Greenhouse gas and sustainability assurance

MODULE 5 | 5.3.2 | STUDENT COMPANION

Emissions are reported in **three scopes**. The figures go wrong in predictable ways, and practitioners respond with site visits, agreement to source data, checks on factors, recalculation and analytics. **Sustainability reports** are wider and harder to assure, and most assurance today is limited. **ISSA 5000** (in Australia, **ASSA 5000**) covers any sustainability topic at either level, for any practitioner who meets equivalent ethical and quality requirements.

Three scopes of emissions

Crestwater Ports Group (imagined): a listed company running three cargo ports

Scope 1: direct

From sources Crestwater owns or controls

At Crestwater

- Diesel burned in its cranes, straddle carriers and trucks
- Refrigerant gases leaking from its cold storage

Scope 2: energy it buys

Indirect emissions from purchased electricity, heat or steam

At Crestwater

- Power for its terminals and lighting

Scope 3: the value chain

All other indirect emissions, upstream and downstream

At Crestwater

- Trucks that collect containers from its gates

Reported in **tonnes of carbon dioxide equivalent (CO2-e)**, usually measured with the **Greenhouse Gas Protocol**. Large emitters also report under **Australia's national greenhouse and energy reporting scheme (NGER)**, which has its own legislated methods

Methods. The Greenhouse Gas Protocol is the most widely used method for measuring emissions. In Australia, large emitters must also report under Australia's national greenhouse and energy reporting scheme, whose methods are set in law. Scope 3 is often the largest of the three and usually the least certain, because it relies on other organisations' data.

Where emissions figures go wrong

Organisational boundary
Leaving out a port the company controls, or including one it doesn't

Missing sources
Such as backup generators nobody remembered

Activity data
Litres of fuel or kilowatt hours that are wrong, or estimated without support

Emission factors
Out of date, or the wrong ones for the location

Calculation errors
Mistakes in turning activity into emissions

Double counting
The same emissions counted twice

Inherent uncertainty
Scientific and estimation uncertainty, worst in scope 3: suppliers' data and spending-based estimates

Immature controls
Controls over emissions data are often far less developed than those over financial data

How the practitioner tests Crestwater's figures

The greenhouse gas standard set out the response, and ISSA 5000 carries the same logic forward.

Risk	Procedures
Boundary and missing sources	Understand the operations and list every emission source; visit sites to see the equipment and the metering
Activity data	Agree fuel quantities to supplier invoices and fuel management records, electricity to bills and meter data, and refrigerant top-ups to maintenance logs
Emission factors	Check that they are the current national factors published by the government
Calculations	Recalculate the emissions
Anything else that doesn't fit	Analytics such as emissions per container handled, comparing ports and years, followed up until every difference is explained

A port that looks too good. Suppose one port's emissions per container are a third lower than the others', with no newer equipment to explain it. The likely suspects are missing activity data, such as fuel bought on a separate account, or a misapplied emission factor. The practitioner investigates until the difference is explained.

Sustainability reports

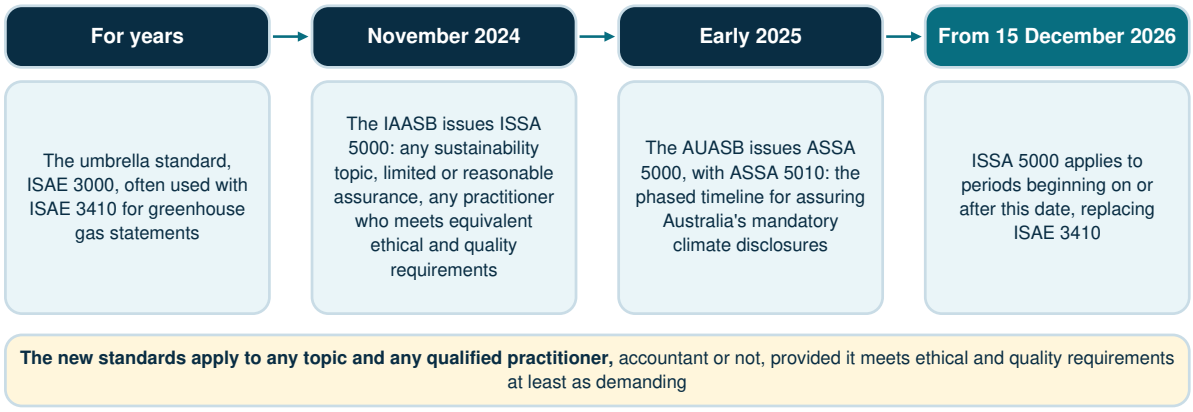
Sustainability reports cover a company's environmental, social and governance impacts and risks. The **Global Reporting Initiative** standards focus on an organisation's impacts on the economy, the environment and people; the **International Sustainability Standards Board** focuses on information that matters to investors, and Australia's mandatory climate disclosures follow its approach. Assurance is harder than for an emissions statement: the information mixes numbers with narrative, involves judgements about what is material, and includes forward-looking statements such as targets and transition plans.

Case note: what the surveys show, and ISSA 5000

Surveys of about 1,400 of the world's largest companies by the International Federation of Accountants have found that almost all now report sustainability information, that about three quarters obtain some assurance on it, and that most of that assurance is limited assurance, with greenhouse gas emissions the most widely assured information. In November 2024 the IAASB issued ISSA 5000, designed for sustainability assurance on any topic, at limited or reasonable assurance, and usable by any assurance practitioner, accountant or not, who meets equivalent ethical and quality requirements. For periods beginning on or after 15 December 2026 it replaces the greenhouse gas standard. In Australia, the AUASB issued ASSA 5000 in early 2025, alongside ASSA 5010, the phased timeline for assuring the new mandatory climate disclosures.

Source: IFAC with AICPA & CIMA, The State of Play: Sustainability Disclosure and Assurance (2019-2024), June 2026; IAASB, ISSA 5000 (November 2024); AUASB, ASSA 5000 and ASSA 5010 (January 2025).

The path to dedicated sustainability standards



Australia's phasing (ASSA 5010). Groups 1, 2 and 3 start with years beginning 1 January 2025, 1 July 2026 and 1 July 2027. Year 1: limited assurance on governance, strategy (risks and opportunities) and scope 1 and 2 emissions. Years 2 and 3: limited assurance on all climate disclosures. Year 4 on: reasonable assurance, which every group has reached for years beginning on or after 1 July 2030.

Net zero targets. Nobody can assure a future outcome, such as reaching net zero by 2050. A practitioner can give assurance on whether the target is presented in line with the criteria, whether the baseline emissions are reliable, whether reported progress is accurate, and whether the transition plan described exists and is consistent with the company's other information. Claims such as 'carbon neutral' need clear criteria too, including how offsets were counted: a confident claim without criteria is how greenwashing begins.

Practice questions

MODULE 5 | 5.3.2 | TRY THESE BEFORE THE WORKED ANSWERS

Question 1 - Sort Cindermill's emission sources

Cindermill Cement Ltd (imagined) makes cement at one plant. Sort each source into scope 1, 2 or 3.

Emission source	Scope	Emission source	Scope
(a) Natural gas burned in the cement kilns		(f) Steam bought from a neighbouring factory to dry raw materials	
(b) Carbon dioxide released from limestone as it is heated in the kilns		(g) Emissions from producing the slag and gypsum Cindermill buys	
(c) Diesel used by Cindermill's own quarry trucks and loaders		(h) A contract trucking company delivering cement to customers	
(d) Diesel burned in a standby generator at the plant		(i) Employees commuting to the plant	
(e) Electricity bought from the grid to run the grinding mills		(j) Plant waste sent to a council landfill	

Question 2 - Test Cindermill's scope 1 fuel emissions

Cindermill's kilns burn mainly natural gas, with some waste-derived fuel made from shredded tyres, and its own quarry fleet runs on diesel. It reports under Australia's national greenhouse and energy reporting scheme and wants limited assurance on its scope 1 emissions. Design the procedures you would perform on its fuel emissions.

Question 3 - A net zero transition plan

Cindermill's board has announced a target of net zero emissions by 2050, an interim target to cut scope 1 and 2 emissions by 30% by 2032 against a 2025 baseline, and a transition plan relying on alternative fuels, carbon capture at one kiln and offsets for whatever remains. What could a practitioner give assurance on, and what couldn't it?

Worked answers

MODULE 5 | 5.3.2 | WORKED ANSWERS - ATTEMPT THE QUESTIONS FIRST

Question 1 - Cindermill's sources

Source	Scope	Why
(a) Gas in the kilns	1	Fuel burned in equipment Cindermill owns
(b) Limestone heated in the kilns	1	Process emissions released directly from its own kilns
(c) Quarry trucks and loaders	1	Its own vehicles burning fuel
(d) Standby generator	1	Owned equipment; easy to miss, so check it's included
(e) Grid electricity	2	Purchased electricity
(f) Purchased steam	2	Purchased heat or steam
(g) Slag and gypsum	3	Upstream: made by suppliers
(h) Contract trucking	3	The trucks belong to another company: value chain
(i) Employee commuting	3	Value chain, not its own sources
(j) Waste to landfill	3	Emissions arise at the council's landfill

Question 2 - Procedures on fuel emissions (sample answer)

Area	Procedures
Understanding and boundary	Understand both kilns, the quarry fleet and every other fuel-burning source; compare the source list with the asset register; visit the plant to see the burners, fuel storage and meters
Activity data	Agree gas quantities to supplier invoices and the gas meter; agree tyre-fuel deliveries to weighbridge dockets and invoices; agree diesel to fuel card and bulk delivery records, adjusted for the change in tank levels; check meter calibration
Emission factors	Check each factor and energy content against the current method under the national scheme, including the right factor for the tyre-derived fuel and any part treated as biomass
Calculation	Recalculate fuel used multiplied by energy content and factor; agree the total to the scope 1 statement
Analytics	Fuel used per tonne of clinker by kiln and month, and against last year; diesel per tonne quarried; fuel quantities against fuel costs in the accounts
Completion	Cut-off around year end; written representations; if anything looks wrong, do more until it can be explained

Question 3 - Cindermill's transition plan

Could give assurance on	Couldn't give assurance on
Whether the targets are presented in line with the criteria: scopes covered, the 2025 base year, the boundary, and how offsets will be counted	That net zero will be reached by 2050, or the 30% cut by 2032
Whether the 2025 baseline emissions are reliable	That carbon capture will work, or that enough alternative fuel will be available
Whether reported progress against the interim target is accurate	Future offset prices or availability
Whether the plan described exists (board approvals, budgets, contracts, studies) and is consistent with the financial statements and other information	Whether the plan is the best strategy