

**TR ISO/TR 14069 : 2020**  
**ISO/TR 14069:2013, IDT**  
(ICS 13.020.40)

**TECHNICAL REFERENCE**

**Greenhouse gases – Quantification and reporting of greenhouse gas emissions for organisations – Guidance for the application of SS ISO 14064-1**

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ISBN 978-981-49-2546-4

The content of this Technical Reference was approved on 21 December 2020 by the Environment and Resources Standards Committee (ERSC) under the purview of the Singapore Standards Council.

First published, 2021

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*E2C Consulting Pte Ltd*

*Ernst and Young LLP*

*National Climate Change Secretariat*

*National Environment Agency*

*Singapore Institute of Manufacturing Technology*

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## **National Foreword**

This Technical Reference (TR) was prepared by the Working Group on Greenhouse Gases and Product Life Cycle set up by the Technical Committee on Environmental Management under the purview of ERSC.

This TR is identical with ISO/TR 14069:2013, “Greenhouse gases – Quantification and reporting of greenhouse gas emissions for organizations – Guidance for the application of ISO 14064-1”, published by the International Organization for Standardization.

The GWP values mentioned in Annex D (informative) can be found in the latest Intergovernmental Panel on Climate Change (IPCC) 5th Assessment Report, details of which are in the following references that were added to the ISO Bibliography:

- a) 2019 Refinement to 2006 IPCC Guidelines for National Greenhouse Gas Inventories
- b) Summary Report on 2019 Refinement to 2006 IPCC Guidelines for National Greenhouse Gas Inventories

NOTE 1 – Where appropriate, the words “Technical Report” are read as “Technical Reference”.

NOTE 2 – Where numerical values are expressed as decimals, the comma is read as a full point.

This TR is a provisional standard made available for application over a period of three years. The aim is to use the experience gained to update the TR so that it can be adopted as a Singapore Standard. Users of the TR are invited to provide feedback on its technical content, clarity and ease of use. Feedback can be submitted using the form provided in the TR. At the end of the three years, the TR will be reviewed, taking into account any feedback or other considerations, to further its development into a Singapore Standard if found suitable.

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

### **NOTE**

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions. Where SSs are deemed to be stable, i.e. no foreseeable changes in them, they will be classified as “Mature Standards”. Mature Standards will not be subject to further review, unless there are requests to review such standards.*
2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore and the Singapore Standards Council shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR. Although care has been taken to draft this standard, users are also advised to ensure that they apply the information after due diligence.*
3. *Compliance with a SS or TR does not exempt users from any legal obligations.*



## **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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

ISO/TR 14069 was prepared by Technical Committee ISO/TC 207, *Environmental management*, Subcommittee SC 7, *Greenhouse gas management and related activities*.

## Introduction

ISO 14064-1 enables organizations around the world to quantify greenhouse gas (GHG) emissions and removals. This Technical Report uses the principles and process from ISO 14064-1 to develop guidance on quantification and reporting of GHG for organizations.

This Technical Report is consistent with the objective of building on existing International Standards and protocols on corporate GHG inventories, and incorporates many of the key concepts and requirements stated in the GHG Protocol by the World Business Council for Sustainable Development/World Resources Institute in References [4] and [5]. Some of these concepts have been adapted to suit this Technical Report. Users of this Technical Report are encouraged to refer to References [4] and [5] for additional guidance on applying the relevant concepts and requirements.

ISO 14064-1 identifies three types of emissions:

- a) direct emissions;
- b) energy indirect emissions (associated with purchases of electricity and heat);
- c) “other indirect emissions”.

Direct emissions correlate to “scope 1”, energy indirect emissions to “scope 2” and other indirect emissions to “scope 3” as defined by the GHG Protocol corporate standard (see Reference [4]).

In tackling climate change, there is a convergence of interests between organizations, national and regional regulators and international negotiators on the need to develop methods of quantifying GHG emissions and providing reliable tools to do so.

This Technical Report is intended to assist users in the application of ISO 14064-1, using guidelines and examples and to provide transparency in the quantification of emissions and their reporting.

This Technical Report enables an organization to do the following:

- enhance the transparency and consistency of reported GHG emissions (direct, energy indirect and other indirect), establish a classification of categories for all emissions, especially the indirect emissions, and recommend this classification for all ISO 14064-1 inventories;
- choose or develop the method of calculating emissions;
- differentiate, whenever necessary, the three main types of organization that are addressed in this Technical Report:
  - a facility or production site (spatially delimited) providing goods (industry) and/or services (tertiary), belonging to a private or public organization;
  - a private or public organization with several facilities/sites and/or subsidiaries, and needing consolidation procedures;

- a local authority that produces both direct and indirect emissions, from both its own operations and services provided within a specific territory: the services provided to a community (roads, cleaning, transport, gardens, etc.) can be delivered directly by the public authority or under mixed forms (outsourced activities, delegations, concession, etc.);
- report GHG emissions and removals, using a simplified format to make the report easier to understand.

This Technical Report is intended to give guidance on the quantification of a GHG emissions inventory within the selected boundaries of an organization. It differs from the process of product carbon footprinting (see ISO 14067), whose primary focus are the emissions from the life cycle of a product.

The objective of this Technical Report is to offer organizations guidance on the quantification and reporting of their GHG inventory, using a process that incorporates the principles of relevance, completeness, consistency, accuracy and transparency. This kind of GHG inventory is expressed as net global warming potential in carbon dioxide equivalent (CO<sub>2</sub>e).

# Greenhouse gases — Quantification and reporting of GHG emissions for organizations — Guidance for the application of ISO 14064-1

## 1 Scope

This Technical Report describes the principles, concepts and methods relating to the quantification and reporting of direct and indirect greenhouse gas (GHG) emissions for an organization. It provides guidance for the application of ISO 14064-1 to greenhouse gas inventories at the organization level, for the quantification and reporting of direct emissions, energy indirect emissions and other indirect emissions.

This Technical Report describes for all organizations, including local authorities, the steps for:

- establishing organizational boundaries, in accordance with either a control approach (financial or operational) or an equity share approach;
- establishing operational boundaries, by identifying direct emissions and energy indirect emissions to be quantified and reported, as well as any other indirect emissions the organization chooses to quantify and report; for each category of emission, guidance is provided on specific boundaries and methodologies for the quantification of GHG emissions and removals;
- GHG reporting: guidance is provided to promote transparency regarding the boundaries, the methodologies used for the quantification of direct and indirect GHG emissions and removals, and the uncertainty of the results.

A table of correspondence between the numbering of ISO 14064-1:2006 and this Technical Report is provided in Annex A.

The examples and case studies presented in this Technical Report are not exclusive and non-exhaustive. The values of the emission or removal factors mentioned in the examples are given for illustrative purposes only. A non-exhaustive list of database references is provided in Annex B.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14064-1:2006, *Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals*