO 14083:2023)

- This aggregates data from all or selected transport chains managed or contracted by an organisation.
- The report can take the form of a single comprehensive document, or a brief report supplemented with additional information made accessible separately.
- The report can be published in any format suitable for organisational greenhouse gas emission reporting such as annual corporate reports or voluntary corporate disclosure programs.
- The organisation should produce at least an annual report covering operations performed during a consecutive 12 month period. Reports over shorter periods or specific journeys might also be beneficial.

Transport or Hub Services Level Reporting (see Clause 13.3 ISO 14083:2023)

- Designed for reporting on a single transport chain element, or to a set of transport chain elements, that constitute a part of a full transport chain.
- In cases where transport service providers report to transport service users, the report should be effectively communicated in the most effective format. This could include web pages, visual graphics, or traditional printed reports.

External Auditing

After you've implemented the changes, an external audit will ensure that it is functioning as expected and is in line with ISO 14083. An audit will confirm the accuracy of your measurements and the reliability of your reporting, and identify areas where further improvements may be necessary. Regular audits will also help you ensure that your system continues to comply with ISO 14083 as your organisation and its transport chains evolve over time.



GLEC's role in ISO 14083 development

ISO 14083 was not developed in isolation. It is linked with and draws from numerous established standards, protocols, and organisations (see Introduction, ISO 14083:2023). At the core of the new standard's principles and methodology is the Global Logistics Emissions Council (GLEC) Framework for Logistics Emissions Accounting and Reporting, first introduced in 2016 by the Smart Freight Centre.

The GLEC Framework was the world's first formalised methodology for calculating and reporting logistics-related greenhouse gas emissions across the entire supply chain. ISO 14083 is designed to dovetail with this framework - even reverting to GLEC for default emission factors unless more country and mode specific data is available.



At Zeus we've been utilising the GLEC Framework as the backbone of our calculations for emissions in our sustainable, multimodal transport solutions.

We've also been a Full Member of GLEC since January 2023. With the introduction of ISO 14083, we're gearing up to adopt this new standard - incorporating its guidance into our ongoing commitment to sustainable freight.

How it differs to the GLEC framework

Recognition and acceptance

The GLEC framework, though widely adopted and recognised, is a guideline, while the ISO 14083 presents a formalised and globally recognisable standard. Though adherence to either is voluntary, the latter stands to be more widely recognised as part of a holistic set of carbon reporting standards and methodologies which companies will be looking to adopt throughout all aspects of their business. It will also be more likely to gain support by governments worldwide, ensuring better alignment between private and public sectors.

Includes freight and passenger transport

The GLEC framework is logistics-focussed, while ISO 14083 covers both passenger and freight transport in equal levels of detail.

Detailed methodologies for using modelled data

Where the GLEC framework presents guidelines for working with modelled data (as opposed to primary or default data), the new ISO standard presents a more structured and detailed framework for modelling depending on the level of data available to you and how to handle uncertainties.

Additional resources

The ISO standard provides a few extra resources including reporting templates and additional emission factors not previously included in GLEC (e.g., for HVO fuel).

Fugitive emissions

Fugitive emissions (i.e., unintentional or unplanned emissions) were out of the scope of the GLEC framework. The ISO standard however now provides a detailed approach for handling GHG emissions resulting from refrigerant leakage and provides emission factors which take into account methane slip (an important consideration for biogas trucks).



Did you find this guide useful?

Perhaps you would find Zeus's sustainable freight transport solutions even more useful.



[Contact us today](#) and see how we can help you make real and significant emissions reductions to your supply chain transport, without compromising reliability, flexibility or service levels.

www.yourzeus.com

