

Assurance on a Greenhouse Gas Statement – Draft International Standard on Assurance Engagements 3410

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[Proposed] International Standard on Assurance Engagements (ISAE) 3410, “Assurance on a Greenhouse Gas Statement” should be read in conjunction with the “Preface to the International Standards on Quality Control, Auditing, Review, Other Assurance and Related Services.”

NOTE: FOR THE SOURCE OF TEXT IN GREY SHADING, REFER TO THE SEPARATE RECONCILIATION OF ISA REQUIREMENTS IN AGENDA ITEM 2-D.

Introduction

Scope of this ISAE

1. This International Standard on Assurance Engagements (ISAE) deals with assurance engagements to report on a greenhouse gas (GHG) statement.
2. Although this ISAE does not provide specific guidance for assurance engagements under ISAE 3000 to report on the following, it may nonetheless assist practitioners with such engagements:¹
 - (a) Statements of emissions other than GHG emissions, e.g. nitrogen oxides (NO_x) and sulphur dioxide (SO₂);²
 - (b) Other GHG-related information, such as key performance indicators based on emissions data. (Ref: Para. A1)

Reasonable Assurance and Limited Assurance Engagements

3. The Assurance Framework notes that an assurance engagement may be either a reasonable assurance engagement or a limited assurance engagement.³ This ISAE deals only with reasonable assurance engagements.⁴

Relationship with Other Professional Pronouncements

4. The performance of assurance engagements other than audits or reviews of historical financial information requires the assurance professional to comply with ISAE 3000 in addition to this ISAE. The Assurance Framework, which defines and describes the elements and objectives of an assurance engagement, provides context for understanding this ISAE and ISAE 3000.
5. Compliance with ISAE 3000 requires, among other things, that the assurance professional comply with the independence and other requirements of the International Federation of Accountants' *Code of Ethics for Professional Accountants* (IFAC Code) and implement quality control procedures that are applicable to the individual engagement.
6. International Standards on Auditing, while not directly applicable, may provide guidance to assurance professionals undertaking engagements under this ISAE.

¹ ISAE 3000, "Assurance Engagements Other than Audits or Reviews of Historical Financial Information."

² NO_x (i.e., NO and NO₂, which differ from the GHG nitrous oxide, N₂O) and SO₂ are associated with "acid rain" rather than climate change.

³ International Framework for Assurance Engagements, paragraph 11.

⁴ As noted in the Explanatory Memorandum accompanying this exposure draft, the IAASB is in the process of developing a standard for limited assurance engagements also. [DEPENDING ON THE FORM IN WHICH THIS DOCUMENT IS RELEASED, THIS FOOTNOTE MAY NOT BE NECESSARY]

GHG Quantification and Reporting

7. GHGs trap heat in the atmosphere causing it to be warmer than it would otherwise be. They do this by allowing incoming solar radiation to pass through the earth's atmosphere, but inhibiting the outgoing infrared radiation (heat) from the surface and lower atmosphere from escaping into outer space. With the increasing attention being given to the link between GHGs and climate change, many entities are quantifying their GHG emissions for internal management purposes, and an increasing number are also preparing a GHG statement:
 - (a) As part of a regulatory disclosure regime;
 - (b) As part of an emissions trading scheme; or
 - (c) To inform investors and others on a voluntarily basis. Voluntary disclosures may be, for example, published as a stand alone document; included as part of a broader sustainability report or in an entity's annual report; or made to support inclusion in a "carbon register."

Effective Date

8. This ISAE is effective for assurance reports covering periods ending on or after [date].⁵

Objectives

9. In conducting an assurance engagement with respect to a GHG statement, the objectives of the assurance professional are:
 - (a) To obtain reasonable assurance about whether the GHG statement as a whole is free from material misstatement, whether due to fraud or error, thereby enabling the assurance professional to express an opinion on whether the GHG statement is presented fairly, in all material respects, in accordance with the applicable criteria; and
 - (b) To report on the entity's GHG statement, and communicate as required by this ISAE, in accordance with the assurance professional's findings.

Definitions

10. For purposes of this ISAE, the following terms have the meanings attributed below:
 - (a) **Applicable criteria** – The criteria used by the entity to quantify and report its emissions.⁶
 - (b) **Assertions** – Representations by the entity, explicit or otherwise, that are embodied in the GHG statement, as used by the assurance professional to consider the different types of potential misstatements that may occur.

⁵ This date will be at least 6 months after the date on which ISAE 3410 is approved for issue. Paragraph 16 of the Preface to the International Standards on Quality Control, Auditing, Review, Other Assurance and Related Services permits application before the effective date.

⁶ Criteria are discussed in the International Framework for Assurance Engagements, paragraph 34-38.

- (c) Assurance professional – “Assurance professional” is used to refer to the person or persons conducting the engagement, usually the engagement partner or other members of the engagement team, or, as applicable, the firm. Where this ISAE expressly intends that a requirement or responsibility be fulfilled by the engagement partner, the term “engagement partner” rather than “assurance professional” is used.
- (d) Assurance professional’s expert – An individual or organization possessing expertise in a field other than accounting or auditing, whose work in that field is used by the assurance professional to assist the assurance professional in obtaining sufficient appropriate engagement evidence. An assurance professional’s expert may be either an assurance professional’s internal expert (who is a partner or staff, including temporary staff, of the assurance professional’s firm or a network firm), or an assurance professional’s external expert.
- (e) Emissions – The GHGs that, during the relevant period, have been emitted to the atmosphere or would have been emitted to the atmosphere had they not been captured and channeled to a sink. Emissions can be categorized as:
- Direct emissions (also known as Scope 1 emissions), which are emissions from sources that are owned or controlled by the entity.
 - Indirect emissions, which are emissions that are a consequence of the activities of the entity, but which occur at sources that are owned or controlled by another entity. Indirect emissions can be further categorized as:
 - Scope 2 emissions, which are emissions associated with energy, including electricity, heating/cooling, and steam, that is transferred to and consumed by the entity.
 - Scope 3 emissions, which are all other indirect emissions. (Ref: Para. A2)
- The entity’s emissions (and its removals and emissions deductions, where applicable) is the “subject matter” of the engagement.⁷
- (f) Emissions deduction – Any item included in the entity’s GHG statement that is deducted from the total reported emissions, but which is not a removal; it commonly includes offsets (where the entity pays another entity to remove emissions from the atmosphere, or to undertake measures that lower the other entity’s emissions), but can also include a variety of other instruments or mechanisms such as performance credits, allowances, and contributions to a technology fund that are recognized by a regulatory or other scheme of which the entity is a part. Where an entity’s GHG statement includes emissions deductions, the requirements of this ISAE in relation to emissions also apply in relation to emissions deductions as appropriate.
- (g) Emissions factor – A mathematical factor or ratio for converting the measure of an activity (for example, liters of fuel consumed, kilometers travelled, the number of

⁷ International Framework for Assurance Engagements, paragraph 8.

animals in husbandry, or tonnes of product produced) into an estimate of the quantity of GHGs associated with that activity.

- (h) Engagement partner – The partner or other person in the firm who is responsible for the engagement and its performance, and for the assurance report that is issued on behalf of the firm, and who, where required, has the appropriate authority from a professional, legal or regulatory body.⁸
- (i) Engagement team – All partners and staff performing the engagement, and any individuals engaged by the firm or a network firm who perform assurance procedures on the engagement. This excludes an assurance professional's external expert engaged by the firm or a network firm.
- (j) Entity – The legal entity, economic entity, or the identifiable portion of a legal or economic entity (for example, a single factory or other form of facility, such as a land fill site), or combination of legal or other entities or portions of those entities (for example, a joint venture) to which the emissions in the GHG statement relate.
- (k) Fraud – An intentional act by one or more individuals among management, those charged with governance, employees, or third parties, involving the use of deception to obtain an unjust or illegal advantage.
- (l) GHG statement – A categorized listing quantifying an entity's GHG emissions for a period, and where applicable, comparative emissions relating to a prior period(s) or base year (sometimes known as a statement of emissions and removals, or an emissions inventory), plus explanatory notes including a summary of significant quantification and reporting policies. An entity's GHG statement may also include a categorized listing of removals or emissions deductions. The GHG statement is the "subject matter information" of the engagement.⁹
- (m) Greenhouse gases (GHGs) – Carbon dioxide (CO₂) and any other gases required by the applicable criteria to be included in the GHG statement, such as: methane; nitrous oxide; sulphur hexafluoride; hydrofluorocarbons; perfluorocarbons; and chlorofluorocarbons. These other gases are often expressed in terms of carbon dioxide equivalents (CO₂-e).
- (n) Management's expert – An individual or organization possessing expertise in a field other than accounting or auditing, whose work in that field is used by the entity to assist the entity in preparing the GHG statement.
- (o) Performance materiality – The amount or amounts set by the assurance professional at less than materiality for the GHG statement as a whole to reduce to an appropriately low level the probability that the aggregate of uncorrected and undetected misstatements exceeds materiality for the GHG statement as a whole. If applicable,

⁸ "Engagement partner," "partner," and "firm" should be read as referring to their public sector equivalents where relevant.

⁹ International Framework for Assurance Engagements, paragraph 8. .

performance materiality also refers to the amount or amounts set by the assurance professional at less than the materiality level or levels for particular types of emissions or disclosures.

- (p) Professional accountant¹⁰ – An individual who is a member of an IFAC member body.
- (q) Professional accountant in public practice¹¹ – A professional accountant, irrespective of functional classification (e.g., audit, tax or consulting) in a firm that provides professional services. This term is also used to refer to a firm of professional accountants in public practice.
- (r) Quantification – The process of attributing a quantity of GHGs to a particular source (or sink).
- (s) Removal – GHGs the entity has removed from the atmosphere, or emissions the entity has prevented from being released to the atmosphere, during the period. Where an entity’s GHG statement includes removals, the requirements of this ISAE in relation to emissions, also apply in relation to removals as appropriate. (Ref: Para. A3)
- (t) Sink – A physical unit or process that removes GHGs from the atmosphere.
- (u) Source – A physical unit or process that releases GHGs into the atmosphere.
- (v) Type of emissions – A grouping of emissions based on, for example, source of emission, type of gas, region, or facility.

Requirements

ISAE 3000

- 11. The assurance professional shall not represent compliance with this ISAE unless the assurance professional has complied with the requirements of this ISAE and ISAE 3000. (Ref: Paras.A4, A24-A28)

Competency, Quality Assurance, and Ethical Requirements

- 12. The engagement partner shall:
 - (a) Have specialist skills, knowledge and experience in assurance concepts and processes developed through extensive training and practical application. (Ref: Para. A5)
 - (b) Be a professional accountant in public practice, or otherwise:
 - (i) Comply, and document that compliance, with competency and ethical requirements (including those pertaining to independence relating to assurance engagements); and
 - (ii) Be subject to documented firm level quality assurance requirements,

¹⁰ As defined in the IFAC Code.

¹¹ As defined in the IFAC Code.

that are at least as demanding as those required by IFAC member bodies in the relevant jurisdiction. (Ref: Para. A6-A8)

- (c) Have sufficient skills, knowledge and experience of GHG quantification and reporting to accept responsibility for the assurance opinion; (Ref: Para. A9-A10).
 - (d) Evaluate whether the engagement team will be able to be involved, to the extent necessary to obtain sufficient appropriate evidence regarding the GHG statement as a whole, in the work of:
 - (i) An assurance professional's expert where the work of that expert is to be used; and (Ref: Para. A11-A13)
 - (ii) An other assurance professional where that professional will perform work on a component of the GHG statement. (Ref: Para. A14)
 - (e) Be satisfied that the engagement team, and any assurance professional's external experts, collectively have the appropriate competence and capabilities to: (Ref: Para. A15-A16)
 - (i) Perform the engagement in accordance with professional standards and applicable legal and regulatory requirements; and
 - (ii) Enable an assurance report that is appropriate in the circumstances to be issued.
13. The assurance professional shall comply with relevant ethical requirements, including those pertaining to independence, relating to assurance engagements. (Ref: Para. A7-A8)

Professional Judgment

14. The assurance professional shall exercise professional judgment in planning and performing the engagement. (Ref: Para. A17-A21)

Management and Those Charged with Governance

15. Where this ISAE requires the assurance professional to inquire of, request representations from, communicate with, or otherwise interact with the entity, the assurance professional shall determine the appropriate person(s) within the entity's management or governance structure with whom to interact. This shall include consideration of which person(s) have the appropriate responsibilities for and knowledge of the matters concerned. (Ref: Para. A22)

Acceptance and Continuance

Preconditions for the Engagement

16. In order to establish whether the preconditions for the engagement are present:
- (a) The engagement partner shall determine that the scope of both the GHG statement and the engagement will be sufficient to be useful to intended users, considering, in particular whether it is reasonable in the circumstances to: (Ref: Para. A23)
 - (i) Exclude from the GHG statement significant emissions that have been, or could readily be, quantified; or

- (ii) Exclude from the engagement significant emissions that are included in the GHG statement.
- (b) The assurance professional shall obtain the agreement of the entity that it acknowledges and understands its responsibility:
 - (i) In the case of an assertion-based engagement, for stating in its GHG statement the applicable criteria it has used, and who developed them;
 - (ii) In the case of an assertion-based engagement, to acknowledge to intended users its responsibility for the fair presentation of its GHG statement in accordance with the applicable criteria;
 - (iii) For such internal control as the entity determines is necessary to enable the preparation of a GHG statement that is free from material misstatement, whether due to fraud or error; and
 - (iv) To provide the assurance professional with:
 - a. Access to all information of which the entity is aware that is relevant to the preparation of the GHG statement such as records, documentation and other matters;
 - b. Additional information that the assurance professional may request from the entity for the purpose of the engagement; and
 - c. Unrestricted access to persons within the entity from whom the assurance professional determines it necessary to obtain engagement evidence.
- (c) As part of assessing the suitability of the applicable criteria, the assurance professional shall determine whether they encompass at a minimum: (Ref: Para. A29-A31)
 - (i) The method for determining the entity's organizational boundary; (Ref: Para. A32)
 - (ii) The GHGs to be accounted for;
 - (iii) Quantification methods to be used; and
 - (iv) Disclosure of:
 - a. Which organizations or facilities are included in the entity's organizational boundary, and the method used for determining that boundary if the applicable criteria allow a choice between different methods; (Ref: Para. A32)
 - b. The method used to determine which Scope 1 and Scope 2, emissions have been included in the GHG statement; (Ref: Para. A33)
 - c. The categorization of emissions attributable to each material type of emission included in the GHG statement;
 - d. Any significant interpretations made in applying the applicable criteria in the entity's circumstances, including when choices between different methods are allowed, or entity-specific methods are used, disclosure the method used and the rationale for doing so;

- e. Where the GHG statement includes Scope 3 emissions, an explanation of:
(Ref: Para. A34-A36)
 - The nature of Scope 3 emissions, including that it is not practicable for an entity to include all Scope 3 emissions in its GHG statement; and
 - The basis for selecting those Scope 3 emissions sources that have been included; and
 - f. Changes, if any, in the matters mentioned in this paragraph or in other matters that materially affect the comparability of the GHG statement with a prior period(s) or base year.
17. If the preconditions for the engagement are not present, the assurance professional shall discuss the matter with the entity. Unless required by law or regulation to do so, the assurance professional shall not accept the proposed engagement:
- (a) If the assurance professional has determined that the criteria to be applied in the preparation of the GHG statement are unacceptable; or
 - (b) If the agreement referred to in paragraph 16(b) has not been obtained.

Acceptance and Continuance Procedures

18. The engagement partner shall be satisfied that appropriate procedures regarding the acceptance and continuance of client relationships and assurance engagements have been followed, and shall determine that conclusions reached in this regard are appropriate.
19. If the engagement partner obtains information that would have caused the firm to decline the engagement had that information been available earlier, the engagement partner shall communicate that information promptly to the firm, so that the firm and the engagement partner can take the necessary action

Agreement on Engagement Terms

20. As required by ISAE 3000, the assurance professional shall agree the terms of the engagement with the entity.¹²
21. The agreed terms of the engagement shall be recorded in an engagement letter or other suitable form of written agreement and shall include:
- (a) The objective and scope of the engagement;
 - (b) The responsibilities of the assurance professional;
 - (c) The responsibilities of the entity;
 - (d) Identification of the applicable criteria for the preparation of the GHG statement;
and

¹² ISAE 3000, paragraph 10.

- (e) Reference to the expected form and content of any reports to be issued by the assurance professional and a statement that there may be circumstances in which a report may differ from its expected form and content.

Recurring Engagements

- 22. On recurring engagements, the assurance professional shall assess whether circumstances require the terms of the engagement to be revised and whether there is a need to remind the entity of the existing terms of the engagement.

Acceptance of a Change in the Terms of the Engagement

- 23. The assurance professional shall not agree to a change in the terms of the engagement where there is no reasonable justification for doing so.

Assurance Report Prescribed by Law or Regulation

- 24. In some cases, law or regulation of the relevant jurisdiction prescribes the layout or wording of the assurance report. In these circumstances, the assurance professional shall evaluate:
 - (a) Whether users might misunderstand the assurance obtained from the engagement and, if so,
 - (b) Whether additional explanation in the assurance report can mitigate possible misunderstanding.

If the assurance professional concludes that additional explanation in the assurance report cannot mitigate possible misunderstanding, the assurance professional shall not accept the engagement, unless required by law or regulation to do so. An engagement conducted in accordance with such law or regulation does not comply with ISAEs. Accordingly, the assurance professional shall not include any reference within the assurance report to the engagement having been conducted in accordance with ISAEs.

Engagement Level Quality Control

Leadership Responsibilities for Quality on the Engagements

- 25. The engagement partner shall take responsibility for the overall quality of the engagement.

Relevant Ethical Requirements

- 26. Throughout the assurance engagement, the engagement partner shall remain alert, through observation and making inquiries as necessary, for evidence of non-compliance with relevant ethical requirements by members of the engagement team.
- 27. If matters come to the engagement partner's attention through the firm's system of quality control or otherwise that indicate that members of the engagement team have not complied with relevant ethical requirements, the engagement partner, in consultation with others in the firm, shall determine the appropriate action.

Independence

28. The engagement partner shall form a conclusion on compliance with independence requirements that apply to the engagement. In doing so, the engagement partner shall:
- (a) Obtain relevant information from the firm and, where applicable, network firms, to identify and evaluate circumstances and relationships that create threats to independence;
 - (b) Evaluate information on identified breaches, if any, of the firm's independence policies and procedures to determine whether they create a threat to independence for the engagement; and
 - (c) Take appropriate action to eliminate such threats or reduce them to an acceptable level by applying safeguards, or, if considered appropriate, to withdraw from the engagement, where withdrawal is possible under applicable law or regulation. The engagement partner shall promptly report to the firm any inability to resolve the matter for appropriate action.

Engagement Performance

Direction, Supervision and Performance

29. The engagement partner shall take responsibility for:
- (a) The direction, supervision and performance of the engagement in compliance with professional standards and applicable legal and regulatory requirements; and
 - (b) The assurance report being appropriate in the circumstances.

Reviews

30. The engagement partner shall take responsibility for reviews being performed in accordance with the firm's review policies and procedures.
31. On or before the date of the assurance report, the engagement partner shall, through a review of the engagement documentation and discussion with the engagement team, be satisfied that sufficient appropriate engagement evidence has been obtained to support the conclusions reached and for the assurance report to be issued.

Consultation

32. The engagement partner shall:
- (a) Take responsibility for the engagement team undertaking appropriate consultation on difficult or contentious matters;
 - (b) Be satisfied that members of the engagement team have undertaken appropriate consultation during the course of the engagement, both within the engagement team and between the engagement team and others at the appropriate level within or outside the firm;

- (c) Be satisfied that the nature and scope of, and conclusions resulting from, such consultations are agreed with the party consulted; and
- (d) Determine that conclusions resulting from such consultations have been implemented.

Differences of Conclusion

33. If differences of conclusion arise within the engagement team, with those consulted or any assurance professional's external experts, or where applicable, between the engagement partner and the engagement quality control reviewer, the engagement team shall follow the firm's policies and procedures for dealing with and resolving differences of conclusion.

Monitoring

34. An effective system of quality control includes a monitoring process designed to provide the firm with reasonable assurance that its policies and procedures relating to the system of quality control are relevant, adequate, and operating effectively. The engagement partner shall consider the results of the firm's monitoring process as evidenced in the latest information circulated by the firm and, if applicable, other network firms and whether deficiencies noted in that information may affect the engagement.

Fraud

35. The assurance professional shall: (Ref: Para A37-A40)
- (a) Identify and assess the risks of material misstatement of the GHG statement due to fraud;
 - (b) Obtain sufficient appropriate engagement evidence regarding the assessed risks of material misstatement due to fraud, through designing and implementing appropriate responses; and
 - (c) Respond appropriately to fraud or suspected fraud identified during the engagement.

Laws and Regulations

36. The assurance professional shall:
- (a) Obtain sufficient appropriate engagement evidence regarding compliance with the provisions of those laws and regulations generally recognized to have a direct effect on the content of the GHG statement; and
 - (b) Respond appropriately to non-compliance or suspected non-compliance with laws and regulations identified during the engagement. (Ref: Para A41)

Planning

Involvement of Others

37. The engagement partner, other key members of the engagement team, and any key assurance professional's external experts, shall be involved in planning the engagement, including planning and participating in the discussion required by **paragraph 52**.

Planning Activities

38. The assurance professional shall establish an overall engagement strategy that sets the scope, timing and direction of the engagement, and that guides the development of the engagement plan. (Ref: Para. A42)
39. In establishing the overall engagement strategy, the assurance professional shall: (Ref: Para. A43)
 - (a) Identify the characteristics of the engagement that define its scope;
 - (b) Ascertain the reporting objectives of the engagement to plan the timing of the engagement and the nature of the communications required;
 - (c) Consider the factors that, in the assurance professional's professional judgment, are significant in directing the engagement team's efforts;
 - (d) Consider the results of preliminary engagement activities and, where applicable, whether knowledge gained on other engagements performed by the engagement partner for the entity is relevant;
 - (e) Ascertain the nature, timing and extent of resources necessary to perform the engagement and
 - (f) Determine the impact of the internal audit function on the assurance engagement.
40. The assurance professional shall develop an engagement plan that shall include a description of:
 - (a) The nature, timing and extent of planned risk assessment procedures.
 - (b) The nature, timing and extent of planned further assurance procedures at the assertion level.
 - (c) Other planned assurance procedures that are required to be carried out so that the engagement complies with ISAEs.
41. The assurance professional shall update and change the overall engagement strategy and the engagement plan as necessary during the course of the engagement.
42. The assurance professional shall plan the nature, timing and extent of direction and supervision of engagement team members and the review of their work.

Materiality in Planning and Performing the Engagement

Determining Materiality and Performance Materiality When Planning the Engagement

43. When establishing the overall engagement strategy, the assurance professional shall determine materiality for the GHG statement as a whole. If, in the specific circumstances of the entity, there are one or more particular types of emissions or disclosures for which misstatements of lesser amounts than materiality for the GHG statement as a whole could reasonably be expected to influence the economic decisions of users taken on the basis of the GHG statement, the assurance professional shall also determine the materiality level or levels to be applied to those particular types of emissions or disclosures. (Ref: Para. A44-A51)

44. The assurance professional shall determine performance materiality for purposes of assessing the risks of material misstatement and determining the nature, timing and extent of further assurance procedures.

Revision as the Engagement Progresses

45. The assurance professional shall revise materiality for the GHG statement as a whole (and, if applicable, the materiality level or levels for particular types of emissions or disclosures) in the event of becoming aware of information during the engagement that would have caused the assurance professional to have determined a different amount (or amounts) initially.
46. If the assurance professional concludes that a lower materiality for the GHG statement as a whole (and, if applicable, materiality level or levels for particular types of emissions or disclosures) than that initially determined is appropriate, the assurance professional shall determine whether it is necessary to revise performance materiality, and whether the nature, timing and extent of the further assurance procedures remain appropriate.

Identifying and Assessing the Risks of Material Misstatement through Understanding the Entity and Its Environment

Risk Assessment Procedures and Related Activities

47. The assurance professional shall perform risk assessment procedures to provide a basis for the identification and assessment of risks of material misstatement at the GHG statement and assertion levels. Risk assessment procedures by themselves, however, do not provide sufficient appropriate engagement evidence on which to base the assurance opinion. (Ref: Para. A52-A54)
48. The risk assessment procedures shall include the following:
 - (a) Inquiries of those within the entity who in the assurance professional's judgment may have information that is likely to assist in identifying risks of material misstatement due to fraud or error.
 - (b) Analytical procedures.
 - (c) Observation and inspection.
49. The assurance professional shall consider whether information obtained from the assurance professional's client acceptance or continuance process is relevant to identifying risks of material misstatement.
50. If the engagement partner has performed other engagements for the entity, the engagement partner shall consider whether information obtained is relevant to identifying risks of material misstatement.
51. Where the assurance professional intends to use information obtained from the assurance professional's previous experience with the entity and from assurance procedures performed in previous engagements, the assurance professional shall determine whether changes have occurred since the previous engagement that may affect its relevance to the current engagement.

52. The engagement partner and other key members of the engagement team, and any key assurance professional's external experts, shall discuss the susceptibility of the entity's GHG statement to material misstatement whether due to fraud or error, and the application of the applicable criteria to the entity's facts and circumstances. The engagement partner shall determine which matters are to be communicated to members of the engagement team, and any key assurance professional's external experts not involved in the discussion.

The Entity and Its Environment

53. The assurance professional shall obtain an understanding of the following:
- (a) Relevant industry, regulatory, and other external factors including the applicable criteria.
 - (b) The nature of the entity, including:
 - (i) The organizations or facilities included in the entity's organizational boundary and the nature of their operations, which determine: (Ref: Para. A32)
 - the types of emission sources;
 - the contribution of each to the entity's overall emissions; and
 - the uncertainties associated with the quantities reported in the GHG statement. (Ref: Para.A24-A28)
 - (ii) Changes in the nature or extent of operations, including whether there have been any mergers, acquisitions, or sales of emission sources, or outsourcing of functions with significant emissions that may require adjustment of comparative emissions relating to a prior period(s) or base year, or disclosure in the GHG statement; and
 - (iii) The frequency or nature of incidents such as shut downs.
 - (c) The entity's selection and application of quantification methods and reporting policies, including the reasons for changes thereto and the potential for double-counting of emissions; and the requirements of the applicable criteria relevant to estimates, including related disclosures, including: (Ref: Para.A55-A56)
 - (i) An understanding of the data on which estimates are based;
 - (ii) The method, including where applicable the model, used in making estimates;
 - (ii) Relevant controls;
 - (iii) Whether the entity has used a management's expert;
 - (iv) The assumptions underlying estimates; and
 - (v) Whether there has been or ought to have been a change from the prior period in the methods for making estimates, and if so, why.
 - (d) The entity's objectives and strategies, and those related business risks that may result in risks of material misstatement. (Ref: Para. A57)

- (e) The oversight of, and responsibility for, emissions information within the entity.
54. The assurance professional shall evaluate whether the entity's quantification methods and reporting policies, including the determination of the entity's organizational boundary, are appropriate for its operations, and are consistent with the applicable criteria and quantification and reporting policies used in the relevant industry and in prior periods.

The Entity's Internal Control

55. The assurance professional shall obtain an understanding of internal control relevant to the engagement. When obtaining an understanding of controls that are relevant to the engagement, the assurance professional shall evaluate the design of those controls and determine whether they have been implemented, by performing procedures in addition to inquiry of the entity's personnel.
56. The assurance professional shall obtain an understanding of the components of internal control relevant to the engagement, being:
- (a) The control environment;
 - (b) The entity's risk assessments procedures;
 - (c) The information system, including the related business processes, relevant to emissions quantification and reporting, and communication of emissions reporting roles and responsibilities and significant matters relating to emissions reporting; (Ref: Para. A58)
 - (d) Control activities relevant to the engagement, being those the assurance professional judges it necessary to understand in order to assess the risks of material misstatement at the assertion level and design further assurance procedures responsive to assessed risks. An assurance engagement does not require an understanding of all the control activities related to each significant type of emission and disclosure in the GHG statement or to every assertion relevant to them. (Ref: Para. A58)
 - (e) Monitoring of controls and the collective effectiveness of all five components of internal control, including the internal audit function and its activities with respect to emissions where applicable.

Identifying and Assessing Risks

57. The assurance professional shall identify and assess the risks of material misstatement at:
- (a) The GHG statement level; and
 - (b) The assertion level for types of emissions and disclosures to provide a basis for designing and performing further assurance procedures.
58. For this purpose, the assurance professional shall:
- (a) Identify risks throughout the process of obtaining an understanding of the entity and its environment, including relevant controls that relate to the risks, and by considering the types of emissions and disclosures in the GHG statement;

- (b) Assess the identified risks, and evaluate whether they relate more pervasively to the GHG statement as a whole and potentially affect many assertions;
 - (c) Relate the identified risks to what can go wrong at the assertion level, taking account of relevant controls that the assurance professional intends to test; and
 - (d) Consider the likelihood of misstatement, including the possibility of multiple misstatements, and whether the potential misstatement is of a magnitude that could result in a material misstatement.
59. In identifying and assessing risks of material misstatement, the assurance professional shall consider at least the following factors: (Ref: Para. A59-A60)
- (a) The possibility of intentional misstatement in the GHG statement, and the possibility of omission of a potentially significant source or sink; (Ref: Para. A37-A40, and A59(a))
 - (b) Recent significant economic, regulatory or other requirements and developments; (Ref: Para. A59(b))
 - (c) The nature of operations; (Ref: Para. A59(c))
 - (d) The nature of quantification methods; (Ref: Para. A59(d))
 - (e) The degree of complexity in determining the organizational boundary and whether related parties are involved; (Ref: Para. A32)
 - (f) Whether there are significant emissions that are outside the normal course of business for the entity, or that otherwise appear to be unusual; (Ref: Para. A59(e))
 - (g) The degree of subjectivity in the quantification of emissions; and (Ref: Para. A59(e))
 - (h) Whether Scope 3 emissions are included in the GHG statement. (Ref: Para. A59(f))

Risks for Which Substantive Procedures Alone Do Not Provide Sufficient Appropriate Engagement Evidence

60. In respect of some risks, the assurance professional may judge that it is not possible or practicable to obtain sufficient appropriate engagement evidence only from substantive procedures. In such cases, the entity's controls over such risks are relevant to the engagement and the assurance professional shall obtain an understanding of them. (Ref: Para. A61)

Revision of Risk Assessment

61. The assurance professional's assessment of the risks of material misstatement at the assertion level may change during the course of the engagement as additional engagement evidence is obtained. In circumstances where the assurance professional obtains engagement evidence from performing further assurance procedures, or if new information is obtained, either of which is inconsistent with the engagement evidence on which the assurance professional originally based the assessment, the assurance professional shall revise the assessment and modify the further planned assurance procedures accordingly.

Responses to Assessed Risks

Overall Responses

62. The assurance professional shall design and implement overall responses to address the assessed risks of material misstatement at the GHG statement level.

Assurance Procedures Responsive to the Assessed Risks of Material Misstatement at the Assertion Level

63. The assurance professional shall design and perform further assurance procedures whose nature, timing, and extent are based on and are responsive to the assessed risks of material misstatement at the assertion level. (Ref: Para. A62)
64. In designing the further assurance procedures to be performed, the assurance professional shall:
- (a) Consider the reasons for the assessment given to the risk of material misstatement at the assertion level for each type of emissions and disclosure, including: (Ref: Para. (A63))
 - (i) The likelihood of material misstatement due to the particular characteristics of the relevant type of emission or disclosure (that is, the inherent risk); and
 - (ii) Whether the risk assessment takes account of relevant controls (that is, the control risk), thereby requiring the assurance professional to obtain engagement evidence to determine whether the controls are operating effectively (that is, the assurance professional intends to rely on the operating effectiveness of controls in determining the nature, timing and extent of substantive procedures); and
 - (b) Obtain more persuasive engagement evidence the higher the assurance professional's assessment of risk.

Tests of Controls

65. The assurance professional shall design and perform tests of controls to obtain sufficient appropriate engagement evidence as to the operating effectiveness of relevant controls if:
- (a) The assurance professional's assessment of risks of material misstatement at the assertion level includes an expectation that the controls are operating effectively (that is, the assurance professional intends to rely on the operating effectiveness of controls in determining the nature, timing and extent of substantive procedures); or
 - (b) Substantive procedures alone cannot provide sufficient appropriate engagement evidence at the assertion level.

Evaluating the Operating Effectiveness of Controls

66. If deviations from controls upon which the assurance professional intends to rely are detected, the assurance professional shall make specific inquiries to understand these matters and their potential consequences, and shall determine whether:
- (a) The tests of controls that have been performed provide an appropriate basis for reliance

on the controls;

- (b) Additional tests of controls are necessary; or
- (c) The potential risks of misstatement need to be addressed using substantive procedures.

Substantive Procedures

- 67. Irrespective of the assessed risks of material misstatement, the assurance professional shall design and perform substantive procedures for each material type of emission and disclosure. (Ref: Para. A64)
- 68. The assurance professional shall consider whether external confirmation procedures are to be performed as substantive assurance procedures. (Ref: Para. A65)

Substantive Analytical Procedures

- 69. When designing and performing substantive analytical procedures as substantive procedures, either alone or in combination with tests of details, the assurance professional shall:
 - (a) Determine the suitability of particular substantive analytical procedures for given assertions, taking account of the assessed risks of material misstatement and tests of details, if any, for these assertions;
 - (b) Evaluate the reliability of data from which the assurance professional's expectation of recorded quantities or ratios is developed, taking account of source, comparability, and nature and relevance of information available, and controls over preparation;
 - (c) Develop an expectation of recorded quantities or ratios and evaluate whether the expectation is sufficiently precise to identify a misstatement that, individually or when aggregated with other misstatements, may cause the GHG statement to be materially misstated; and
 - (d) Determine the amount of any difference from that expected that is acceptable without further investigation as required by [paragraph 70](#).
- 70. If analytical procedures identify fluctuations or relationships that are inconsistent with other relevant information or that differ significantly from expected quantities the assurance professional shall investigate such differences by: (Ref: Para. A66-A68)
 - (a) Inquiring of the entity and obtaining appropriate engagement evidence relevant to the entity's responses; and
 - (b) Performing other assurance procedures as necessary in the circumstances.

Substantive Procedures Related to the GHG Statement Closing Process

- 71. The assurance professional's substantive procedures shall include the following assurance procedures related to the GHG statement closing process: (Ref: Para. A69)
 - (a) Agreeing or reconciling the GHG statement with the underlying records; and
 - (b) Examining material adjustments made during the course of preparing the GHG statement.

Assurance Procedures Regarding Estimates

72. Based on the assessed risks of material misstatement, the assurance professional shall determine:
- (a) Whether the entity has appropriately applied the requirements of the applicable criteria relevant to estimates; and
 - (b) Whether the methods for making the estimates are appropriate and have been applied consistently, and whether changes, if any, in reported estimates or in the method for making them from the prior period are appropriate in the circumstances.
73. In responding to the assessed risks of material misstatement the assurance professional shall undertake one or more of the following, taking account of the nature of estimates: (Ref: Para. A70)
- (a) Test how the entity made the estimate and the data on which it is based. In doing so, the assurance professional shall evaluate whether:
 - (i) The method of quantification used is appropriate in the circumstances; and
 - (ii) The assumptions used by the entity are reasonable in light of the applicable criteria.
 - (b) Test the operating effectiveness of the controls over how the entity made the estimate, together with appropriate substantive procedures.
 - (c) Develop a point estimate or a range to evaluate the entity's estimate. For this purpose:
 - (i) If the assurance professional uses assumptions or methods that differ from the entity's, the assurance professional shall obtain an understanding of the entity's assumptions or methods sufficient to establish that the assurance professional's point estimate or range takes into account relevant variables and to evaluate any significant differences from the entity's point estimate.
 - (ii) If the assurance professional concludes that it is appropriate to use a range, the assurance professional shall narrow the range, based on engagement evidence available, until all outcomes within the range are considered reasonable.

Sampling

Sample Design, Size and Selection of Items for Testing

74. When designing a sample, the assurance professional shall consider the purpose of the assurance procedure and the characteristics of the population from which the sample will be drawn.
75. The assurance professional shall determine a sample size sufficient to reduce sampling risk to an acceptably low level.
76. The assurance professional shall select items for the sample in such a way that each sampling unit in the population has a chance of selection.

Performing Assurance Procedures

77. The assurance professional shall perform assurance procedures, appropriate to the purpose, on each item selected.
78. If the assurance procedure is not applicable to the selected item, the assurance professional shall perform the procedure on a replacement item.
79. If the assurance professional is unable to apply the designed assurance procedures, or suitable alternative procedures, to a selected item, the assurance professional shall treat that item as a deviation from the prescribed control, in the case of tests of controls, or a misstatement, in the case of tests of details.

Nature and Cause of Deviations and Misstatements

80. The assurance professional shall investigate the nature and cause of any deviations or misstatements identified, and evaluate their possible effect on the purpose of the assurance procedure and on other areas of the engagement.
81. In the extremely rare circumstances when the assurance professional considers a misstatement or deviation discovered in a sample to be an anomaly, the assurance professional shall obtain a high degree of certainty that such misstatement or deviation is not representative of the population. The assurance professional shall obtain this degree of certainty by performing additional assurance procedures to obtain sufficient appropriate engagement evidence that the misstatement or deviation does not affect the remainder of the population.

Projecting Misstatements

82. For tests of details, the assurance professional shall project misstatements found in the sample to the population.

Evaluating Results of Sampling

83. The assurance professional shall evaluate:
 - (a) The results of the sample; and
 - (b) Whether the use of sampling has provided a reasonable basis for conclusions about the population that has been tested.

Engagement Evidence

Information to Be Used as Engagement Evidence

84. When designing and performing assurance procedures, the assurance professional shall consider the relevance and reliability of the information to be used as engagement evidence.
85. If information to be used as engagement evidence has been prepared using the work of a management's expert, the assurance professional shall, to the extent necessary, having regard to the significance of that expert's work for the assurance professional's purposes:
 - (a) Evaluate the competence, capabilities and objectivity of that expert; (Ref: Para. A71-A74)

- (b) Obtain an understanding of the work of that expert; and
- (c) Evaluate the appropriateness of that expert's work as engagement evidence for the relevant assertion.

86. When using information produced by the entity, the assurance professional shall evaluate whether the information is sufficiently reliable for the assurance professional's purposes, including as necessary in the circumstances:

- (a) Obtaining engagement evidence about the accuracy and completeness of the information; and
- (b) Evaluating whether the information is sufficiently precise and detailed for the assurance professional's purposes.

Selecting Items for Testing to Obtain Engagement Evidence

87. When designing tests of controls and tests of details, the assurance professional shall determine means of selecting items for testing that are effective in meeting the purpose of the assurance procedure.

Inconsistency in, or Doubts over Reliability of, Engagement Evidence

88. If:

- (a) Engagement evidence obtained from one source is inconsistent with that obtained from another; or
- (b) The assurance professional has doubts over the reliability of information to be used as engagement evidence,

the assurance professional shall determine what modifications or additions to assurance procedures are necessary to resolve the matter, and shall consider the effect of the matter, if any, on other aspects of the engagement.

Evaluation of Misstatements Identified during the Engagement

Accumulation of Identified Misstatements

89. The assurance professional shall accumulate misstatements identified during the engagement, other than those that are clearly trivial. (Ref: Para. A75)

Consideration of Identified Misstatements as the Engagement Progresses

90. The assurance professional shall determine whether the overall engagement strategy and engagement plan need to be revised if:

- (a) The nature of identified misstatements and the circumstances of their occurrence indicate that other misstatements may exist that, when aggregated with misstatements accumulated during the engagement, could be material; or
- (b) The aggregate of misstatements accumulated during the engagement approaches materiality determined in accordance with paragraphs 43-46 of this ISAE.

91. If, at the assurance professional's request, the entity has examined a type of emission or disclosure and corrected misstatements that were detected, the assurance professional shall perform additional assurance procedures to determine whether misstatements remain.

Communication and Correction of Misstatements

92. The assurance professional shall communicate on a timely basis all misstatements accumulated during the engagement with the appropriate level within the entity and shall request the entity to correct those misstatements.
93. If the entity refuses to correct some or all of the misstatements communicated by the assurance professional, the assurance professional shall obtain an understanding of the entity's reasons for not making the corrections and shall take that understanding into account when evaluating whether the GHG statement as a whole is free from material misstatement.

Evaluating the Effect of Uncorrected Misstatements

94. Prior to evaluating the effect of uncorrected misstatements, the assurance professional shall reassess materiality determined in accordance with paragraphs 43-46 of this ISAE to confirm whether it remains appropriate in the context of the entity's actual emissions.
95. The assurance professional shall determine whether uncorrected misstatements are material, individually or in aggregate. In making this determination, the assurance professional shall consider the size and nature of the misstatements, both in relation to particular types of emissions or disclosures and the GHG statement as a whole, and the particular circumstances of their occurrence.

Using the Work of Other Assurance Professionals

96. When the assurance professional intends using the work of other assurance professionals regarding components of the GHG statement, the assurance professional shall: (Ref: Para. A76)
 - (a) Communicate clearly with those other assurance professionals about the scope and timing of their work on those components and their findings; and (Ref: Para. A77-A78)
 - (b) Obtain sufficient appropriate evidence regarding those components and the process for including related information in the GHG statement to express an opinion on whether the GHG statement as a whole is prepared, in all material respects, in accordance with the applicable criteria. (Ref: Para. A79)

Using the Work of Internal Audit

97. The assurance professional shall, where the entity has an internal audit function, determine whether it is likely to be relevant to the engagement, and if so: (Ref: Para. A80)
 - (a) Determine whether, and to what extent, to use specific work of the internal auditors; and
 - (b) If using the specific work of the internal auditors, determine whether that work is adequate for the purposes of the engagement.

Using the Work of an Assurance Professional's Expert

Nature, Timing and Extent of Assurance Procedures

98. The nature, timing and extent of the assurance professional's procedures with respect to the requirements in paragraphs 99-103 of this ISAE will vary depending on the circumstances. In determining the nature, timing and extent of those procedures, the assurance professional shall consider matters including:
- (a) The nature of the matter to which that expert's work relates;
 - (b) The risks of material misstatement in the matter to which that expert's work relates;
 - (c) The significance of that expert's work in the context of the engagement;
 - (d) The assurance professional's knowledge of and experience with previous work performed by that expert; and
 - (e) Whether that expert is subject to the assurance professional's firm's quality control policies and procedures. (Ref: Para. A11-A13)

The Competence, Capabilities and Objectivity of the Assurance Professional's Expert

99. The assurance professional shall evaluate whether the assurance professional's expert has the necessary competence, capabilities and objectivity for the assurance professional's purposes. In the case of an assurance professional's external expert, the evaluation of objectivity shall include inquiry regarding interests and relationships that may create a threat to that expert's objectivity.

Obtaining an Understanding of the Field of Expertise of the Assurance Professional's Expert

100. The assurance professional shall obtain a sufficient understanding of the field of expertise of the assurance professional's expert to enable the assurance professional to:
- (a) Agree with the assurance professional's expert the nature, scope and objectives of that expert's work for the assurance professional's purposes; and
 - (b) Evaluate the adequacy of that work for the assurance professional's purposes.

Agreement with the Assurance Professional's Expert

101. The assurance professional shall agree, in writing when appropriate, on the following matters with the assurance professional's expert:
- (a) The nature, scope and objectives of that expert's work;
 - (b) The respective roles and responsibilities of the assurance professional and that expert;
 - (c) The nature, timing and extent of communication between the assurance professional and that expert, including the form of any report to be provided by that expert; and
 - (d) The need for the assurance professional's expert to observe confidentiality requirements.

Evaluating the Adequacy of the Assurance Professional's Expert's Work

102. The assurance professional shall evaluate the adequacy of the assurance professional's expert's work for the assurance professional's purposes, including:
- (a) The relevance and reasonableness of that expert's findings or conclusions, and their consistency with other engagement evidence;
 - (b) If that expert's work involves use of significant assumptions and methods, the relevance and reasonableness of those assumptions and methods in the circumstances; and
 - (c) If that expert's work involves the use of source data that is significant to that expert's work, the relevance, completeness, and accuracy of that source data.
103. If the assurance professional determines that the work of the assurance professional's expert is not adequate for the assurance professional's purposes, the assurance professional shall:
- (a) Agree with that expert on the nature and extent of further work to be performed by that expert; or
 - (b) Perform additional assurance procedures appropriate to the circumstances.

Written Representations

104. The assurance professional shall request written representations from the entity:
- (a) That the entity has fulfilled its responsibility for the fair presentation of the GHG statement in accordance with the applicable criteria, as set out in the terms of the engagement;
 - (b) That the entity has provided the assurance professional with all relevant information and access as agreed in the terms of the engagement and reflected all relevant matters in the GHG statement;
 - (c) Whether the entity believes the effects of uncorrected misstatements are immaterial, individually and in aggregate, to the GHG statement as a whole. A summary of such items shall be included in or attached to the written representation;
 - (d) That significant assumptions used in making estimates are reasonable; and
 - (e) That the entity has communicated to the assurance professional all deficiencies in internal control relevant to the engagement that are not clearly trivial and inconsequential of which the entity is aware.

Requested Written Representations Not Provided

105. If the entity does not provide one or more of the requested written representations, the assurance professional shall:
- (a) Discuss the matter with the entity;
 - (b) Reevaluate the integrity of the entity and evaluate the effect that this may have on the reliability of representations (oral or written) and engagement evidence in general; and

- (c) Take appropriate actions, including determining the possible effect on the opinion in the assurance report, having regard to the requirement in paragraph 106 of this ISAE.

Written Representations about the Entity's Responsibilities

106. The assurance professional shall disclaim an opinion on the GHG statement if:

- (a) The assurance professional concludes that there is sufficient doubt about the integrity of the entity such that the written representations required by paragraphs 104(a) and (b) are not reliable; or
- (b) The entity does not provide the written representations required by paragraphs 104(a) and (b).

Subsequent Events

107. The assurance professional shall:

- (a) Obtain sufficient appropriate engagement evidence about whether events occurring between the date of the GHG statement and the date of the assurance report that require adjustment of, or disclosure in, the GHG statement are appropriately reflected in that GHG statement in accordance with the applicable criteria; and
- (b) Respond appropriately to facts that become known to the assurance professional after the date of the assurance report, that, had they been known to the assurance professional at that date, may have caused the assurance professional to amend the assurance report.

Other Information

108. When documents containing a GHG statement and the assurance report thereon include other information, the assurance professional shall read that other information to identify material inconsistencies, if any, with the GHG statement and, if on reading that other information, the assurance professional:

- (a) Identifies a material inconsistency with the GHG statement, or
- (b) Becomes aware of a material misstatement of fact in that other information that is unrelated to matters appearing in the GHG statement,

the assurance professional shall discuss the matter with the entity and take any further appropriate action. (Ref. Para A81-A83)

Documentation

Documentation of the Assurance Procedures Performed and Engagement Evidence Obtained

109. The assurance professional shall prepare on a timely basis engagement documentation that is sufficient to enable an experienced assurance professional, having no previous connection with the engagement, to understand: (Ref. Para A84)

- (a) The nature, timing and extent of the assurance procedures performed to comply with the ISAEs and applicable legal and regulatory requirements;
 - (b) The results of the assurance procedures performed, and the engagement evidence obtained; and
 - (c) Significant matters arising during the engagement, the conclusions reached thereon, and significant professional judgments made in reaching those conclusions.
110. In documenting the nature, timing and extent of assurance procedures performed, the assurance professional shall record:
- (a) The identifying characteristics of the specific items or matters tested;
 - (b) Who performed the engagement work and the date such work was completed; and
 - (c) Who reviewed the engagement work performed and the date and extent of such review.
111. The assurance professional shall document discussions of significant matters with the entity and others, including the nature of the significant matters discussed and when and with whom the discussions took place.
112. If the assurance professional identified information that is inconsistent with the assurance professional's final conclusion regarding a significant matter, the assurance professional shall document how the assurance professional addressed the inconsistency.

Quality Control

113. The assurance professional shall include in the engagement documentation:
- (a) Issues identified with respect to compliance with relevant ethical requirements and how they were resolved.
 - (b) Conclusions on compliance with independence requirements that apply to the engagement, and any relevant discussions with the firm that support these conclusions.
 - (c) Conclusions reached regarding the acceptance and continuance of client relationships and assurance engagements.
 - (d) The nature and scope of, and conclusions resulting from, consultations undertaken during the course of the engagement.

Departure from a Relevant Requirement

114. If, in exceptional circumstances, the assurance professional judges it necessary to depart from a relevant requirement in this ISAE, the assurance professional shall document how the alternative assurance procedures performed achieve the aim of that requirement, and the reasons for the departure.

Matters Arising after the Date of the Assurance Report

115. If, in exceptional circumstances, the assurance professional performs new or additional assurance procedures or draws new conclusions after the date of the assurance report, the assurance professional shall document:

- (a) The circumstances encountered;
- (b) The new or additional assurance procedures performed, engagement evidence obtained, and conclusions reached, and their effect on the assurance report; and
- (c) When and by whom the resulting changes to engagement documentation were made and reviewed.

Assembly of the Final Engagement File

- 116. The assurance professional shall assemble the engagement documentation in an engagement file and complete the administrative process of assembling the final engagement file on a timely basis after the date of the assurance report. (Ref. Para A85)
- 117. After the assembly of the final engagement file has been completed, the assurance professional shall not delete or discard engagement documentation of any nature before the end of its retention period.
- 118. In circumstances other than those envisaged in paragraph 115 where the assurance professional finds it necessary to modify existing engagement documentation or add new engagement documentation after the assembly of the final engagement file has been completed, the assurance professional shall, regardless of the nature of the modifications or additions, document:
 - (a) The specific reasons for making them; and
 - (b) When and by whom they were made and reviewed.

Engagement Quality Control Review

- 119. For those engagements, if any, for which a quality control review is required by law or regulation or for which the firm has determined that an engagement quality control review is required, the engagement partner shall:
 - (a) Determine that an engagement quality control reviewer has been appointed;
 - (b) Discuss significant matters arising during the engagement, including those identified during the engagement quality control review, with the engagement quality control reviewer; and
 - (c) Not date the assurance report until the completion of the engagement quality control review.
- 120. The engagement quality control reviewer shall perform an objective evaluation of the significant judgments made by the engagement team, and the conclusions reached in formulating the assurance report. This evaluation shall involve:
 - (a) Discussion of significant matters with the engagement partner;
 - (b) Review of the GHG statement and the proposed assurance report;
 - (c) Review of selected engagement documentation relating to the significant judgments the engagement team made and the conclusions it reached;

- (d) Evaluation of the conclusions reached in formulating the assurance report and consideration of whether the proposed assurance report is appropriate;
 - (e) Consideration of the engagement team's evaluation of the firm's independence in relation to the engagement;
 - (f) Consideration of whether appropriate consultation has taken place on matters involving differences of conclusion or other difficult or contentious matters, and the conclusions arising from those consultations; and
 - (g) Consideration of whether engagement documentation selected for review reflects the work performed in relation to the significant judgments and supports the conclusions reached.
121. The engagement quality control reviewer shall document, for the engagement reviewed, that:
- (a) The procedures required by the firm's policies on engagement quality control review have been performed;
 - (b) The engagement quality control review has been completed on or before the date of the assurance report; and
 - (c) The reviewer is not aware of any unresolved matters that would cause the reviewer to believe that the significant judgments the engagement team made and the conclusions it reached were not appropriate.

Forming the Assurance Opinion

122. The assurance professional shall form an opinion on whether the GHG statement is presented fairly, in all material respects, in accordance with the applicable criteria.
123. In order to form that opinion, the assurance professional shall conclude as to whether the assurance professional has obtained reasonable assurance about whether the GHG statement as a whole is free from material misstatement, whether due to fraud or error. That conclusion shall take into account the following procedures, and the requirement of paragraph 95 of this ISAE:
- (a) Based on the assurance procedures performed and the engagement evidence obtained, the assurance professional shall evaluate before the conclusion of the engagement whether the assessments of the risks of material misstatement at the assertion level remain appropriate.
 - (b) The assurance professional shall conclude whether sufficient appropriate engagement evidence has been obtained. In forming a conclusion, the assurance professional shall consider all relevant engagement evidence, regardless of whether it appears to corroborate or to contradict the assertions in the GHG statement.
 - (c) If the assurance professional has not obtained sufficient appropriate engagement evidence as to a material GHG statement assertion, the assurance professional shall attempt to obtain further engagement evidence.

- (d) The assurance professional shall evaluate whether the GHG statement is presented fairly, in all material respects, in accordance with the applicable criteria. This evaluation shall include consideration of the qualitative aspects of the entity's quantification methods and reporting practices, including indicators of possible bias in judgments and decisions in the making of estimates and in preparing the GHG statement.¹³ In particular, the assurance professional shall evaluate whether, in view of the applicable criteria:
- (i) The GHG statement adequately discloses the significant quantification methods and reporting policies selected and applied, including the method of determining the entity's organizational boundary;
 - (ii) The quantification methods and reporting policies selected and applied are consistent with the applicable criteria and are appropriate;
 - (iii) Estimates made in preparing the GHG statement are reasonable;
 - (iv) The information presented in the GHG statement is relevant, reliable, complete, comparable and understandable;
 - (v) The GHG statement provides adequate disclosures, including disclosure of uncertainties in the quantification of the entity's emissions, to enable the intended users to understand the information conveyed;
 - (vi) The terminology used in the GHG statement is appropriate; and
 - (vii) The GHG statement achieves fair presentation, including consideration of:
 - a. The overall presentation, structure and content of the GHG statement; and
 - b. Whether the GHG statement, including the explanatory notes, represents the underlying emissions in a manner that achieves fair presentation.
124. The assurance professional shall evaluate whether the GHG statement adequately refers to or describes the applicable criteria. (Ref: Para. A86-A88)

Form of Opinion

125. The assurance professional shall express an unmodified opinion when the assurance professional concludes that the GHG statement is presented fairly, in all material respects, in accordance with the applicable criteria.
126. If the assurance professional:
- (a) Concludes that, based on the engagement evidence obtained, the GHG statement as a whole is not free from material misstatement; or
 - (b) Is unable to obtain sufficient appropriate engagement evidence to conclude that the GHG statement as a whole are free from material misstatement,

¹³ Indicators of possible bias do not themselves constitute misstatements for the purposes of drawing conclusions on the reasonableness of individual estimates.

the assurance professional shall modify the opinion in the assurance report.¹⁴

Other Matter Paragraphs in the Assurance Report

127. If the assurance professional considers it necessary to communicate a matter other than those that are presented or disclosed in the GHG statement that, in the assurance professional's judgment, is relevant to users' understanding of the engagement, the assurance professional's responsibilities or the assurance report and this is not prohibited by law or regulation, the assurance professional shall do so in a paragraph in the assurance report, with the heading "Other Matter," or other appropriate heading. (Ref: Para. A89-A90)

Assurance Report Content

128. The assurance report shall include the following basic elements: (Ref: A91)

- (a) A title that clearly indicates the report is an independent assurance report.
- (b) The addressee of the assurance report. (Ref: A92)
- (c) Identification of the GHG statement and, if any information in that statement is not covered by the assurance professional's opinion, identification of that information, and a statement that the assurance professional has not performed any assurance procedures with respect to it and that, therefore, no opinion on it is expressed.
- (d) If the GHG statement includes emissions deductions, identification of those emissions deductions, and either a statement of the assurance professional's responsibility with respect to them, or a statement that the assurance professional has not performed any assurance procedures with respect to them and that, therefore, no opinion on them is expressed. (Ref: Para. A93)
- (e)
 - (i) Identification of the applicable criteria;
 - (ii) Identification of how those criteria can be accessed;
 - (iii) If those criteria are available only to specific intended users, or are relevant only to a specific purpose, a statement restricting the use of the assurance report to those intended users or that purpose; and
 - (iv) If established criteria need to be supplemented by disclosures in the explanatory notes for those criteria to be suitable, identification of the relevant note(s).
- (f) A description of the entity's responsibilities.
- (g) A statement identifying the relevant ethical code and firm-level quality control requirements, and that they have been complied with.
- (h) A description of the assurance professional's responsibilities, including:

¹⁴ ISAE 3000, paragraphs 51-52 discuss when a qualified opinion, an adverse opinion or a disclaimer of opinion is appropriate.

- (i) A statement that the engagement was performed in accordance with ISAE 3410, “Assurance on a Greenhouse Gas Statement.”
- (ii) A summary of the assurance professional’s procedures.
- (i) A statement of the uncertainties in quantifying emissions relevant to the entity.
- (j) The assurance professional’s opinion, expressed in the positive form, about whether the GHG statement is presented fairly, in all material respects, in accordance with the criteria identified in paragraph 128(e)(i).
- (k) If the assurance professional expresses an opinion that is other than unqualified, a clear description of all the reasons therefor.
- (l) The name of the assurance professional or the assurance professional’s firm.
- (m) The date of the report.
- (n) The name of the city where the office that has responsibility for the engagement is.

Reference to the Assurance Professional’s Expert in the Assurance Report

129. If the assurance professional refers to the work of an assurance professional’s expert in an assurance report, the wording of that report shall not imply that the assurance professional’s responsibility for the conclusion expressed in that report is reduced because of the involvement of that expert.

Assurance Report Prescribed by Law or Regulation

130. If the assurance professional is required by law or regulation to use a specific layout or wording of the assurance report, the assurance report shall refer to this or other ISAEs only if the assurance report includes, at a minimum, each of the elements identified in paragraph 128.

Other Reporting Requirements

131. The assurance professional shall communicate appropriately to the entity the following matters that come to the assurance professional’s attention during the course of the engagement, and shall determine whether there is a responsibility to report them to a party outside the entity:
- (a) Deficiencies in internal control that, in the assurance professional’s professional judgment, are of sufficient importance to merit attention.
 - (b) Identified or suspected fraud.
 - (c) Matters involving non-compliance with laws and regulations, other than when the matters are clearly inconsequential

Application and Other Explanatory Material

Introduction

Key Performance Indicators Based on GHG Data (Ref: Para. 2(b))

- A1. An example of a key performance indicator based on GHG data is the weighted average of emissions per kilometer of vehicles manufactured by an entity during a period, which is required to be calculated and disclosed by law or regulation in some jurisdictions.

Definitions

Scope 3 Emissions (Ref: Para. 10(e))

- A2. Scope 3 emissions may include emissions associated with, for example: employee business travel; outsourced activities; consumption of fossil fuel or electricity required to use the entity's products; extraction and production of materials purchased as inputs to the entity's processes; and transportation of purchased fuels. Scope 3 emissions are discussed further in **paragraphs A34-A36**.

Removal (Ref: Para. 10(s))

- A3. Removal may be achieved by storing GHGs in geological or biological sinks. Removal of GHGs the entity would have otherwise emitted to the atmosphere are ordinarily accounted for on a gross basis, i.e., both the source and the sink are disclosed in the GHG statement.

ISAE 3000 (Ref: Para 11)

- A4. ISAE 3000 includes a number of requirements that apply to all assurance engagements, including engagements in accordance with this ISAE. In some cases, this ISAE may include additional requirements or application material in relation to those topics.

Competency, Quality Assurance, and Ethical Requirements

Specialist Skills, Knowledge and Experience in Assurance (Ref: Para. 12(a))

- A5. As noted in International Education Standard (IES) 8, no one professional accountant can master all areas of accountancy. Specialization is necessary to ensure services can be provided by professional accountants having sufficient depth of knowledge and expertise.¹⁵ One area of specialization is assurance, which includes, but is broader than, financial statement auditing. Whether the engagement partner is a professional accountant in public practice, or otherwise meets the requirements of **paragraph 12(b)** of this ISAE, competence in assurance requires specialist skills, knowledge and experience in assurance concepts and processes developed through extensive training and practical application. In many jurisdictions, regulators develop rules for registration as, for example, a financial statement auditor. Such rules may provide useful benchmarks, along with IES 8, for assessing compliance with **paragraph 12(a)** of this ISAE. Such rules may involve, for example,

¹⁵ International Education Standard (IES) 8, "Competence Requirements for Audit Professionals."

demonstration of specific competencies, or a requirement to spend set periods of time working on particular aspects of assurance engagements.

Professional Accountants in Public Practice (Ref: Para. 12(b))

A6. This ISAE has been written in the context of a range of measures taken to ensure the quality of assurance engagements undertaken by professional accountants in public practice, such as those taken by IFAC member bodies in accordance with IFAC's Member Body Compliance Program and Statements of Membership Obligations. Such measures include:

- (a) Competency requirements, such as education and experience benchmarks for entry to membership, and ongoing continuing professional development/life-long learning requirements.
- (b) Quality assurance policies and procedures implemented across the firm. ISQC 1 applies to all firms of professional accountants in respect of assurance and related service engagements.¹⁶ Compliance with ISQC 1 requires, among other things, that the firm establish and maintain a system of quality control that includes policies and procedures addressing each of the following elements, and that it documents its policies and procedures and communicates them to the firm's personnel:¹⁷
 - Leadership responsibilities for quality within the firm.
 - Relevant ethical requirements.
 - Acceptance and continuance of client relationships and specific engagements.
 - Human resources.
 - Engagement performance.
 - Monitoring.
- (c) A comprehensive Code of Ethics, including detailed independence requirements, founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

Independence (Ref: Para. 12(b) and 13)

A7. Independence requirements ordinarily comprise Parts A and B of the International Federation of Accountants' Code of Ethics for Professional Accountants (IFAC Code together with national requirements that are more restrictive. The IFAC Code adopts a threats and safeguards approach to independence. Compliance with the fundamental principles may potentially be threatened by a broad range of circumstances. Many threats fall into the following categories:

- Self-interest, for example, undue dependence on total fees from the entity.

¹⁶ International Standard on Quality Control (ISQC) 1, "Quality Control for Firms that Perform Audits and Reviews of Financial Statements," paragraph 4.

¹⁷ ISQC 1, paragraphs 16 and 17.

- Self-review, for example, performing another service for the entity that directly affects the GHG statement, such as involvement in the quantification of the entity’s emissions.
 - Advocacy, for example, acting as an advocate on behalf of the entity with respect to the interpretation of the applicable criteria.
 - Familiarity, for example, a member of the engagement team having a long association, or close or immediate family relationship, with an employee of the entity who is in a position to exert direct and significant influence over the preparation of the GHG statement.
 - Intimidation, for example, being pressured to reduce inappropriately the extent of work performed in order to lower fees, or being threatened with withdrawal of the assurance professional’s registration by a registering authority that is associated with the entity’s industry group.
- A8. Safeguards created by the profession, legislation or regulation, or safeguards in the work environment, may eliminate or reduce such threats to an acceptable level.

Skills, Knowledge and Experience of GHG Quantification and Reporting (Ref: Para. 12(c))

- A9. The IFAC Code requires the professional accountant in public practice to agree to provide only those services that the professional accountant in public practice is competent to perform,¹⁸ The assurance professional has sole responsibility for the assurance opinion expressed, and that responsibility is not reduced by the assurance professional’s use of the work of an assurance professional’s expert. Nonetheless, if the assurance professional using the work of an assurance professional’s expert, having followed this ISAE, concludes that the work of that expert is adequate for the assurance professional’s purposes, the assurance professional may accept that expert’s findings or conclusions in the expert’s field as appropriate evidence.
- A10. In some cases, an assurance engagement on a GHG statement may be quite straightforward. This may be the case for instance when a service entity has no Scope 1 emissions and is reporting only Scope 2 emissions using an emissions factor specified in regulation, applied to electricity consumption at a single location. In this case, the engagement may focus largely on the system used to record and process electricity consumption figures identified on invoices, and arithmetical application of the specified emissions factor. General GHG skills, knowledge or experience that may, nonetheless, be relevant in such cases include:
- General understanding of climate science, including the scientific processes that relate GHGs to global warming.
 - Understanding who the intended users of the information in the entity’s GHG statement are, and how they are likely to use that information.
 - Understanding emissions trading schemes and related market mechanisms, when relevant.

¹⁸ The IFAC Code, paragraph 210.6

- Knowledge of applicable laws and regulations, if any, that affect how the entity should report its emissions, and may also, for example, impose a limit on the entity's emissions.
- Knowledge of the applicable criteria, including, for example:
 - Identifying appropriate emissions factors.
 - Identifying those aspects of the criteria that call for significant or sensitive estimates to be made, or for the application of considerable judgment.
 - Methods used for determining the entities whose emissions are to be included in the GHG statement.
 - Which emissions deductions are permitted to be included in the entity's GHG statement.

Assurance Professional's Expert (Ref: Para. 12(d)(i) and 98(e))

A11. Other than when the engagement is straightforward (see paragraph A10), the assurance work will often need to be performed by a multi-disciplinary team that includes one or more assurance professional's expert. An assurance professional's expert may be needed to assist the assurance professional in one or more of the following:

- Obtaining an understanding of the entity and its environment, including its internal control.
- Identifying and assessing the risks of material misstatement.
- Determining and implementing overall responses to assessed risks at the GHG statement level.
- Designing and performing further assurance procedures to respond to assessed risks at the assertion level, comprising tests of controls or substantive procedures.
- Evaluating the sufficiency and appropriateness of engagement evidence obtained in forming an opinion on the GHG statement.

A12. An assurance professional's expert may be employed by the assurance professional's firm, or engaged by that firm, perhaps as part of a strategic alliance or ongoing subcontracting arrangement with an organization of experts (such as a firm of consulting engineers). An assurance professional's internal expert may be a partner or staff, including temporary staff, of the assurance professional's firm, and therefore subject to the quality control policies and procedures of that firm in accordance with ISQC 1 or national requirements that are at least as demanding. Alternatively, an assurance professional's internal expert may be a partner or staff, including temporary staff, of a network firm, which may share common quality control policies and procedures with the auditor's firm. An assurance professional's external expert is not a member of the engagement team and is not subject to quality control policies and procedures in accordance with ISQC 1.

A13. Engagement teams are entitled to rely on the firm's system of quality control, unless information provided by the firm or other parties suggests otherwise. The extent of that

reliance will vary with the circumstances, and may affect the nature, timing and extent of the assurance professional's procedures with respect to such matters as:

- Competence and capabilities, through recruitment and training programs.
- The assurance professional's evaluation of the objectivity of the assurance professional's expert. Assurance professional's internal experts are subject to relevant ethical requirements, including those pertaining to independence.
- The assurance professional's evaluation of the adequacy of the assurance professional's expert's work. For example, the firm's training programs may provide assurance professional's internal experts with an appropriate understanding of the interrelationship of their expertise with the assurance process. Reliance on such training and other firm processes, such as protocols for scoping the work of assurance professional's internal experts, may affect the nature, timing and extent of the assurance professional's procedures to evaluate the adequacy of the assurance professional's expert's work.
- Adherence to regulatory and legal requirements, through monitoring processes.
- Agreement with the assurance professional's expert.

Such reliance does not reduce the assurance professional's responsibility to meet the requirements of this ISAE.

Other Assurance Professionals (Ref: Para. 12(d)(ii))

A14. The GHG statement may include information from one or more components upon which another assurance professional may have been required by statute, regulation or for another reason, to express an opinion. The assurance professional, in opining on the entity's GHG statement as a whole, may decide to use the evidence on which that other assurance professional's opinion is based to provide evidence regarding the entity's GHG statement as a whole. Components may comprise, for example, a factory or other form of facility at a remoter location; a subsidiary, division or branch in a foreign jurisdiction; or a joint venture or associate.

Collective Competence and Capabilities (Ref: Para. 12(e))

A15. When the engagement is not straightforward (see paragraph A10), it is likely to require specialist skills, knowledge and experience in the quantification and reporting of emissions. Particular areas of expertise that may be relevant in such cases include:

Information systems expertise

- Understanding how emissions information is generated, including the assessment of controls over how data is initiated, recorded, processed, corrected as necessary, collated and reported in a GHG statement.

Scientific expertise

- Mapping the flow of materials through a production process, and the accompanying processes that create emissions, including identifying the relevant points at which

source data are gathered. This may be particularly important in considering whether the entity's identification of emissions sources is complete.

- Analyzing chemical and physical relationships between inputs, processes and outputs, and relationships between emissions and other variables. The capacity to understand and analyze these relationships will often be important in designing analytical procedures that are sufficiently robust to identify a material misstatement.
- Identifying the components of uncertainty and the effect of uncertainty on the GHG statement.
- Experience with specific industries and related emissions creation and removal processes. Procedures for Scope 1 emissions quantification vary greatly depending on the industries and processes involved, for example, the nature of electrolytic processes in aluminum production; combustion processes in the production of electricity using fossil fuels; and chemical processes in cement production are all different.
- The operation of physical sensors and other quantification methods, and the selection of appropriate emissions factors.

A16. ISQC 1 requires the firm to establish policies and procedures for the acceptance and continuance of client relationships and specific engagements, designed to provide the firm with reasonable assurance that it will only undertake or continue relationships and engagements where the firm is competent to perform the engagement and has the capabilities, including time and resources, to do so.¹⁹

Professional Judgment (Ref: Para. 14)

A17. Professional judgment is essential to the proper conduct of an assurance engagement. This is because interpretation of relevant ethical requirements and the ISAAs and the informed decisions required throughout the engagement cannot be made without the application of relevant knowledge and experience to the facts and circumstances. Professional judgment is necessary in particular regarding decisions about:

- Materiality and engagement risk.
- The nature, timing, and extent of assurance procedures used to meet the requirements of the ISAAs and gather engagement evidence.
- Evaluating whether sufficient appropriate engagement evidence has been obtained, and whether more needs to be done to achieve the objectives of the ISAAs.
- The evaluation of the entity's judgments in applying the criteria.
- The drawing of conclusions based on the engagement evidence obtained, for example, assessing the reasonableness of the estimates made by the entity in preparing the GHG statement.

¹⁹ ISQC 1, paragraph 26.

A18. The distinguishing feature of the professional judgment expected of an assurance professional is that it is exercised by an assurance professional whose training, knowledge and experience have assisted in developing the necessary competencies to achieve reasonable judgments.

A19. The exercise of professional judgment in any particular case is based on the facts and circumstances that are known by the assurance professional. Consultation on difficult or contentious matters during the course of the engagement, both within the engagement team and between the engagement team and others at the appropriate level within or outside the firm, assist the assurance professional in making informed and reasonable judgments.

A20. Professional judgment can be evaluated based on whether the judgment reached reflects a competent application of assurance and GHG quantification and reporting principles, and is appropriate in the light of, and consistent with, the facts and circumstances that were known to the assurance professional up to the date of the assurance report.

A21. Professional judgment needs to be exercised throughout the engagement. It also needs to be appropriately documented. In this regard, the assurance professional is required to prepare engagement documentation sufficient to enable an experienced assurance professional, having no previous connection with the engagement, to understand the significant professional judgments made in reaching conclusions on significant matters arising during the engagement. Professional judgment is not to be used as the justification for decisions that are not otherwise supported by the facts and circumstances of the engagement or sufficient appropriate engagement evidence.

Management and Those Charged with Governance (Ref: Para. 15)

A22. Management and governance structures vary by jurisdiction and by entity, reflecting influences such as different cultural and legal backgrounds, and size and ownership characteristics. Such diversity means that it is not possible for this ISAE to specify for all engagements the person(s) with whom the assurance professional is to interact regarding particular matters. For example, the entity may be a single facility and not a complete legal entity. In such cases, identifying the appropriate management personnel or those charged with governance from whom to request written representations may require the exercise of professional judgment.

Acceptance and Continuance

Scope of the GHG Statement and the Engagement (Ref: Para. 16(a))

A23. Examples of circumstances where the reasons for excluding known emissions sources from the GHG statement, or excluding disclosed emission sources from the engagement, may not be reasonable in the circumstances include where:

- The entity has significant Scope 1 emissions but only includes Scope 2 emissions in the GHG statement.

- The entity is a part of a larger legal entity that has significant emissions that are not being reported on because of the way the organizational boundary has been determined, and this is likely to mislead intended users.
- The emissions that the assurance professional is reporting on are only a small proportion of the total emissions included in the GHG statement.

Assessing the Appropriateness of the Subject Matter (Ref: Para. 11 and 53(b)(i))

A24. ISAE 3000 requires the assurance professional to assess the appropriateness of the subject matter.²⁰ In the case of assurance on a GHG statement, the entity's emissions (and removals and emissions deductions if applicable) are the subject matter of the engagement. An appropriate subject matter is, amongst other things, capable of consistent evaluation or measurement against suitable criteria.²¹ Quantification is the process of attributing a quantity of GHGs to a particular source or sink. GHG sources may be quantified by:

- (a) Direct measurement (or direct monitoring) of GHG concentration and flow rates using continuous emissions monitoring or periodic sampling; or
- (b) Measuring a surrogate activity, such as fuel consumption, and calculating emissions using, for example, mass balance equations,²² entity-specific emissions factors, or average emissions factors for a region, source, sector or process.

A25. The process of GHG quantification is subject to uncertainty because of such things as:

- Estimates made in quantifying inputs, such as activity data and emission factors, that are used by mathematical models to calculate emissions (sometimes known as measurement, or parameter, uncertainty).
- The inability of such models to precisely characterize under all circumstances the relationships between various inputs and the resultant emissions (sometimes known as calculation, or model, uncertainty).

A26. The mere existence of uncertainty does not mean the entity's emissions are not capable of consistent measurement against suitable criteria. However, because intended users may not understand the uncertainties associated with the quantification of emissions if they are not adequately explained, it is ordinarily appropriate to include in the explanatory notes a discussion of the nature of the uncertainties that affect the GHG statement. This is particularly so where the intended users did not determine the criteria to be used. For example, a GHG statement may be available to a broad range of intended users even though the criteria used were developed for a particular regulatory purpose.

²⁰ ISAE 3000, paragraph 18.

²¹ Assurance Framework, paragraph 34-38, and ISAE 3000, paragraph 19-21.

²² That is, equating the amount of a substance entering and exiting a defined boundary, for example, the amount of carbon in a hydrocarbon based fuel entering a combustion device equals the amount of carbon exiting the device in the form of carbon dioxide.

- A27. It may also be appropriate to include in the explanatory notes a quantification of uncertainties, particularly where information included in the explanatory notes or in other information accompanying the GHG statement includes comparisons of emissions with a prior period(s) or base year. The smaller the differences that result from such comparisons, the more important it is that users be informed of the uncertainty inherent in the quantification because the relative magnitude of the uncertainty increases as the difference gets smaller.
- A28. Regardless of what, if any, disclosures regarding uncertainties are included in the explanatory notes, uncertainty is a characteristic of the subject matter that **paragraph 128(i)** requires to be mentioned in the assurance report to ensure readers of that report are aware of it.²³

Assessing the Suitability of the Criteria

Specifically Developed and Established Criteria (Ref: Para. 16(c))

- A29. Suitable criteria exhibit the following characteristics: relevance, completeness, reliability, neutrality, and understandability. Criteria may be “specifically developed” or they may be “established,” i.e., embodied in laws or regulations, or issued by authorized or recognized bodies of experts that follow a transparent due process.²⁴
- A30. Specifically developed criteria may be appropriate when, for example, the entity has very specialized machinery or is aggregating emissions information from different jurisdictions where the established criteria used in those jurisdictions differ. Special care may be necessary when assessing the neutrality and other characteristics of specifically developed criteria, particularly if they are not substantially based on established criteria generally used in the entity’s industry or region, or are inconsistent with such criteria.
- A31. The applicable criteria may comprise established criteria supplemented by disclosures, in the explanatory notes of the GHG statement, of specific boundaries, methods, assumptions, emission factors, etc. In some cases, established criteria may not be suitable, even when supplemented by disclosures in the explanatory notes of the GHG statement. Some established criteria may be developed for application in particular circumstances, and be unsuitable for application in other circumstances. For example, criteria that include emissions factors for a particular region may render misleading information if used for emissions in another region; or criteria that are designed to report only on particular regulatory aspects of emissions may be unsuitable for reporting to intended users other than the regulator that developed the criteria.

Organizations or Facilities Included in the Entity’s Organizational Boundary (Ref: Para. 16(c)(i), 16(c)(iv)a., 53(b)(i), and 59(e))

- A32. Determining which organizations or facilities to include in the entity’s GHG statement is known as determining the entity’s organizational boundary. In some cases, the applicable

²³ See also ISAE 3000, paragraph 49(e).

²⁴ Assurance Framework, paragraphs 36-37, and ISAE 3000, paragraph 20.

criteria may allow a choice between different methods for determining the entity's organizational boundary, for example, the criteria may allow a choice between an approach that aligns the entity's GHG statement with its financial statements, or another approach that treats, for example, joint ventures or associates differently. Determining the entity's organizational boundary may require the analysis of complex organizational structures such as joint ventures, partnerships, and trusts, and complex or unusual contractual relationships. For example, a facility may be owned by one party, operated by another, and process materials solely for another party.

Scope 1 and Scope 2 Emissions (Ref: Para. 16(c)(iv)b.)

- A33. Criteria commonly call for all material Scope 1, Scope 2, or both Scope 1 and Scope 2 emissions, to be included in the GHG statement. Where some Scope 1 or Scope 2 emissions sources have been excluded, it is important that the explanatory notes disclose the basis for determining which sources are included and which are excluded, particularly if the sources that are included are not likely to be the largest sources for which the entity is responsible.

Scope 3 Emissions (Ref: Para. 16(c)(iv)e.)

- A34. While some criteria require the reporting of specific Scope 3 emissions, more commonly the inclusion of Scope 3 emissions is entirely optional because the full extent of indirect emissions for nearly any entity would be impossible to quantify as it includes all sources both up and down the entity's supply chain. Where some Scope 3 emissions sources have been included, it is important that the basis for selecting which sources to include is reasonable, particularly if those included are not likely to be the largest sources for which the entity is responsible.
- A35. In some cases, the source data used to quantify Scope 3 emissions may be maintained by the entity. For example, the entity may keep detailed records as the basis for quantifying emissions associated with employee air travel. In some other cases, the source data used to quantify Scope 3 emissions may be maintained in a well controlled and accessible source outside the entity. Where this is not the case, however, it may be unlikely that the assurance professional will be able to obtain sufficient appropriate evidence with respect to Scope 3 emissions sources. In such cases, it may be appropriate to exclude those Scope 3 emissions sources from the engagement.
- A36. It may also be appropriate to exclude Scope 3 emissions sources from the engagement where the quantification methods commonly in use are imprecise or lead to large variations in reported emissions. For example, various quantification methods for estimating the emissions associated with air travel are commonly in use, and can give widely varying quantifications even when identical source data is used. If such Scope 3 emissions sources are included in the engagement, it is important that the quantification methods used are selected objectively and that they are fully described along with the uncertainties associated with them.

Fraud (Ref: Para. 35 and 59(a))

A37. Misstatements in the GHG statement can arise from either fraud or error. The distinguishing factor between fraud and error is whether the underlying action that results in the misstatement of the GHG statement is intentional or unintentional.

A38. Incentives for intentional misstatement of the GHG statement may arise if, for example, those who are directly involved with, or have the opportunity to influence, the emissions reporting process have a significant portion of their compensation contingent upon achieving aggressive GHG targets. As noted in paragraph A57, other incentives to either under or overstate emissions may result from the entity's climate change strategy, if any, and associated regulatory, physical and reputational risks.

A39. Although fraud is a broad legal concept, for the purposes of this ISAE, the assurance professional is concerned with fraud that causes a material misstatement in the GHG statement. Although the assurance professional may suspect or, in rare cases, identify the occurrence of fraud, the assurance professional does not make legal determinations of whether fraud has actually occurred.

A40. In responding to fraud or suspected fraud identified during the engagement, it may be appropriate for the assurance professional to, for example:

- Discuss the matter with the entity.
- Request the entity to consult with a qualified third party, such as the entity's legal counsel.
- Consider the implications of the matter in relation to other aspects of the engagement, including the assurance professional risk assessment and the reliability of written representations
- Obtain legal advice about the consequences of different courses of action.
- Communicate with third parties (e.g., a regulator).
- Withhold the assurance report.
- Withdraw from the engagement.

Laws and Regulations (Ref: Para. 36(b))

A41. The actions noted in paragraph A40 may be appropriate in responding to non-compliance or suspected non-compliance with laws and regulations identified during the engagement. It may also be appropriate to describe the matter in an "other matter" paragraph in the assurance professional's report in accordance with paragraph 127 of this ISAE, unless the assurance professional:

- (a) Concludes that the non-compliance has a material effect on the GHG statement and has not been adequately reflected in the GHG statement; or
- (b) Is precluded by the entity from obtaining sufficient appropriate evidence to evaluate whether non-compliance that may be material to the GHG statement has, or is likely to have, occurred,

in which case paragraph 51 of ISAE 3000 applies.

Planning

Overall Engagement Strategy (Ref: Para. 38-39)

A42. When establishing the overall engagement strategy it may be relevant to consider the emphasis given to different aspects of the design and implementation of the GHG information system. For example, in some cases the entity may have been particularly conscious of the need for adequate internal control to ensure the reliability of reported information, while in other cases the entity may have focused more on accurately determining the scientific, operational or technical characteristics of the information to be gathered.

A43. Smaller engagements or more straightforward engagements (see paragraph A10), may be conducted by a very small engagement team. With a smaller team, co-ordination of, and communication between, team members are easier. Establishing the overall engagement strategy for a smaller engagement, or for a more straightforward engagement, need not be a complex or time-consuming exercise. For example, a brief memorandum based on discussions with the entity, can serve as the documented audit strategy if it covers the matters noted in paragraph 39.

Materiality in Planning and Performing the Engagement (Ref: Para. 43)

A44. The criteria may discuss the concept of materiality in the context of the preparation and presentation of the GHG statement. Although criteria may discuss materiality in different terms, the concept of materiality generally includes that:

- Misstatements, including omissions, are considered to be material if they, individually or in the aggregate, could reasonably be expected to influence the economic decisions of users taken on the basis of the GHG statement;
- Judgments about materiality are made in light of surrounding circumstances, and are affected by the size or nature of a misstatement, or a combination of both; and
- Judgments about matters that are material to intended users of the GHG statement are based on a consideration of the common information needs of intended users as a group. The possible effect of misstatements on specific individual users, whose needs may vary widely, is not considered.

A45. Such a discussion, if present in the applicable criteria, provides a frame of reference to the assurance professional in determining materiality for the engagement. If the applicable criteria do not include a discussion of the concept of materiality, the characteristics referred to above provide the assurance professional with such a frame of reference.

A46. The assurance professional's determination of materiality is a matter of professional judgment, and is affected by the assurance professional's perception of the common information needs of intended users as a group. In this context, it is reasonable for the assurance professional to assume that intended users:

- (a) Have a reasonable knowledge of GHG related activities, and a willingness to study the information in the GHG statement with reasonable diligence;
- (b) Understand that the GHG statement is prepared and audited to levels of materiality;
- (c) Recognize the uncertainties involved in the quantification of emissions;²⁵ and
- (d) Make reasonable decisions on the basis of the information in the GHG statement.

A47. Judgments about materiality are made in light of surrounding circumstances, and are affected by both quantitative and qualitative factors.

A48. A percentage is often applied to a chosen benchmark as a starting point in determining materiality for the GHG statement as a whole. Factors that may affect the identification of an appropriate benchmark include:

- The elements included in the GHG statement (for example, Scope 1, Scope 2 and Scope 3 emissions, emissions deductions, and removals).
- The quantity of GHGs to be disclosed for a particular type of emission and how that type relates in quantitative terms to the entity's total reported emissions.
- How the GHG statement presents relevant information, for example, whether it includes comparisons as discussed in [paragraph A27](#).
- The relative volatility of the benchmark.

A49. A benchmark that may be appropriate, depending on the circumstances of the entity, is total emissions before removals, if any, and emissions deductions, if any. Materiality relates to the emissions on which the auditor is reporting. Therefore, when the engagement does not cover the entire GHG statement, materiality is set in relation to only that portion of the GHG statement that is covered by the engagement as if it were the GHG statement as a whole.

A50. Qualitative factors may include:

- The sources of emissions.
- The types of gases involved.
- The uncertainties associated with quantification.
- The context in which the information in the GHG statement will be used (for example, whether the information is for use in an emissions trading scheme, is for submission to a regulator, or is for inclusion in a widely distributed sustainability report); and the types of decisions that intended users are likely to make.
- Whether there are one or more types of emissions or disclosures on which the attention of the intended users tends to be focused, for example, gases that, as well as contributing to climate change, are ozone depleting.

²⁵ See [paragraphs A24-A28](#) of this ISAE.

- The nature of the entity, its climate change strategies and progress toward related objectives, and the industry and economic environment in which the entity operates.

A51. In some cases, the applicable criteria may set a threshold for accuracy and may refer to this as materiality. For example, the criteria may state an expectation that total emissions are measured with a 5% “materiality threshold.” Where this is the case, the threshold set by the criteria provides a frame of reference to the assurance professional in determining materiality for the engagement.

Identifying and Assessing the Risks of Material Misstatement through Understanding the Entity and Its Environment

The Use of Assertions (Ref: Para. 47)

A52. In representing that the GHG statement is in accordance with the applicable criteria, the entity implicitly or explicitly makes assertions regarding the quantification, presentation and disclosure of emissions.

A53. Assertions used by the assurance professional to consider the different types of potential misstatements that may occur fall into the following categories and may take the following forms:

- (a) Assertions about the quantification of emissions for the period subject to assurance:
 - (i) Occurrence—emissions that have been recorded have occurred and pertain to the entity.
 - (ii) Completeness—all emissions that should have been recorded have been recorded.²⁶
 - (iii) Accuracy—the quantification of emissions has been recorded appropriately.
 - (iv) Cutoff—emissions have been recorded in the correct reporting period.
 - (v) Classification—emissions have been recorded as the proper type.
- (b) Assertions about presentation and disclosure:
 - (i) Occurrence and responsibility—disclosed emissions and other matters have occurred and pertain to the entity.
 - (ii) Completeness—all disclosures that should have been included in the GHG statement have been included.
 - (iii) Classification and understandability—emissions information is appropriately presented and described, and disclosures are clearly expressed.
 - (iv) Accuracy and quantification—emissions quantification and other information included in the GHG statement is disclosed fairly.

²⁶ See paragraphs A32-A35 of this ISAE for a discussion of completeness with respect to various Scopes.

- (v) Consistency and comparability—changes in quantification methods have been adequately disclosed, and the presentation of comparative emissions relating to a prior period(s) or base year takes account of any significant structural changes in the entity.

A54. The assurance professional may use the assertions as described above or may express them differently provided all aspects described above have been covered.

Estimates (Ref: Para. 53(c))

A55. Because it is virtually impossible in any circumstances to precisely count each molecule of GHG emitted by an entity, nearly all quantifications of GHG emissions involve some degree of uncertainty.²⁷ However, all quantifications are made within the context of the applicable criteria, and criteria differ in how they treat uncertainty. Some criteria stipulate rigid models, method, emissions factors etc that must be applied in all circumstances when calculating emissions from a particular source. For example, the applicable criteria may require Scope 2 emissions from electricity to be calculated by multiplying kilowatt hours recorded on suppliers' invoices by a prescribed emission factor. Quantification in accordance with such criteria effectively eliminates estimation uncertainty for the purpose of reporting in accordance with those criteria. The resultant calculation is not, therefore, considered to be an estimate for the purpose of this ISAE.

A56. This can be contrasted with quantification in accordance with criteria that allow, or require, for example:

- The use of models, methods or emissions factors that involve significant assumptions based on an entity's individual circumstances. While using entity-specific assumptions can result in more accurate quantification than using, for example, average emission factors for an industry, it is nonetheless prone to a greater degree of estimation uncertainty;
- Direct measurement using periodic sampling; or
- Estimation of surrogate activity data using extrapolation or interpolation.

Objectives and Strategies (Ref: Para. 53(d))

A57. Consideration of the entity's climate change strategy, if any, and associated regulatory, physical and reputational risk, may assist the assurance professional to identify risks of material misstatement in the GHG statement. For example, if the entity has made commitments to become carbon neutral, this may provide an incentive to understate emissions so the target will appear to be achieved within a declared timeframe. Conversely, if the entity is expecting to be subject to a regulated emissions trading scheme in the future, this may provide an incentive to overstate emissions in the meantime to increase the opportunity for it to receive a larger permit quota at the outset of the scheme.

²⁷ See paragraphs A24-A27 of this ISAE.

Control Activities Relevant to the Engagement (Ref: Para. 56(c) and (d))

A58. The assurance professional's judgment about whether particular control activities are relevant to the engagement may be affected by the level of sophistication, documentation and formality of the entity's information system, including the related business processes, relevant to reporting emissions. As reporting of emissions evolves, it can be expected that so too will the level of sophistication, documentation and formality of information systems and related control activities relevant to the quantification and reporting of emissions. In immature information systems, particular control activities are likely to be more rudimentary, less well documented, and may only exist informally. When this is the case, it is less likely the assurance professional will judge it necessary to understand particular control activities in order to assess the risks of material misstatement at the assertion level and design further assurance procedures responsive to assessed risks. In some regulated schemes, on the other hand, the information system and control activities may be required to be formally documented and their design approved by the regulator. Even in some of these cases, however, not all relevant data flows and associated controls may be documented. For example, it may be more likely that control activities with respect to source data collection from continuous monitoring are sophisticated, well documented, and more formal than control activities with respect to subsequent data processing and reporting.

Causes of Risks of Material Misstatement (Ref: Para. 59)

A59. Examples of factors referred to in **paragraph 59** include:

- (a) Omission of one or more emissions sources is more likely for sources that are less obvious, which may be overlooked, such as GHG leakages (fugitive emissions).
- (b) Significant economic, regulatory or other requirements and developments may include, for example, increases in renewable energy targets, which may lead to increased risk of misclassification of sources at an electricity generator.
- (c) The nature of the entity's operations may be complex (for example, it may involve multiple and disparate sites and processes), is discontinuous (for example, peak load electricity generation), or result in few or weak relationships between the entity's emissions and other measurable activity levels (for example, a cobalt nickel plant). In such cases, the opportunity for meaningful analytical procedures may be significantly reduced.

Changes in operations or boundaries, for example, introduction of new processes, or the sale, acquisitions or outsourcing of emissions sources or removal sinks may also introduce risks of material misstatement, for example, through unfamiliarity with quantification or reporting procedures. Also double counting of an emission source or removals sink may occur due to inadequate coordination in the identification of sources and sinks at a complex installation.

- (d) Selection of an inappropriate quantification method, for example, calculating emissions using an emissions factor when using a more accurate direct measurement method would be more appropriate. Selecting an appropriate quantification method is particularly important when the method has been changed. This is because intended

users may often be interested in emission trends over time, or relative to a base year. Some criteria may require that quantification methods are only changed when a more accurate method is to be used.

Incorrect application of a quantification method, such as not calibrating meters or not reading them sufficiently frequently, or use of an emissions factor that is inappropriate in the circumstances. For example, an emissions factor may be predicated on an assumption of continuous use and is not appropriate to use after a shut down.

Complexity in quantification methods will likely involve higher risk, for example, extensive or complex mathematical manipulation of source data, such as the need to use complex mathematical models, or extensive use of state conversion factors, such as those to convert measures of liquid to measures of gas, or unit conversion factors, such as those to convert imperial measures to metric measures.

Changes in quantification methods or input variables, for example, if the quantification method used is based on the carbon content of biomass, and the composition of the biomass used changes during the period.

- (e) Significant non-routine emissions or judgmental matters are a source of greater risk relative to routine, non-complex emissions that are subject to systematic quantification and reporting. Non-routine emissions are those that are unusual, in size or nature, and that therefore occur infrequently, for example one-off events such as a plant malfunction or major leak. Judgmental matters may include the development of subjective estimates. Risks of material misstatement may be greater because of matters such as:
- Greater management intervention to specify the quantification methods or reporting treatment.
 - Greater manual intervention for data collection and processing.
 - Complex calculations or quantification methods and reporting principles.
 - The nature of non-routine emissions, which may make it difficult for the entity to implement effective controls over the risks.
 - Quantification methods and reporting principles for estimates may be subject to differing interpretation.
 - Required judgments may be subjective or complex.
- (f) The inclusion of Scope 3 emissions where the source data used in quantification are not maintained by the entity, or where quantification methods commonly in use are imprecise or lead to large variations in reported emissions.²⁸

A60. Examples of other factors that may lead to risks of material misstatement include:

²⁸ See paragraphs A33-A35 of this ISAE.

- Human error in the quantification of emissions, which may be more likely to occur if personnel are unfamiliar with, or not well trained regarding, emissions processes or data recording.
- Undue reliance on a poorly designed information system, which may have few effective controls, for example, the use of spreadsheets without adequate controls.
- Manual adjustment of otherwise automatically recorded activity levels, for example, manual input may be required if a flare meter becomes overloaded.

Risks for Which Substantive Procedures Alone Do Not Provide Sufficient Appropriate Engagement Evidence (Ref: Para. 60)

A61. The quantification of emissions may include processes that are highly automated with little or no manual intervention. For example, where relevant information is recorded, processed, or reported only in electronic form such as in a continuous monitoring system, or when the processing of activity data is integrated with an IT-based financial reporting information system. In such cases:

- Audit evidence may be available only in electronic form, and its sufficiency and appropriateness dependant on the effectiveness of controls over its accuracy and completeness.
- The potential for improper initiation or alteration of information to occur and not be detected may be greater if appropriate controls are not operating effectively.

Site Visits (Ref: Para. 63)

A62. Where the GHG statement includes emissions from different processes, or processes using different technologies, it may be appropriate to perform further assurance procedures at a selection of facilities relevant to each process or technology, considering such things as the number of facilities, the size of each facility and its contribution to overall emissions, the methods used at each facility to gather emissions information, and the experience of relevant staff at each facility. For facilities that are not visited, sources such as energy flow and material flow diagrams may be reviewed.

Inherent and Control Risks (Ref: Para. 64(a))

A63. Factors that may influence inherent and control risks include:

- The number, nature, geographical spread, and ownership characteristics of facilities from which data is collected.
- The number and nature of the various gases and emissions sources included in the GHG statement.
- Whether processes to which emissions relate are continuous or intermittent, and the risk of disruption to such processes.
- The complexity of methods for activity measurement and for calculating emissions, for example, some processes require unique measurement and calculation methods.

- The risk of unidentified fugitive emissions.
- The extent to which the quantity of emissions correlates with readily available input data.
- Whether personnel who perform data collection are trained in relevant methods, and the frequency of turnover of such personnel.
- The nature and level of automation used in data and manipulation.
- The nature and frequency of instrument calibration.
- The quality control policies and procedures implemented at testing laboratories, whether internal or external.
- The complexity of criteria and of quantification and reporting policies, including how the organizational boundary is determined.

Substantive Procedures (Ref: Para. 67)

A64. In addition to confirmation and analytical procedures, and substantive procedures related to the GHG statement closing process (see paragraphs A65-A69), substantive procedures may include, for example:

- Reviewing joint venture agreements and other contracts relevant to determining the entity's organizational boundary.
- Reconciling recorded data to, for example, odometers on vehicles owned by the entity.
- Reperforming mass balance and energy balance calculations, and reconciling differences noted.
- Taking readings from continuous monitoring equipment.
- Checking emissions factors to authoritative sources and considering their applicability in the circumstances.
- Observing or reperforming physical measurements, such as dipping oil tanks.
- Analyzing the soundness and appropriateness of unique measurement or quantification techniques, particularly complex methods that may involve, for example, recycle or feedback loops.
- Sampling and independently analyzing the characteristics of materials such as coal, or observing the entity's sampling techniques and reviewing laboratory test results.
- Checking the accuracy of calculations and the suitability of calculation methods used, e.g. the conversion and aggregation of input measurements.
- Agreeing recorded data back to source documents, such as production records, fuel usage records, and invoices for purchased energy.

Confirmation Procedures (Ref: Para. 68)

A65. Situations where external confirmation procedures may provide relevant audit evidence include:

- Activity data collected by a third party, such as a travel agent that collates data on employee air travel, a supplier that meters the inflow of energy to a facility, or an external fleet manager records kilometers travelled by entity-owned vehicles.
- The accuracy of industry benchmark data used in calculating emission factors.
- The terms of agreements, contracts, or transactions between the entity and other parties, or whether other parties are, or are not, including particular emissions in their GHG statement, when considering the entity's organizational boundary.
- Results of laboratory analysis of, for example, the calorific value input samples.

Analytical Procedures (Ref: Para. 70)

A66. In many cases, the fixed nature of physical or chemical relationships between particular emissions and other measurable phenomena allows for the design of powerful analytical procedures, both as risk assessment and substantive procedures, for example, the relationship between fuel consumption and carbon dioxide and nitrous oxide emissions.

A67. Similarly, a reasonably predictable relationship may exist between emissions and financial information, for example, the relationship between Scope 2 emissions from electricity and the general ledger balance for electricity purchases.

A68. Analytical procedures may be particularly effective when disaggregated data is readily available, or when the assurance professional has reason to consider the data to be used is reliable, such as when it is extracted from a well controlled source. In some cases, data to be used may be captured by the financial reporting information system, or be entered in another information system in parallel with the entry of related financial data, and some common input controls applied. For example, the quantity of fuel purchased as recorded on suppliers' invoices may be input under the same conditions that relevant invoices are entered into an accounts payable system.

Substantive Procedures Related to the GHG Statement Closing Process (Ref: Para. 71)

A69. As noted in **paragraph A58**, as reporting of emissions evolves, it can be expected that so too will the level of sophistication, documentation and formality of information systems relevant to the quantification and reporting of emissions. In immature information systems, the closing process may be very informal. In more sophisticated systems the closing process may be more systematic and formally documented. The nature, and also the extent, of the assurance professional's examination of adjustments and the manner in which the assurance professional agrees or reconciles the GHG statement with the underlying records depends on the nature and complexity of the entity's quantifications and reporting process and the related risks of material misstatement.

Assurance Procedures Regarding Estimates (Ref: Para. 73)

A70. In some cases it may be appropriate for the assurance professional to evaluate, in addition to other substantive procedures for a particular type of emission or disclosure, how the entity has considered alternative assumptions or outcomes, and why it has rejected them.

Engagement Evidence

Management's Expert (Ref: Para. 85(a))

A71. The risks of material misstatement may increase if, in preparing the GHG statement, the entity does not possess the necessary expertise. In such cases, a management's expert may be used in addressing those risks. Relevant controls, including controls that relate to the work of a management's expert, if any, may also reduce the risks of material misstatement.

A72. A broad range of circumstances may threaten the objectivity of a management's expert, for example, self-interest threats, advocacy threats, familiarity threats, self-review threats and intimidation threats. Safeguards may reduce such threats, and may be created either by external structures (for example, the management's expert's profession, legislation or regulation), or by the management's expert's work environment (for example, quality control policies and procedures).

A73. Although safeguards cannot eliminate all threats to a management's expert's objectivity, threats such as intimidation threats may be of less significance to an expert engaged by the entity than to an expert employed by the entity, and the effectiveness of safeguards such as quality control policies and procedures may be greater. Because the threat to objectivity created by being an employee of the entity will always be present, an expert employed by the entity cannot ordinarily be regarded as being more likely to be objective than other employees of the entity.

A74. When evaluating the objectivity of an expert engaged by the entity, it may be relevant to discuss with the entity and that expert any interests and relationships that may create threats to the expert's objectivity, and any applicable safeguards, including any professional requirements that apply to the expert; and to evaluate whether the safeguards are adequate. Interests and relationships creating threats may include:

- Financial interests.
- Business and personal relationships.
- Provision of other services.

Evaluation of Misstatements Identified during the Engagement

Accumulation of Identified Misstatements (Ref: Para. 89)

A75. The assurance professional may designate an amount below which misstatements would be clearly trivial and would not need to be accumulated because the assurance professional expects that the accumulation of such amounts clearly would not have a material effect on the GHG statement. "Clearly trivial" is not another expression for "not material." Matters that are clearly trivial will be of a wholly different (smaller) order of magnitude than materiality

determined in accordance with this ISAE, and will be matters that are clearly inconsequential, whether taken individually or in aggregate and whether judged by any criteria of size, nature or circumstances. When there is any uncertainty about whether one or more items are clearly trivial, the matter is considered not to be clearly trivial.

Using the Work of Other Assurance Professionals

Planning to Use the Work of a Component Assurance Professional (Ref: Para. 96)

A76. Relevant considerations when the engagement team plans to request a component assurance professional to perform work on the information of a component may include

- Whether the component assurance professional understands and complies with the ethical requirements that are relevant to the group audit and, in particular, is independent.
- The component assurance professional's professional competence.
- The extent of the engagement team's involvement in the work of the component auditor.
- Whether the component assurance professional operates in a regulatory environment that actively oversees auditors.

Communication to Component Assurance Professionals (Ref: Para. 96(a))

A77. Relevant matters to communicate with component assurance professionals about the work to be performed, the use to be made of that work, and the form and content of the component assurance professional's communication with the engagement team may include:

- A request that the component assurance professional, knowing the context in which the engagement team will use the work of the component assurance professional, confirms that the component assurance professional will cooperate with the engagement team.
- Performance materiality for the component (and, if applicable, the materiality level or levels for particular types of emissions or disclosures) and the threshold above which misstatements cannot be regarded as clearly trivial to the GHG statement.
- Identified risks of material misstatement of the GHG statement that are relevant to the work of the component assurance professional; and a request that the component assurance professional communicate on a timely basis any other identified risks in the component that may be material to the GHG statement, and the component auditor's responses to such risks.

Communication from Component Assurance Professionals (Ref: Para. 96(a))

A78. Relevant matters that the engagement team may request the component assurance professional to communicate include:

- Whether the component assurance professional has complied with ethical requirements that are relevant to the group engagement, including independence and professional competence;

- Whether the component assurance professional has complied with the group engagement team's requirements;
- Information on instances of non-compliance with laws or regulations that could give rise to a material misstatement of the GHG statement.
- A list of uncorrected misstatements of the component information that are not clearly trivial.
- Indicators of possible bias in the preparation of the component information.
- Description of any identified significant deficiencies in internal control at the component level.
- Other significant matters that the component assurance professional has communicated or expects to communicate to the component, including fraud or suspected fraud.
- Any other matters that may be relevant to the GHG statement, or that the component assurance professional wishes to draw to the attention of the engagement team, including exceptions noted in any written representations that the component assurance professional requested from the component.
- The component assurance professional's overall findings, conclusions or opinion.

Evidence (Ref: Para. 96(b))

A79. Relevant considerations when obtaining sufficient appropriate evidence regarding components and the process for including related information in the GHG statement may include:

- Discussions with the component assurance professional, or the component itself, regarding those of the component's business activities that are significant to the GHG statement.
- Discussions with the component auditor regarding the susceptibility of the component to material misstatement of the GHG statement
- Reviewing the component assurance professional's documentation of identified risks of material misstatement, responses to those risks, and conclusions. Such documentation may take the form of a memorandum that reflects the component assurance professional's conclusion with regard to the identified risks.

Using the Work of Internal Audit (Ref: Para. 97)

A80. The entity's internal audit function is likely to be relevant to the engagement if the nature of the internal audit function's responsibilities and activities are related to the entity's GHG reporting, and the assurance professional expects to use the work of the internal auditors to modify the nature or timing, or reduce the extent, of assurance procedures to be performed.

Other Information (Ref: Para. 108)

A81. A GHG statement may be published as a stand alone document, or with other information, for example, it may be included as part of an entity’s annual report or sustainability report, or included with information such as:

- A strategic analysis, including:
 - A statement of the entity’s position on climate change.
 - An explanation of significant actions the entity is taking to maximize opportunities and minimize risks associated with climate change.
 - Emissions reduction targets and an analysis of performance against those targets.
 - A description of the entity’s assessment of future movements in direct and indirect emissions for timescales over which the entity typically plans its strategies and assesses risks and opportunities, including detailed information on trends and factors likely to affect the assessment; and
 - A description of corporate governance actions taken to address climate change.
- Regulatory risks from climate change, including an analysis of the material legal and financial effects that current and prospective climate change-related regulation may have on the entity’s business and operations.
- Physical risks from climate change, including a qualitative overview of the entity’s current and potential material exposure to direct and indirect physical risks due to climate change.

A82. In some cases, the entity may publish emissions information that is calculated on a different basis from that used in preparing the GHG statement. For example, the other information may be prepared on a “like-for-like” basis whereby emissions are recalculated to omit the effect of non-recurring events, such as the commissioning of new plant or the closing down of a facility. The assurance professional may seek to have such information removed if the methods used to prepare it would be disallowed by the criteria used to prepare the GHG statement.

A83. Further actions that may be appropriate if the assurance professional identifies a material inconsistency or becomes aware of a material misstatement of fact include, for example:

- Requesting the entity to consult with a qualified third party, such as the entity’s legal counsel.
- Obtaining legal advice about the consequences of different courses of action.
- Communicating with third parties (e.g., a regulator).
- Withholding the assurance report.
- Withdrawing from the engagement.
- Describing the material inconsistency in the assurance report.

Documentation

Documentation of the Assurance Procedures Performed and Engagement Evidence Obtained

(Ref: Para. 109)

A84. The following may be appropriate to include in the engagement documentation:

Fraud

- The identified and assessed risks of material misstatement due to fraud.
- The overall responses to the assessed risks of material misstatement due to fraud at the GHG statement level and the nature, timing and extent of assurance procedures, and the linkage of those procedures with the assessed risks of material misstatement due to fraud at the assertion level.
- Communications about fraud made to the entity, regulators and others.

Laws and Regulations

- Identified or suspected non-compliance with laws and regulations and the results of discussion with the entity and other parties outside the entity.

Planning

- The overall engagement strategy.
- The engagement plan.
- Any significant changes made during the engagement to the overall engagement strategy or the engagement plan, and the reasons for such changes.

Materiality

- The following amounts and the factors considered in their determination:
 - Materiality for the GHG statement as a whole;
 - If applicable, the materiality level or levels for particular types of emissions or disclosures;
 - Performance materiality; and
 - Any revision of (i)-(iii) as the engagement progressed.

Identifying and Assessing Risks

- The discussion required by paragraph 52, and the significant decisions reached.
- Key elements of the understanding obtained regarding each of the aspects of the entity and its environment specified in paragraph 53 and of each of the internal control components specified in paragraph 56; the sources of information from which the understanding was obtained; and the risk assessment procedures performed.
- The identified and assessed risks of material misstatement at the GHG statement level and at the assertion level as required by paragraph 57 for which in the assurance professional's professional judgment further procedures were required.

Responses to Assessed Risks

- The overall responses to address the assessed risks of material misstatement at the GHG statement level, and the nature, timing, and extent of the further assurance procedures performed.
- The linkage of those procedures with the assessed risks at the assertion level.
- The results of the assurance procedures, including the conclusions where these are not otherwise clear.
- If the assurance professional plans to use engagement evidence about the operating effectiveness of controls obtained in previous engagements, the conclusions reached about relying on such controls that were tested in a previous engagement.
- How the GHG statement agrees or reconciles with the underlying records.

Evaluation of Misstatements

- The amount below which misstatements would be regarded as clearly trivial.
- All misstatements accumulated during the engagement and whether they have been corrected.
- The assurance professional's conclusion as to whether uncorrected misstatements are material, individually or in aggregate, and the basis for that conclusion.

Assembly of the Final Engagement File (Ref: Para. 116)

A85. ISQC 1 (or national requirements that are at least as demanding) requires firms to establish policies and procedures for the timely completion of the assembly of engagement files.²⁹ An appropriate time limit within which to complete the assembly of the final engagement file is ordinarily not more than 60 days after the date of the assurance report.³⁰

Forming the Assurance Opinion

Description of the Applicable Criteria (Ref: Para. 124)

A86. The preparation of the GHG statement by the entity requires the inclusion of an adequate description of the applicable criteria in the explanatory notes. That description advises intended users of the framework on which the GHG statement is based, and is particularly important when there are significant differences between various criteria regarding how particular matters are treated in a GHG statement, for example: which emissions deductions are included, if any, how they have been quantified and what they represent; and the basis for selecting which Scope 3 emissions are included, and how they have been quantified.

²⁹ ISQC 1, paragraph 45.

³⁰ ISQC 1, paragraph A54.

- A87. A description that the GHG statement is presented fairly in accordance with particular criteria is appropriate only if the GHG statement complies with all the requirements of those criteria that are effective during the period covered by the GHG statement.
- A88. A description of the applicable criteria that contains imprecise qualifying or limiting language (e.g., “the GHG statement is in substantial compliance with the requirements of XYZ”) is not an adequate description as it may mislead users of the GHG statement.

Form of Opinion

Other Matter Paragraphs in the Assurance Report (Ref: Para. 127)

- A89. The content of an other matter paragraph reflects clearly that such other matter is not required to be presented and disclosed in the GHG statement. Paragraph 127 limits the use of an “other matter” paragraph to matters relevant to users’ understanding of the engagement, the assurance professional’s responsibilities or the assurance report, that the assurance professional considers it necessary to communicate in the assurance report. A widespread use of other matter paragraphs diminishes the effectiveness of the assurance professional’s communication of such matters.
- A90. Unless required by law or regulation, it is not appropriate to include the assurance professional’s recommendations on matters such as improvements to the entity’s information system or the presentation of its GHG statement in the assurance report. Including such recommendations may imply that the matters addressed have not been appropriately dealt with in preparing the GHG statement. Such matters may be communicated in accordance with paragraph 54 of ISAE 3000, for example, in a management letter or in discussion with those charged with governance. An other matter paragraph does not include information that the assurance professional is prohibited from providing by law, regulation or other professional standards, for example, ethical standards relating to confidentiality of information. An other matter paragraph also does not include information that is required to be provided by management.

Assurance Report Content

Illustrative Assurance Report (Ref: Para. 128)

- A91. Example wording of assurance reports on a GHG statement is included in the Appendix.

Use of the Assurance Report (Ref: Para. 128(b))

- A92. As well as identifying the addressee of the assurance report, the assurance professional may consider it appropriate to include wording in the body of the assurance report that specifies the purpose for which, or the intended users for whom, the report was prepared. In addition, the assurance professional may consider it appropriate to include wording that specifically restricts distribution of the assurance report other than to intended users, its use by others, or its use for other purposes.

Emissions Deductions (Ref: Para. 128(d))

A93. The wording of the statement to be included in the assurance report if the GHG statement includes emissions deductions will vary considerably depending on the circumstances. Example wording for an offset and for a contribution to a technology fund are presented in **Example 2** of the **Appendix**.

Example Assurance Reports

Example 1: This form of assurance report may be appropriate when the entity's GHG statement contains no Scope 3 emissions and no emissions deductions.

Independent Assurance Report on ABC's Greenhouse Gas Statement

To: *addressee*

Section 1: Report on GHG Statement (*this heading not needed if this is the only section*)

We have undertaken a reasonable assurance engagement of the accompanying GHG statement of ABC for the year to December 31, 20X1, which comprises the Emissions Inventory and the Explanatory Notes on pages xx – yy, including the summary of significant quantification and reporting policies in Note 1.

Restriction on Scope

Information in respect of the year to December 31, 20X3, 20X8 targets, 20X0 baseline, and percentage changes has not been included within the scope of our engagement. We have not performed any assurance procedures with respect to this information and accordingly express no opinion on it.

ABC's Responsibility for the GHG Statement

ABC is responsible for the preparation and fair presentation of the GHG statement in accordance with [*applicable criteria*³¹], applied as explained in Note 1 to the Emissions Inventory. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of a GHG statement that is free from material misstatement, whether due to fraud or error.

Independence, Quality Control and Expertise

We have complied with the International Federation of Accountants' *Code of Ethics for Professional Accountants*, which includes comprehensive independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

In accordance with International Standard on Quality Control 1, [*name of firm*] maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

³¹ [*Applicable criteria*] are available for free download from www.GHGcriteria.org.

This engagement was conducted by a multidisciplinary team including auditing and assurance professionals, engineers and environmental scientists.

Our Responsibilities

Our responsibility is to express an opinion on the GHG statement based on our assurance engagement. We conducted our reasonable assurance engagement in accordance with International Standard on Assurance Engagements 3410, “Assurance on a Greenhouse Gas Statement,” issued by the International Auditing and Assurance Standards Board. That standard requires that we plan and perform this engagement to obtain reasonable assurance about whether the GHG statement as a whole is free from material misstatement.

A reasonable assurance engagement with respect to a GHG statement involves performing procedures to obtain evidence about the quantification of emissions, and about the other information disclosed as part of the statement. The procedures selected depend on the assurance professional’s judgment, including the assessment of the risks of material misstatement in the GHG statement, whether due to fraud or error. In making those risk assessments, we considered internal control relevant to the entity’s preparation and fair presentation of the GHG statement in order to design assurance procedures that are appropriate in the circumstances. Our engagement also included:

- Assessing the suitability in the circumstances of ABC’s use of *[applicable criteria]*, applied as explained in Note 1 to the Emissions Inventory, as the basis for preparing the GHG statement;
- Evaluating the appropriateness of quantification methods and reporting policies used and the reasonableness of necessary estimates made by ABC; and
- Evaluating the overall presentation of the GHG statement.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Uncertainty in the Quantification of Emissions

Greenhouse gas quantification is subject to uncertainty because of such things as estimates made in quantifying inputs, such as activity data and emission factors, that are used by mathematical models to calculate emissions, and the inability of such models to precisely characterize under all circumstances the relationships between various inputs and the resultant emissions.

The effect of these uncertainties, and the actions taken by ABC to reduce them as far as practicable, are explained in Note 2 to the Emissions Inventory.

Opinion

Our opinion has been formed on the basis of the matters outlined in this report. In our opinion, the GHG statement, insofar as it relates to information not restricted from the scope of our engagement, presents fairly, in all material respects, the greenhouse gas emissions of ABC for the year to December 31, 20X1 in accordance with the *[applicable criteria]* applied as explained in Note 1 to the Emissions Inventory.

Section 2: Report on Other Legal and Regulatory Requirements *(applicable for some engagements only)*

(Form and content of this section will vary depending on the nature of the assurance professional's other reporting responsibilities.)

[Assurance professional's signature]

[Date of the assurance professional's assurance report]

[Assurance professional's address]

Example 2: This form of assurance report may be appropriate when the entity's GHG statement contains Scope 3 emissions and emissions deductions.

Independent Assurance Report on ABC's Greenhouse Gas Statement

To: *addressee*

Section 1: Report on GHG Statement (*this heading not needed if this is the only section*)

We have undertaken a reasonable assurance engagement of the accompanying GHG statement of ABC for the year to December 31, 20X1, which comprises the Emissions Inventory and the Explanatory Notes on pages xx – yy, including the summary of significant quantification and reporting policies in Note 1.

Restriction on Scope

Information in respect of the year to December 31, 20X3, 20X8 targets, 20X0 baseline, and percentage changes, and emissions attributed to paper waste sent to landfills has not been included within the scope of our engagement. We have not performed any assurance procedures with respect to this information and accordingly express no opinion on it.

ABC's Responsibility for the GHG Statement

ABC is responsible for the preparation and fair presentation of the GHG statement in accordance with [*applicable criteria*³²], applied as explained in Note 1 to the Emissions Inventory. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of a GHG statement that is free from material misstatement, whether due to fraud or error.

Independence, Quality Control and Expertise

We have complied with the International Federation of Accountants' *Code of Ethics for Professional Accountants*, which includes comprehensive independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

In accordance with International Standard on Quality Control 1, [*name of firm*] maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

This engagement was conducted by a multidisciplinary team including auditing and assurance professionals, engineers and environmental scientists.

³² [*Applicable criteria*] are available for free download from www.GHGcriteria.org.

Our Responsibilities

Our responsibility is to express an opinion on the GHG statement based on our assurance engagement. We conducted our reasonable assurance engagement in accordance with International Standard on Assurance Engagements 3410, “Assurance on a Greenhouse Gas Statement,” issued by the International Auditing and Assurance Standards Board. That standard requires that we plan and perform this engagement to obtain reasonable assurance about whether the GHG statement as a whole is free from material misstatement.

A reasonable assurance engagement with respect to a GHG statement involves performing procedures to obtain evidence about the quantification of emissions, and about the other information disclosed as part of the statement. The procedures selected depend on the assurance professional’s judgment, including the assessment of the risks of material misstatement in the GHG statement, whether due to fraud or error. In making those risk assessments, we considered internal control relevant to the entity’s preparation and fair presentation of the GHG statement in order to design assurance procedures that are appropriate in the circumstances. Our engagement also included:

- Assessing the suitability in the circumstances of ABC’s use of [*applicable criteria*], applied as explained in Note 1 to the Emissions Inventory, as the basis for preparing the GHG statement;
- Evaluating the appropriateness of quantification methods and reporting policies used and the reasonableness of necessary estimates made by ABC; and
- Evaluating the overall presentation of the GHG statement.

Scope 3 Emissions

The GHG statement includes, as a Scope 3 emission, xxx tonnes of CO_{2-e} relating to paper waste sent to landfills. This amount, which is based on ABC’s best estimates, was not included in the scope of our engagement as the formal system for estimating paper waste volumes was only implemented during the year and so the volume was not verifiable. Accordingly, we express no opinion about the xxx tonnes of CO_{2-e} relating to paper waste sent to landfills.

Offsets

The GHG statement includes a deduction from ABC’s emissions for the year of yyy tonnes of CO_{2-e} relating to offsets. We have performed assurance procedures as to whether these offsets were acquired during the year, and whether the description of them in the GHG statement is a reasonable summary of the relevant contracts and related documentation. We have not, however, performed any assurance procedures regarding the external providers of these offsets, and express no opinion about whether the offsets have, or will, result in a reduction of yyy tonnes of CO_{2-e}.

Technology Fund Credits

The GHG statement includes a deduction from ABC’s emissions, of zzz tonnes of CO_{2-e} relating a \$aaa,aaa contribution to XYZ Technology Fund (the Fund). Under the quantification and reporting rules of the [*jurisdiction’s*] Carbon Reduction Scheme, ABC is permitted to deduct x tonnes of CO_{2-e} for each y dollars contributed to the Fund. We have audited whether \$aaa,aaa was contributed to the Fund during the year, whether this amount is within the allowable contribution limit, and whether it has been converted to CO_{2-e} at the prescribed rate. We have not, however, performed any assurance

procedures regarding the use of monies received by the Fund, and express no opinion about whether ABC's contribution to the Fund has, or will, result in a reduction of zzz tonnes of CO_{2-e}.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Uncertainty in the Quantification of Emissions

Greenhouse gas quantification is subject to uncertainty because of such things as estimates made in quantifying inputs, such as activity data and emission factors, that are used by mathematical models to calculate emissions, and the inability of such models to precisely characterize under all circumstances the relationships between various inputs and the resultant emissions. The effect of these uncertainties, and the actions taken by ABC to reduce them as far as practicable, are explained in Note 2 to the Emissions Inventory.

Opinion

Our opinion has been formed on the basis of the matters outlined in this report. In our opinion:

- (a) The GHG statement, insofar as it relates to information not restricted from the scope of our engagement, presents fairly, in all material respects, the greenhouse gas emissions of ABC for the year to December 31, 20X1 in accordance with the *[applicable criteria]* applied as explained in Note 1 to the Emissions Inventory;
- (b) The offsets included in the GHG statement were acquired during the year, and the description of them is a reasonable summary of the relevant contracts and related documentation; and
- (c) The amount of \$xxx,xxx was contributed to XYZ Technology Fund during the year, is within the allowable contribution limit, and has been converted to CO_{2-e} at the prescribed rate.

Section 2: Report on Other Legal and Regulatory Requirements *(applicable for some engagements only)*

(Form and content of this section will vary depending on the nature of the assurance professional's other reporting responsibilities.)

[Assurance professional's signature]

[Date of the assurance professional's assurance report]

[Assurance professional's address]