SLOVENSKI STANDARD
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[Not translated]

Hydrogen technologies - Methodology for determining the greenhouse gas emissions associated with the hydrogen supply chain - Part 1: Emissions associated with the production of hydrogen to production gate (ISO/DIS 19870-1:2025)

Technologies de l'hydrogène - Méthodologie pour déterminer les émissions de gaz à effet de serre associées à la chaîne d'approvisionnement en hydrogène - Partie 1: Émissions associées à la production d'hydrogène jusqu'au point de production (ISO/DIS 19870-1:2025)

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27.075	Tehnologija vodika	Hydrogen technologies

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ISO/DIS 19870-1

Hydrogen technologies — Methodology for determining the greenhouse gas emissions associated with the hydrogen supply chain —

Part 1: Emissions associated with the production of hydrogen to production gate

ICS: 27.075; 13.020.40

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Foreword

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This document was prepared by Technical Committee ISO/TC 197, *Hydrogen technologies*, Subcommittee SC 1, *Hydrogen at scale and horizontal energy systems*.

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Introduction

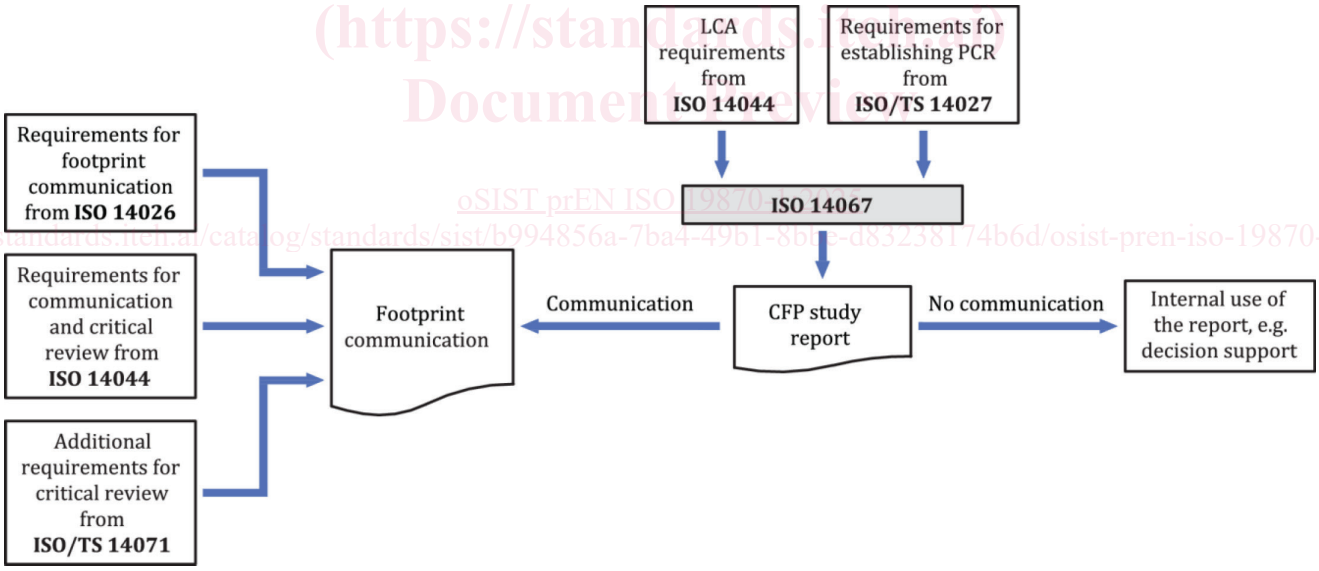
The Paris Agreement was adopted at the UN Climate Change conference (COP21) with the aims of: strengthening the global response to the threat of climate change, restricting global temperature rise to below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1,5 °C above pre-industrial levels. To meet these goals, greenhouse gas (GHG) emissions need to be reduced by about 45 % from 2010 levels by 2030, reaching net zero in 2050 (IPCC, 2018; UNFCCC, 2021).

GHG initiatives on mitigation rely on the quantification, monitoring, reporting and verification of GHG emissions and/or removals. International Standards that support the transformation of scientific knowledge into tools can help in reaching the targets of the Paris Agreement to address climate change.

ISO 14044 defines the requirements and guidelines identified in existing International Standards on life cycle assessment (LCA). The ISO 14060 series provides clarity and consistency for quantifying, monitoring, reporting and validating or verifying GHG emissions and removals to support sustainable development through a low-carbon economy. It also benefits organizations, project proponents and stakeholders worldwide by providing clarity and consistency on quantifying, monitoring, reporting and validating or verifying GHG emissions and removals.

ISO 14067 is based on the requirements and guidelines on LCA identified in ISO 14044 and aims to set specific requirements for the quantification of a carbon footprint (CFP) and a partial CFP. ISO 14067 defines the principles, requirements and guidelines for the quantification of the carbon footprint of products. Its aim is to quantify GHG emissions associated with the lifecycle stages of a product, beginning with resource extraction and raw material sourcing and extending through the production, use and end-of-life stages of the product.

Figure 1 illustrates the relationship between ISO 14067 and other ISO documents on LCA.



PCR: Product category rule

Figure 1 — Relationship between standards beyond the GHG management family of standards (source ISO 14067:2018)

Hydrogen can be produced from diverse sources including renewables, nuclear and fossil fuels, with or without carbon capture, utilization and storage (CCUS). Hydrogen can be used to decarbonize numerous sectors.

A particular challenge is that identical hydrogen molecules can be produced and combined from sources that have different GHG intensities. Similarly, hydrogen-based fuels and derivatives will be indistinguishable and can be produced from hydrogen combined with a range of fossil and low-carbon inputs. Indeed,