

SLOVENSKI STANDARD
oSIST prEN ISO 14064-1:2017
01-september-2017

Toplogredni plini - 1. del: Specifikacija z navodilom za količinsko določanje in poročanje o emisijah in odstranjevanju toplogrednih plinov na ravni organizacije (ISO/DIS 14064-1:2017)

Greenhouse gases - Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals (ISO/DIS 14064-1:2017)

Treibhausgase - Teil 1: Spezifikation mit Anleitung zur quantitativen Bestimmung und Berichterstattung von Treibhausgasemissionen und Entzug von Treibhausgasen auf Organisationsebene (ISO/DIS 14064-1:2017)

Gaz à effet de serre - Partie 1: Spécifications et lignes directrices, au niveau des organismes, pour la quantification et la déclaration des émissions et des suppressions des gaz à effet de serre (ISO/DIS 14064-1:2017)

Ta slovenski standard je istoveten z: prEN ISO 14064-1

ICS:

13.020.40	Onesnaževanje, nadzor nad onesnaževanjem in ohranjanje	Pollution, pollution control and conservation
-----------	--	---

oSIST prEN ISO 14064-1:2017

en

DRAFT INTERNATIONAL STANDARD

ISO/DIS 14064-1

ISO/TC 207/SC 7

Secretariat: SCC

Voting begins on:
2017-06-29Voting terminates on:
2017-09-20

Greenhouse gases —

Part 1:

Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals

Gaz à effet de serre —

Partie 1: Spécifications et lignes directrices, au niveau des organismes, pour la quantification et la déclaration des émissions et des suppressions des gaz à effet de serre

ICS: 13.020.40

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 14064-1:2019

<https://standards.iteh.ai/catalog/standards/sist/f8c819ae-9f29-4505-9580-1f1d775592fc/sist-en-iso-14064-1-2019>

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING



Reference number
ISO/DIS 14064-1:2017(E)

© ISO 2017

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 14064-1:2019

<https://standards.iteh.ai/catalog/standards/sist/f8c819ae-9f29-4505-9580-1f1d775592fc/sist-en-iso-14064-1-2019>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

26 Contents	Page
27 Foreword	5
28 Introduction.....	6
29 0.1 Background	6
30 0.2 Base GHG quantification concepts used by this standard.....	8
31 0.3 Significance of “explain”, “justify” and “document” when used in this standard	8
32 1 Scope	9
33 2 Normative references	9
34 3 Terms and definitions.....	9
35 3.1 Terms relating to greenhouse gases.....	9
36 3.2 Terms relating to GHG inventory process	11
37 3.3 Terms relating to biogenic material and land use	13
38 3.4 Terms relating to organizations, interested parties and verification.....	13
39 4 Principles	14
40 4.1 General	14
41 4.2 Relevance	14
42 4.3 Completeness.....	14
43 4.4 Consistency	15
44 4.5 Accuracy.....	15
45 4.6 Transparency	15
46 5 GHG inventory boundaries	15
47 5.1 Organizational boundaries	15
48 5.2 Reporting boundaries.....	15
49 5.2.1 Establishing reporting boundaries	15
50 5.2.2 Direct GHG emissions and removals	16
51 5.2.3 Indirect GHG emissions.....	16
52 5.2.4 GHG inventory categories.....	16
53 6 Quantification of GHG emissions and removals	17
54 6.1 Identification of GHG sources and sinks	17
55 6.2 Selection of quantification approach	17
56 6.2.1 Data selection and collection used for quantification.....	17
57 6.2.2 Selection or development of GHG quantification model	18
58 6.3 Calculation of GHG emissions and removals	18
59 6.4 Base-year GHG inventory	18
60 6.4.1 Selection and establishment of base-year	18

ISO DIS 14064-1:2017(E)

61	6.4.2	Review of base-year GHG inventory	19
62	7	Mitigation activities	19
63	7.1	GHG emission reduction and removal enhancement initiatives.....	19
64	7.2	GHG emission reduction or removal enhancement projects.....	20
65	7.3	GHG emission reduction or removal enhancement targets.....	20
66	8	GHG inventory quality management	21
67	8.1	GHG information management.....	21
68	8.2	Document retention and record keeping	21
69	8.3	Assessing uncertainty	22
70	9	Reporting of GHG	22
71	9.1	General	22
72	9.2	Planning the GHG report.....	22
73	9.3	GHG report content.....	23
74	10	Organization's role in verification activities	24
75	Annex A (informative)	Process to consolidate data	25
76	Annex B (informative)	Direct and indirect GHG emissions categorization.....	27
77	Annex C (informative)	Guidance on the selection, collection and use of data for GHG	
78		quantification approach for direct emissions.....	34
79	Annex D (normative)	Biogenic GHG emissions and CO ₂ removals.....	41
80	Annex E (normative)	Treatment of imported electricity that is consumed by the organization,	
81		and of exported electricity generated by the organization.....	42
82	Annex F (informative)	GHG inventory report structure and organization.....	43
83	Annex G (informative)	Agricultural and forestry guidance	46
84	Annex H (informative)	Guidances for the identification process of significant indirect GHG	
85		emissions (Subclause 5.2.3)	51
86	Bibliography		53
87			

88 Foreword

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

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

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

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

106 For an explanation on the meaning of ISO specific terms and expressions related to conformity
107 assessment, as well as information about ISO's adherence to the WTO principles in the Technical
108 Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

109 The committee responsible for this document is Technical Committee ISO/TC 207 *Environmental*
110 *management*, Subcommittee SC 7 *Greenhouse gas management and related activities*.

111 This second edition cancels and replaces the first edition (ISO 14064-1:2006), which has been
112 technically revised.

113 The main changes compared to the previous edition are described below:

114 — the 2006 standard edition was developed with a specific focus on energy intensive sector. That
115 version paid particular attention to energy indirect GHG emissions (now renamed as "indirect GHG
116 emissions from energy"), in addition to direct GHG emissions.

117 However, a growing number of organizations in other sectors, are recognizing the importance and
118 significance of indirect emissions and developing GHG inventories including in it more types of "indirect
119 GHG emissions" across the value chain. For these reasons, this version of the standard introduces a new
120 approach to reporting boundaries, facilitating more organizations to develop a GHG inventory and to
121 expand the inclusion of indirect GHG emissions.

122 "Other indirect GHG emissions" is now renamed as "indirect GHG emissions" and classified into six
123 specific categories including a process with requirements and guidance.

124 — "Operational boundaries" is renamed "reporting boundaries", for clarification and easiness.

ISO DIS 14064-1:2017(E)

125 **Introduction**126 **0.1 Background**

127 Climate change arising from anthropogenic activity has been identified as one of the greatest challenges
128 facing the world and will continue to affect business and citizens over future decades.

129 Climate change has implications for both human and natural systems and could lead to significant
130 impacts on resource availability, economic activity and human wellbeing. In response, international,
131 regional, national, and local initiatives are being developed and implemented by public and private
132 sectors to mitigate greenhouse gas (GHG) concentrations in the Earth's atmosphere as well as to
133 facilitate adaptation to climate change.

134 There is a need for an effective and progressive response to the urgent threat of climate change on the
135 basis of the best available scientific knowledge. ISO produces documents that support the
136 transformation of scientific knowledge into tools that will help address climate change.

137 GHG initiatives on mitigation rely on the quantification, monitoring, reporting and verification of GHG
138 emissions and/or removals.

139 ISO 14060 series provides clarity and consistency for quantifying, monitoring, reporting and validating
140 or verifying GHG emissions and removals to support sustainable development through low-carbon
141 economy and it also benefits organizations, project proponents and stakeholders worldwide by
142 providing clarity and consistency for quantifying, monitoring, reporting and validating or verifying GHG
143 emissions and removals. Specifically, use of ISO 14060 series:

- 144 — enhances the environmental integrity of GHG quantification;
- 145 — enhances the credibility, consistency, and transparency of GHG quantification, monitoring,
146 reporting, validation and verification; <https://standards.iteh.ai/catalog/standards/sist/f8c819ae-9f29-4505-9580-1f1d775592fc/sist-EN-ISO-14064-1:2019>
- 147 — facilitates the development and implementation of GHG management strategies and plans;
- 148 — facilitates the development and implementation of mitigation actions through emission reductions
149 or removal enhancements;
- 150 — facilitates the ability to track performance and progress in the reduction of GHG emissions and/or
151 increase in GHG removals; and
- 152 — facilitates GHG emission reductions or removal enhancements.

153 Applications of ISO 14060 series include:

- 154 — corporate decisions such as: identifying emission reduction opportunities and increasing
155 profitability by reducing energy consumption;
- 156 — carbon risk management such as: the identification and management of risks and opportunities;
- 157 — voluntary initiatives such as: participation in voluntary GHG registry or sustainability reporting
158 initiatives;
- 159 — GHG markets such as: the buying and selling of GHG allowances or credits;
- 160 — regulatory/government GHG programmes such as: credit for early action, agreements or national
161 and local reporting initiatives.

162 ISO 14064-1 details principles and requirements for designing, developing, managing and reporting
163 organization-level GHG inventories.

164 It includes requirements for determining GHG emission and removal boundaries, quantifying an
165 organization's GHG emissions and removals and identifying specific company actions or activities aimed
166 at improving GHG management.

167 It also includes requirements and guidance on inventory quality management, reporting, internal
168 auditing and the organization's responsibilities in verification activities.

169 ISO 14064-2 details principles and requirements for determining baselines, and monitoring, quantifying
170 and reporting of project emissions. It focuses on GHG projects or project-based activities specifically
171 designed to reduce GHG emissions and/or enhance GHG removals. It provides the basis for GHG
172 projects to be validated and verified.

173 ISO 14064-3 details requirements for verifying GHG statements related to GHG inventories, GHG
174 projects, and carbon footprints of products. It describes the process for validation or verification
175 including validation or verification planning, assessment procedures, and the evaluation of
176 organizational, project and product GHG statements. ISO 14064-3 can be used by first, second and third
177 parties.

178 ISO 14066 *(Text will be provided by the responsible WG before 14067 publication).*

179 ISO 14067 defines requirements for the quantification of carbon footprint of product. The aim of this
180 standard is to quantify GHG emissions associated with the life cycle stages of a product beginning with
181 resource extraction and raw material sourcing and extending through the production, use and end-of-
182 life phases of the product.

183 ISO TR 14069 intends to assist users in the application of ISO 14064-1, providing guidelines and
184 examples for improving transparency in the quantification of emissions and their reporting. This
185 Technical report does not provide additional guidance to 14064-1.

ISO DIS 14064-1:2017(E)

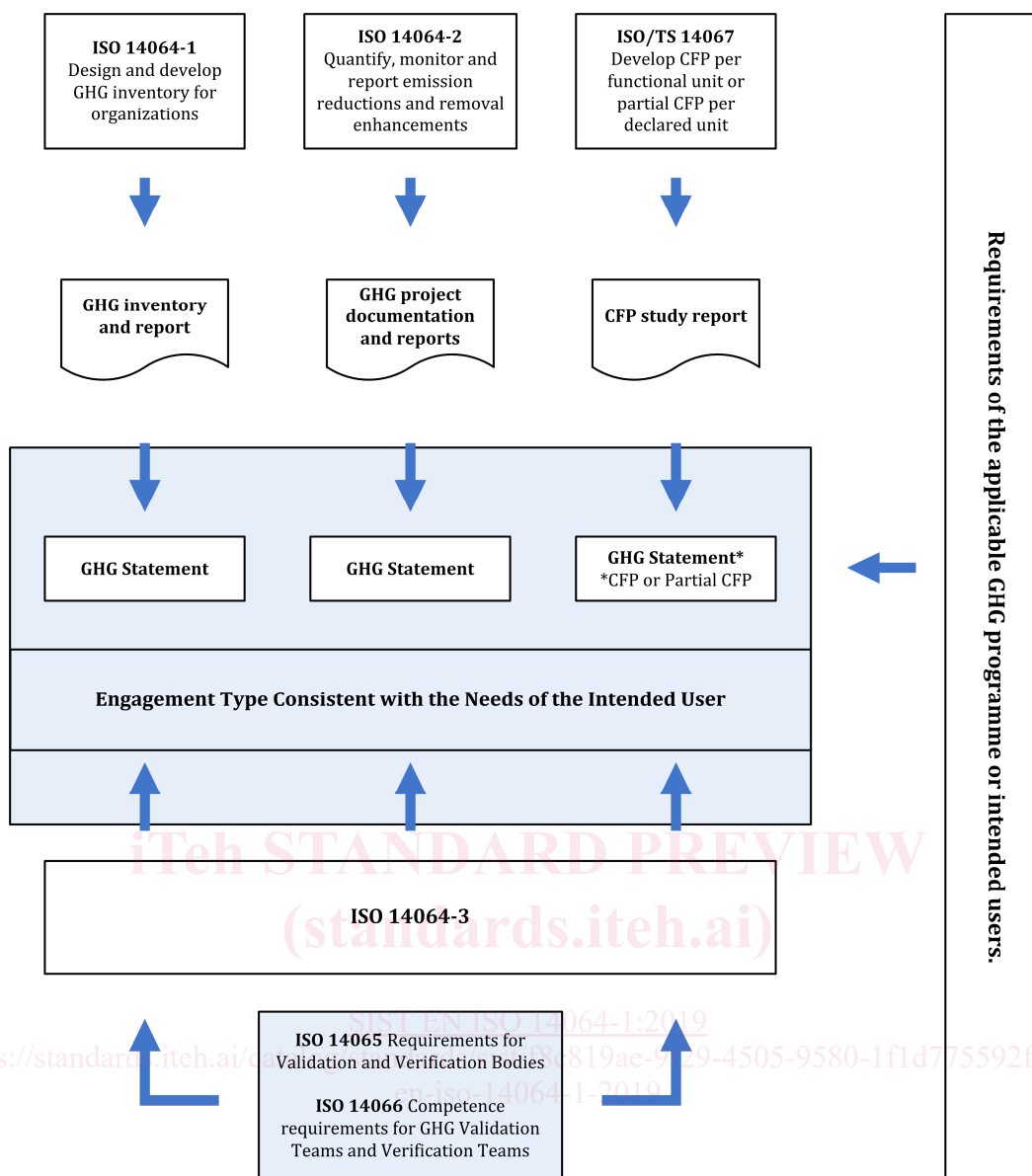


Figure 1 — Relationship among the three parts of ISO 14064 and other standards related to validation and verification

0.2 Base GHG quantification concepts used by this standard

ISO 14064-1 incorporates many key concepts developed over a number of years. Users of the standard are referred to items [3] through [15] of the Bibliography for (examples of) additional guidance on them.

0.3 Significance of “explain”, “justify” and “document” when used in this standard

Some clauses require users of this part of ISO 14064 to explain and to justify the use of certain approaches or decisions taken. Explanation will generally include (i) how approaches were used or decision taken and (ii) why approaches were chosen or decisions made.

Justification has two more criteria: (iii) why alternative approaches were not chosen and (iv) display supporting date or analysis requested.

199 **Greenhouse gases — Part 1: Specification with guidance at the** 200 **organization level for quantification and reporting of greenhouse** 201 **gas emissions and removals**

202 **1 Scope**

203 This part of ISO 14064 specifies principles and requirements at the organization level for quantification
 204 and reporting of greenhouse gas (GHG) emissions and removals. It includes requirements for the
 205 design, development, management, reporting and verification of an organization's GHG inventory.

206 ISO 14064 is GHG programme neutral. If a GHG programme is applicable, requirements of that GHG
 207 programme are additional to the requirements of ISO 14064.

208 **2 Normative references**

209 There are no normative references.

210 **3 Terms and definitions**

211 For the purposes of this document, the following terms and definitions apply.

212 **3.1 Terms relating to greenhouse gases**

213 **3.1.1**

214 **greenhouse gas**

215 **GHG**

216 gaseous constituent of the atmosphere, both natural and anthropogenic, that absorbs and emits
 217 radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's
 218 surface, the atmosphere, and clouds

219 Note 1 to entry: For list of greenhouse gases see latest Intergovernmental Panel on Climate Change (IPCC)
 220 Assessment Report.

221 Note 2 to entry: Water vapour and ozone are anthropogenic as well as natural greenhouse gases but are not
 222 included as recognized greenhouse gases due to difficulties, in most cases, in isolating the human-induced
 223 component of global warming attributable to their presence in the atmosphere.

224 Note 3 to entry: The focus of this document is limited to long-lived GHGs and it therefore excludes climate effects
 225 due to changes in surface reflectivity (albedo) and short-lived radiative forcing agents (e.g. black carbon and
 226 aerosols).

227 **3.1.2**

228 **greenhouse gas source**

229 **GHG source**

230 process that releases a GHG into the atmosphere

231 **3.1.3**

232 **greenhouse gas sink**

233 **GHG sink**

234 process that removes a GHG from the atmosphere

ISO DIS 14064-1:2017(E)

235 **3.1.4**236 **greenhouse gas reservoir**237 **GHG reservoir**

238 component, other than the atmosphere, which has the capacity to accumulate greenhouse gases, and
 239 store and release the greenhouse gases

240 Note 1 to entry: Oceans, soils and forests are examples of reservoirs.

241 Note 2 to entry: GHG capture and storage is one of the processes that results in a GHG reservoir.

242 **3.1.5**243 **greenhouse gas emission**244 **GHG emission**

245 release of a GHG to the atmosphere

246 **3.1.6**247 **greenhouse gas removal**248 **GHG removal**

249 withdrawal of a GHG from the atmosphere

250 **3.1.7**251 **greenhouse gas emission factor**252 **GHG emission factor**

253 coefficient relating activity data with the GHG emission

254 **3.1.8**255 **greenhouse gas removal factor**256 **GHG removal factor**

257 coefficient relating activity data with the GHG removal

258 Note 1 to entry: A greenhouse gas emission or removal factor could include an oxidation component.

259 **3.1.9**260 **direct greenhouse gas emission**261 **direct GHG emission**262 GHG emission from *greenhouse gas sources* (3.1.2) owned or controlled by the organization

263 Note 1 to entry: This part of ISO 14064 uses the concepts of equity share or control (financial or operational
 264 control) to establish organizational boundaries

265 **3.1.10**266 **direct greenhouse gas removal**267 **direct GHG removal**268 *GHG removal* (3.1.6) from *greenhouse gas sinks* (3.1.3) owned or controlled by the organization269 **3.1.11**270 **indirect greenhouse gas emissions**271 **indirect GHG emissions**

272 GHG emissions, which are a consequence of an organization's operations and activities, but arise from
 273 *greenhouse gas sources* (3.1.2) that are not owned or controlled by the organization

274 Note 1 to entry: Those emissions occur generally in the upstream and/or downstream chain.

275 **3.1.12**276 **global warming potential**277 **GWP**

278 index, based on radiative properties of greenhouse gases (GHGs), measuring the radiative forcing
 279 following a pulse emission of a unit mass of a given GHG in the present-day atmosphere integrated over
 280 a chosen time horizon, relative to that of carbon dioxide (CO₂)

281 **3.1.13**282 **carbon dioxide equivalent**283 **CO₂e**

284 unit for comparing the radiative forcing of a GHG to that of carbon dioxide

285 Note 1 to entry: The carbon dioxide equivalent is calculated using the mass of a given GHG multiplied by its *global*
 286 *warming potential* (3.1.12).

287 **3.2 Terms relating to GHG inventory process**288 **3.2.1**289 **greenhouse gas activity data**290 **GHG activity data**

291 quantitative measure of activity that results in a GHG emission or removal

292 Note 1 to entry: Examples of GHG activity data include the amount of energy, fuels or electricity consumed,
 293 material produced, service provided or area of land affected. Quantitative measure(s) of activity that results in a
 294 GHG emission or removals by a source or sink.

295 **3.2.2**296 **primary data**

297 quantified value of a process or an activity obtained from a direct measurement or a calculation based
 298 on direct measurements

299 Note 1 to entry: Primary data may include *GHG emission factor* (3.1.7) or *GHG removal factor* (3.1.8) and/or *GHG*
 300 *activity data* (3.2.1)

301 **3.2.3**302 **site-specific data**303 primary data obtained within the *organizational boundary* (3.4.7)304 Note 1 to entry: All site-specific data are *primary data* (3.2.2) but not all primary data are site-specific data305 **3.2.4**306 **secondary data**

307 data obtained from sources other than primary data

308 Note 1 to entry: Such sources can include databases and published literature validated by competent authorities.

309 **3.2.5**310 **greenhouse gas statement**311 **GHG statement**312 factual and objective [declaration, disclosure] related to GHG made by the *responsible party* (3.4.3)

313 Note 1 to entry: The use of the word 'statement' does not necessarily denote a statutory responsibility.

314 Note 2 to entry: The GHG statement may be presented at a point in time or may cover a specified period of time.

ISO DIS 14064-1:2017(E)

315 Note 3 to entry: The GHG statement provided by the responsible party should be clearly identifiable, capable of
 316 consistent evaluation or measurement against suitable criteria by a verifier.

317 Note 4 to entry: The GHG statement could be provided in the form of a *greenhouse gas report* (3.2.9).

318 **3.2.6**

319 **greenhouse gas inventory**

320 **GHG inventory**

321 list of greenhouse gas sources, sinks, and their quantified greenhouse gas emissions and removals

322 **3.2.7**

323 **greenhouse gas project**

324 **GHG gas project**

325 activity or activities that alter the conditions of a GHG baseline which cause greenhouse gas emission
 326 reductions or greenhouse gas removal enhancements

327 **3.2.8**

328 **greenhouse gas programme**

329 **GHG programme**

330 voluntary or mandatory international, national or sub-national system or scheme that registers,
 331 accounts or manages GHG emissions, removals, emission reductions or removal enhancements outside
 332 the organization or *greenhouse gas project* (3.2.7)

333 **3.2.9**

334 **greenhouse gas report**

335 **GHG report**

336 stand-alone document intended to communicate an organization's or project's GHG-related information
 337 to its *intended users* (3.4.4)

338 Note 1 to entry: A GHG report can include a *greenhouse gas statement* (3.2.5).

339 **3.2.10**

340 **base-year**

341 specific, historical period identified for the purpose of comparing GHG emissions or removals or other
 342 GHG-related information over time

343 Note 1 to entry: Base-year emissions or removals may be quantified based on a specific period (e.g. a year or part
 344 of year where seasonality is a feature of the organisation's activity) or averaged from several periods (e.g. several
 345 years).

346 **3.2.11**

347 **Greenhouse gas reduction initiative**

348 **GHG reduction initiative**

349 specific activity or initiative, not organized as a *greenhouse gas project* (3.2.7), implemented by an
 350 organization on a discrete or continuous basis, to reduce or prevent direct or indirect GHG emissions or
 351 increase GHG removals and which may occur within or outside the organizational boundaries

352 **3.2.12**

353 **monitoring**

354 continuous or periodic assessment of GHG emissions and removals or other GHG-related data

355 **3.2.13**

356 **uncertainty**

357 parameter associated with the result of quantification which characterizes the dispersion of the values
 358 that could be reasonably attributed to the quantified amount

359 Note 1 to entry: Uncertainty information typically specifies quantitative estimates of the likely dispersion of
 360 values and a qualitative description of the likely causes of the dispersion.

361 **3.2.14**362 **significant indirect greenhouse gas emission**363 **significant indirect GHG emission**364 an organization' quantified and reported emissions complying with the significance criteria set by the
365 *organization* (3.4.2)366 **3.3 Terms relating to biogenic material and land use**367 **3.3.1**368 **biomass**369 material of biological origin excluding material embedded in geological formations and material
370 transformed to fossilized material371 Note 1 to entry: Biomass includes organic material (both living and dead), e.g. trees, crops, grasses, tree litter,
372 algae, animals, and waste of biological origin, e.g. manure.

373 [SOURCE: ISO 14021]

374 **3.3.2**375 **biogenic carbon**376 carbon derived from *biomass* (3.3.1)377 **3.3.3**378 **biogenic CO₂**379 CO₂ obtained by the oxidation of *biogenic carbon* (3.3.2)380 **3.3.4**381 **direct land use change (dLUC)**

382 change in human use or management of land within the relevant boundary

383 Note 1 to entry: Relevant boundary is the reporting boundary.

384 **3.4 Terms relating to organizations, interested parties and verification**385 **3.4.1**386 **facility**387 single installation, set of installations or production processes (stationary or mobile), which can be
388 defined within a single geographical boundary, organizational unit or production process389 **3.4.2**390 **organization**391 person or group of people that has its own functions with responsibilities, authorities and relationships
392 to achieve its objectives393 Note 1 to entry: The concept of organization includes, but is not limited to, sole-trader, company, corporation,
394 firm, enterprise, authority, partnership, association, charity or institution, or part or combination thereof, whether
395 incorporated or not, public or private.

396 [SOURCE: ISO 9001:2015]

397 **3.4.3**398 **responsible party**399 person or persons responsible for the provision of the *greenhouse gas statement* (3.2.5) and the
400 supporting GHG information