Applying IFRS

Connected Financial Reporting: Accounting for Climate Change

Updated May 2025

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Contents

What you need to know

- There is continued focus on connectivity between sustainability report and financial statements and specifically on the measurement and disclosure of climate-related matters in an entity's financial statements.
- The determination of the effects of climate change on an entity's financial statements may require significant effort and judgement.
- Entities are required, at a minimum, to follow the specific disclosure requirements in each IFRS accounting standard. Entities may need to provide additional disclosures in their financial statements in order to meet the standards' disclosure objectives. Hence, in determining the extent of disclosure, entities are required to carefully evaluate what information is required for users to be able to assess the effects of sustainability risks and specifically of climate change on their financial position, financial performance and cash flows.
- This publication is intended to support entities in assessing and reporting on connectivity and specifically on the effects of climate change for accounting purposes by providing helpful observations and illustrations. Considerations provided in this publication will also be relevant for other uncertainties.

Overview

The efforts to reduce the society's impact on climate change have never been greater. At the same time, there is unprecedented pressure from stakeholders for entities to communicate clear commitments which is set to continue for the foreseeable future. Investors have highlighted the importance of understanding entities' impact on the environment in their investment-making decisions and their assessment of management's stewardship.

Although, there is no single explicit standard on climate-related matters in IFRS accounting standards, climate risk and other climate-related matters may impact a number of areas of accounting. Financial statements, as a part of general purpose financial reports, play a significant role in providing relevant information to users for making decisions. While the immediate impact on the financial statements may not necessarily be quantitatively significant, there are increasing expectations from stakeholders that entities explain how climate-related matters are considered in preparing their financial statements to the extent they are material[1] from a qualitative perspective. Stakeholders also expect robust disclosures on the most significant assumptions, estimates and judgements made related to climate change.

Climate change is expected to impact businesses in the decades to come. While it is imperative for entities to more explicitly address climate-related risks in their financial statements, considering developments in previous and recent years, accounting practice may evolve gradually over the next few years. As climate-related matters continue to evolve and entities make further commitments and take additional actions to tackle climate change, it is important for them to ensure that their financial statements reflect the most up-to-date assessment of climate-related risks, their integration into strategies or business plans and, therefore, their (expected) impact on the financial statements. Furthermore, entities need to ensure consistency between information communicated in the financial statements and the information communicated to stakeholders outside the financial statements, such as in press releases, investor updates and disclosures in other parts of the annual report.

Connectivity

The release of the International Sustainability Standards Board's first two IFRS Sustainability Disclosure Standards in June 2023, along with requirements in Corporate Sustainability Reporting Directive (CSRD) applicable to the European Union, demonstrate that the importance of sustainability reporting will only increase. So too will the importance of consistent and coherent information between the financial statements and the sustainability reporting. Entities that have connected sustainability, finance and risk management teams are well placed to ensure identified risks and opportunities, as well as any planned steps to mitigate risks, are built into their strategy, business plans and budgeting, which are key to supporting connected reporting.

[1] In accordance with paragraph 7 of IAS 1 *Presentation of Financial Statements*, information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial statements make on the basis of those financial statements.

The International Accounting Standards Board (IASB) will consider the work of the International Sustainability Standards Board (ISSB) to the extent relevant to financial statements. Together, the IASB and the ISSB (the Boards) intend their work to be complementary and facilitate connectivity in general purpose financial reports.[2] Similar initiatives are expected in relation to the requirements in the European Union. These are important to help ensure that entities understand, and respond to, expectations of connected reporting in both their financial statements and sustainability reporting. This is critical because, while there are expectations of connectivity, the concept is not uniformly defined.

The concept of 'connectivity' might be broader than the term 'connected information' described in the requirements of IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information*. As part of its requirements on 'connected information', IFRS S1 requires an entity to provide information explaining the connections between disclosures provided across its sustainability-related financial disclosures and other general purpose financial reports published by the entity, such as its related financial statements. It also requires information about the current and anticipated effects of sustainability-related risks and opportunities on an entity's financial position, financial performance and cash flows.[3] To promote this connectivity, IFRS S1 requires entities to use consistent data and assumptions in preparing the sustainability related financial disclosures with the related financial statements to the extent possible considering the requirements of IFRS accounting standards.

Many respondents to the ISSB's *Consultation on Agenda Priorities* provided feedback on connectivity despite no questions about connectivity being included in the ISSB's Request for Information. With this in mind, the Boards will continue to collaborate in various ways to "facilitate the delivery of a coherent and comprehensive system of general purpose financial reporting that includes sustainability-related financial disclosures and financial statements".[4]

There are some examples of sustainability-related financial disclosures that both Boards have created (e.g., the IASB project, Climate and Other Uncertainties in the Financial Statements).[5] However, continued judgement will be needed in determining what information to provide, how to demonstrate connectivity and the degree to which cross-references is possible. Regulatory requirements might lead entities to repeat information, which might be provided on a different basis (e.g., forward-looking vs historical). Transparency and understandability will, therefore, be important in communication with users.

IASB projects and IFRS Interpretations Committee discussions

In the IASB's Third Agenda Consultation, stakeholders expressed a view that there may be inconsistent application of IFRS accounting standards to climate-related risks and insufficient information disclosed about climate-related risks

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[2] Press Release, *IASB to explore ways to improve reporting of climate-related and other uncertainties in the financial statements*, 20 September 2023, Available on https://www.ifrs.org

[3] IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information*, paragraph 21(b) (ii) and paragraph 23.

[4] Table 1, *The ISSB's activities*, Request for Information: *Consultation on Agenda Priorities*, Available on www ifrs.org, May 2023.

[5] Connected resources are compiled on the IFRS Foundation's website, including a webcast series that illustrates connectivity.

in the financial statements. In response to that feedback, the IASB added a maintenance project on Climate-related Risks in the Financial Statements. The IASB generalised the purpose of the project to include other relevant risks in addition to climate-related risk and renamed the project Climate-related and Other Uncertainties in the Financial Statements.

In July 2024, the IASB published an exposure draft, *Climate-related and Other Uncertainties in the Financial Statements*. The exposure draft proposed the addition of eight examples illustrating how an entity applies the requirements in IFRS accounting standards to report the effects of climate-related and other uncertainties in its financial statements. The proposed illustrative examples are intended to help improve the reporting of the effects of climate-related and other uncertainties in the financial statements.

The comment period for the exposure draft ended on 28 November 2024. At the time of writing, the IASB had discussed the feedback received, considered possible ways forward and was expected to decide the project's direction in May 2025.[6]

The IASB also has a number of other ongoing and completed projects related to climate change. The amendments to IFRS 9 and IFRS 7 addressing the accounting for nature-dependent electricity contracts were issued in December 2024. (see section 8 below). The standard-setting project, *Provisions – Targeted Improvements,* is intended to tackle issues raised by stakeholders with some aspects of existing standards. (see further details in section 4 below). In addition, the IASB is currently in the research phase for the project, *Intangible Assets* and plans to define the scope of the project. At the time of writing, the IASB had not decided whether to exclude carbon credits from the scope of this project.[7]

The IASB decided to defer the decision about whether to add pollutant pricing mechanisms (PPMs)[8] to its work plan until the next agenda consultation, although the IASB staff acknowledged that "… there is diversity in accounting practice for PPMs" and "… the prevalence and significance of PPMs is increasing". Section 7 of this publication discusses accounting considerations for carbon credits in compliance and voluntary markets.[9]

In addition, the IFRS Interpretations Committee (the Committee) has discussed climate-related accounting issues and issued an agenda decision on climate-related (net zero) commitments, which are discussed in Section 4 below. The submission and the Committee's discussion have drawn the attention of many stakeholders around the world.

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[6] Project page: *Climate-related and Other Uncertainties in the Financial Statements*, IFRS Foundation website, accessed 14 April 2025.

[7] Project page: *Intangible Assets*, IFRS Foundation website, accessed 14 April 2025.

[8] Pollutant pricing mechanisms are mechanisms designed to create economic incentives for reducing emissions of greenhouse gases and other pollutants, which can be categorised as either compliance markets or voluntary markets, IASB Staff paper 10A for the Pollutant Pricing Mechanisms project, IASB meeting in June 2024, Available on https://www.ifrs.org.

[9] IASB staff paper 10A , Available on http://www.ifrs.org. In March 2025, IASB started its IASB's Fourth Agenda Consultation, covering the period beginning in 2027, Available on https://www.ifrs.org.

Regulators' focus

Regulators around the world have increased their focus on reporting the impact of climate-related risks on financial statements and consistency between sustainability reporting and/or other communications on one hand, and the related disclosures in the financial statements on the other. For example, in October 2022, the UK's Financial Reporting Council (FRC) published the FRC Lab report, *Net Zero Disclosures* ,[10] to assist reporting teams as they prepare disclosures on net zero and other greenhouse gas emission reduction commitments. In the *European common enforcement priorities for 2023 annual financial reports*,[11] the European Securities and Markets Authority (ESMA) noted that "consistent treatment of climate-related matters across the annual financial report is a key element to mitigate the risk of greenwashing". In March 2023,[12] ESMA presented two enforcement decisions taken by national enforcers (members of ESMA) requiring issuers to supplement their disclosures with more specific climate-related information. The decisions, which related to the impairment tests and disclosures of sources of estimation uncertainty, concluded, that in the financial statements that were subject to the decisions, information provided in the financial statements was not sufficient, particularly in light of climate-related information stated in the non-financial section of the annual financial report. The decisions emphasise the importance of consistency between financial and non-financial reporting in terms of climate-related assumptions and information. ESMA continues to emphasise the importance of consistency and connectivity between the climate-related information included both in the financial statements and outside the financial statements.[13] In April 2024, the ESRB (European Systemic Risk Board) published the report, *Climate-related risks and accounting*, in which it has assessed how climate-related risks are addressed in existing IFRS accounting standards and reflected in financial statements, identifying four relevant issues for financial stability. Also, in the global financial market, there have been initiatives related to climate-related disclosures. In November 2023, for example, the Basel Committee on Banking Supervision undertook public consultation on *Disclosure of climate-related financial risks* to address climate-related financial risks to the global banking system.[14]

Purpose of this publication

This publication is intended to support entities in assessing and disclosing the extent to which climate change and climate-related risks affect their financial statements prepared in accordance with IFRS accounting standards. Significant judgement may be required to identify the accounting considerations that are relevant to the entity's specific facts and circumstances. Any information included in this publication is, therefore, solely intended to provide helpful observations and illustrations and should not be interpreted as an indication

[10] Financial Reporting Council, October 2022, FRC Lab Report: Net zero disclosures, https://www.frc.org.uk

[11] ESMA, 25 October 2023, *European common enforcement priorities for 2023 annual financial reports*, https:// www.esma.europa.eu

[12] ESMA, 27th Extract from the EECS's Database of Enforcement, 29 March 2023, https:// www.esma.europa.eu

[13] ESMA, European common enforcement priorities for 2024 corporate reporting, section 4, 24 October 2024, https:// www.esma.europa.eu

[14] Basel Committee on Banking Supervision, Disclosure of climate-related financial risks, 29 November 2023, Available on https://www.bis.org/

that these would apply or be sufficient in all circumstances. While this publication focuses on the disclosures on climate-related risks, some entities also include explanations of their sustainability strategy or risks impacts their financial statements. For example, Vale S.A. in its 2023 annual report disclosed its strategy for sustainability initiatives and the impact on financial statements in one note. The company explained the impacts under separate headings for Environmental, Social and Governance. Although this publication highlighted the need for consistency with climate-related disclosures in other parts of the annual report, it did not address the management commentary (or MD&A) nor other reports outside the IFRS financial statements (for example, any separate sustainability reporting).

Extracts from financial statements presented herein are reproduced for illustrative purposes. They have not been subject to any review as to their compliance with IFRS or any other requirements, such as local capital market rules. Thus, they document practices that entities have developed to date; they are not intended to represent 'best practice'. The extracts presented should be read in conjunction with the rest of the information provided in the financial statements in order to understand their intended purpose.

Although the extracts address entities' sometimes highly specific facts and circumstances, the judgements involved and the requirements in IFRS standards to disclose relevant information apply to all reporting entities. Therefore, we recommend that entities from all sectors consider these examples when reporting on the impact of climate change taking into account their own specific facts and circumstances.

This publication generally covers IFRS accounting standards currently effective at the time of writing, with limited exceptions. It addresses the amendments to IFRS 9 and IFRS 7, Contracts referencing nature-dependent electricity in Section 8, but does not address, for example, IFRS 18 *Presentation and Disclosure in Financial Statements*, which is effective for annual reporting periods beginning on or after 1 January 2027.

Please see ey.com/IFRS for our most recent IFRS publications. In particular, refer to the '*Applying IFRS to the Energy Transition*' series that seeks to explore the accounting implications of emerging business models and arrangements related to the energy transition. The series currently covers power purchase agreements, carbon capture and storage.

1. Disclosure requirements

1.1 What is the issue?

IAS 1 *Presentation of Financial Statements* states that the objective of financial statements is to provide information about the financial position, financial performance and cash flows of an entity that is useful to a wide range of users in making economic decisions. In order to support decision-making by the users of financial statements, information should have, at least in part, a forward-looking or predictive quality. Information pertaining to climate-related matters will be relevant if investors could reasonably expect that it will have a significant impact on the entity and, therefore, influence their investment decisions. Furthermore, IAS 1 requires an entity to consider whether any material information is missing from its financial statements.

As an overarching principle, IAS 1 requires entities to disclose information, for instance, climate-related matters, that is not specifically required by IFRS standards and not presented elsewhere, but which is relevant to an understanding of the financial statements.[15] The requirements in IAS 1 are relevant to the entire financial statements.

1.2 What is the impact?

Assumptions and estimates

Disclosure of assumptions in respect of climate-related matters may be required.

IAS 1 requires disclosure of information about the assumptions an entity makes about the future that have a significant risk of resulting in a material adjustment within the next financial year.[16] As such, assumptions in respect of climate-related matters may be required. In some cases, changes in key assumptions related to climate risk may not be expected to result in material adjustments in the short-term, but the chance of material adjustments in the longer term may be significant. In that context, it is important to acknowledge that entities must provide additional disclosures beyond the specific requirements in IFRS standards when those requirements are insufficient to enable users to understand the impact of particular transactions, other events and conditions on an entity's financial position and performance. Thus, disclosures about key assumptions may be required although the risk of material adjustments in the short-term may be considered as low. Furthermore, the fact that investors and other users are requesting more transparency on climate-related matters, may, in itself, suggest that such disclosures are qualitatively material, although the quantitative impact on financial measures in isolation may be deemed of little significance, as in the case of, for instance, assets with relatively short useful lives.

L'Air Liquide S.A. notes in its disclosures on the use of estimates and assumptions, that it considers climate-related risks to be material even though the quantified impact of climate-related risks on the entity's consolidated financial statements is not material.

[15] Refer to IAS 1.31 and IAS 1.112(c).
[16] Refer to IAS 1.125.

Illustration 1-1 – L'Air Liquide S.A. – 2024 UNIVERSAL REGISTRATION DOCUMENT (Chemical sector)

Use of estimates and assumptions

In addition, the Group considers that climate risks are material, even though their quantified impact on the Consolidated Financial Statements of the Group is not material. The Group takes into account these risks in its closing assumptions and incorporates their potential impact in its Financial Statements. In particular, climate risks are taken into account when carrying out closing procedures, in particular the analysis of the useful lives of property, plant and equipment used for calculation of depreciation and amortization, the review of the estimates and assumptions concerning assets' impairment tests, and the risk assessment to determine the amount of provisions for contingencies and losses. The consideration of climate risks by the Group is described in particular in note 31.

In its 2024 annual financial statements, Heineken N.V. noted that climate change is considered in its estimates and management judgements although it had no material impact on its financial reporting.

Illustration 1-2 – Heineken N.V. – 2024 annual report (Brewery sector)

3. Significant events in the period and accounting estimates and judgements

(b) Climate change

In preparing the consolidated financial statements, HEINEKEN has considered climate change, including climate change scenarios and the Brew a Better World (BaBW) ambitions, on the estimates and judgements used in preparing the consolidated financial statements.

The following impacts were assessed in the consolidated financial statements:

- The impact of climate change on the residual values and useful lives of assets were considered in determining the carrying value of non-current assets (refer to note 8.1 and 8.2).
- The impact of climate change was considered in relation to the recognition and measurement of provisions and contingencies (refer to note 9.2 and 9.3).
- The impact of climate change was considered in relation to indications of impairment and the forecast of cash flows used in the impairment assessments of non-current assets including goodwill (refer to note 8.1 and 8.2).

For the year ended 31 December 2024, no material impact on financial reporting judgement and estimates arising from climate change was identified. As a result the valuations of assets or liabilities have not been significantly impacted by climate change risks.

Aviva Plc discusses in its risk management disclosures in the financial statements, how it has incorporated its commitment to a low carbon economy in its financial statements.

Illustration 1-3 – Aviva Plc - 2024 annual report (Financial services sector - insurance, wealth and retirement services)

52 - Risk management

Risk Environment

Aviva remains committed to supporting an economy wide transition to a low carbon, climate resilient, nature positive and socially just future. In March 2021, we set an ambition to become a Net Zero company by 2040. Through our Risk Management Framework, we continue to identify, measure, monitor, manage and report on the risks to which our business, customers and wider society are, or could be, exposed to.

We have defined our climate risk appetite framework (including climate statements and preferences) to enable confident, risk-based decisions. We report progress quarterly to enable the Board and senior management to oversee and monitor the financial impact of climate change and ensure this is in line with our risk appetite and risk profile.

We use a variety of historical and forward-looking metrics to monitor and manage the delivery of our sustainability ambition over the short, medium and long term. For example, we have built the possibility of extreme weather events into our general insurance pricing and reinsurance programme design, and monitor actual weather-related losses versus expected weather losses by business. We have defined financed greenhouse gas emissions metrics to track our 2030 interim investment ambition, and we calculate temperature alignment and Climate Value at Risk (VaR) to assess the climate-related risks and opportunities under different emission projections and associated temperature pathways.

EssilorLuxottica stated in its 2024 Universal Registration Document that its exposure to the consequences of climate change is limited. It also provided information how its commitment to sustainability affects the financial statements.

Illustration 1-4 – EssilorLuxottica - 2024 UNIVERSAL REGISTRATION DOCUMENT (Medical Equipment and Services)

Basis of Preparation of the Financial Statements

Climate and Environmental Risks

The current Group's exposure to the consequences of climate change is deemed to be limited. Indeed, the geographical footprint of EssilorLuxottica's manufacturing and logistics facilities, distribution networks and human capital is well-balanced and diversified across more than 150 countries where the Group operates, a real shield against unforeseen circumstances, including severe climate conditions. Nonetheless, EssilorLuxottica pays high vigilance to such types of events and prepares adaptation measures to ensure business continuity. Moreover, in 2024, the Group continued to deliver its approach to sustainability, titled Eyes on the Planet, which is built around, among the others, the following pillars:

- **Eyes on Carbon:** EssilorLuxottica is on track to achieve, worldwide, carbon neutrality in its direct operations (Scopes 1 and 2) in 2025. Indeed, in 2024, as in 2023, EssilorLuxottica reached this commitment on these scopes in Europe after having already reached it for Italy and France in 2021. In 2024, to reinforce its efforts to address climate

Illustration 1-4 – EssilorLuxottica - 2024 UNIVERSAL REGISTRATION DOCUMENT (Medical Equipment and Services) (cont'd)

change, EssilorLuxottica's near-term greenhouse gas (GHG) emission reductions targets were validated by the Science-Based Targets initiative (SBTi), marking a key milestone in the Group's efforts to reduce the environmental impact across its entire value chain. These new 2030 targets address emissions across the Group's Scopes 1, 2 and 3, in line with the climate mitigation efforts outlined in the Paris Agreement; and

- **Eyes on Circularity:** At EssilorLuxottica, sustainability, products and services goes hand in hand, right from the development phase. The Group's efforts focus on optimizing the use of resources while ensuring high product standards, with the objective to shift from fossil-based materials to bio-based and/or recycled materials and embed eco-design in all its innovation developments by end of 2025. Additional efforts are on increasing internal recycling capabilities and implementing circular services to extend product life or give products a second life.

The deployment of these initiatives continues to be reflected into the Group's accounts in the form of operating expenses and investments accounted for during the course of the year as well as in the commitments disclosed by the Group. Moreover, it has been taken into account, when necessary, in the estimations used by management in the preparation of these consolidated financial statements, in particular in the budget for 2025 and the medium-term projections used to perform 2024 annual impairment tests (see Note 10.1 *Impairment Tests*).

No other climate-related material impacts were reflected in the 2024 financial statements.

When entities consider climate-related assumptions, they may need to update their processes. Historically, many of the assumptions that underpin financial reporting have been made using historical experience. However, with the pace of change in climate-related matters, such experience may be less relevant. For instance, entities may need to monitor the plans and commitments announced and initiatives put in place, including but not limited to technological, legal and social developments, by private and public sectors.

BHP Group Limited (BHP) presented the impact of climate change and the transition to a low carbon economy in a separate note in its 2024 annual financial statements. Within this note, BHP disclosed that it uses multiple low carbon energy transition scenarios, representing management's assumptions regarding the possible impact of the transition, as well as the items in the financial statements affected by those scenarios.

Illustration 1-5 – BHP Group Limited - 2024 annual report (Extractive sector)

16 Climate change

Impact of transition risks on asset carrying values

Significant judgements and key estimates in relation to the preparation of these Financial Statements, including asset carrying values and impairment assessments, are impacted by the Group's current assessment of the range of economic and climate-related conditions that could exist in the world's transition to a net zero economy, considering the current trajectory of society and the global economy as a whole.

For example, demand for the Group's commodities may decrease due to policy, regulatory (including carbon pricing mechanisms), legal, technological, market or societal responses to climate change, resulting in a proportion of a cash generating unit's (CGU) reserves becoming incapable of extraction in an economically viable fashion. Alternatively, technological or market developments increasing demand for commodities in the portfolio that help enable decarbonisation may have a positive impact on prices for those commodities.

The Group has developed three unique planning cases which comprise the Group's planning range: a 'most likely' base case, used as the basis for judgements and assumptions in these Financial Statements, and an upside case and downside case that provide the range's boundaries. The three cases reflect proprietary forecasts for the global economy and associated sub-sectors (i.e. energy, transport, agriculture and steel) and the resulting market outlook for the Group's core commodities.

Given the complexity and inherent uncertainty of long run forecasting, these pathways are reviewed periodically to reflect new information, with a process in place to assess the need to update internal long-term price outlooks for developments in the periods between pathway updates.

The Group reflects the planning range and associated price outlooks in the internal valuations used as the basis for the Group's impairment assessments.

The discount rate used in the internal valuations reflects a real post-tax weighted average cost of capital (WACC), including country and state risk premia where appropriate, and ranges from 7.0 per cent to 9.5 per cent across the Group (2023: 7.0 per cent to 9.5 per cent). Cash flow forecasts used as the basis for impairment testing include asset specific risks, including climate-related risks such as operational interruptions as a result of physical climate-related risks, and therefore the Group does not include a separate climate-related risk adjustment in the Group's WACC.

Further detail on the Group's significant judgements and estimates that inform the planning range and FY2024 impairment assessments, is included in note 13 'Impairment of non-current assets'.

In addition to the planning range, and as described below in 'Paris Agreement and 1.5°C scenarios', the Group uses its 1.5°C scenario, which implies a global average temperature increase of 1.5°C by CY2100, to test resilience of the Group's portfolio in a rapidly decarbonising world.

Illustration 1-5 – BHP Group Limited - 2024 annual report (Extractive sector) (cont'd)

Paris Agreement and 1.5°C scenarios

The Group acknowledges that there are a range of energy transition scenarios, including those that are aligned with the goals of the Paris Agreement, that may indicate different outcomes for individual commodities. As noted, indicators show the appropriate measures are not in place globally to drive decarbonisation pathways at a pace or scale required to limit the global average temperature increase to 1.5°C above pre-industrial levels (particularly in hard-to-abate sectors, like steelmaking). However, to the extent governments, institutions, companies, and society increasingly focus on addressing climate change, the potential for a non-linear and/or more rapid transition trajectory increases.

Accordingly, in addition to the Group's planning range, which implies a projected global average temperature increase of around 2°C by CY2100, the Group utilises a range of scenarios, including a 1.5°C scenario, when testing the resilience of its portfolio and major investment decisions. In FY2024, the Group developed a new 1.5°C scenario, which does not currently inform the Group's planning range and intentionally uses aggressive assumptions around political, technological and behavioural change, particularly for hard-to-abate sectors, such as steelmaking. It is designed to specifically test the Group's current portfolio following changes to its portfolio since the Group's previous 1.5°C scenario published in the BHP Climate Change Report 2020.

The Group's 1.5°C scenario is not a forecast of what is likely to occur and represents one of many hypothetical pathways for the future based on different assumptions relating to world-wide economies, including global energy systems. While the Group does not currently see a 1.5°C outcome as likely, a 1.5°C scenario is utilised to inform the Group's understanding of the potential impacts of an acceleration in global decarbonisation. All 1.5°C scenarios require steep global annual GHG emission reductions, sustained for decades, to stay within a 1.5°C carbon budget (i.e. the total net amount of GHG emissions that can be emitted worldwide to limit global average temperature increase to 1.5°C by CY2100).

The Group continues to monitor global decarbonisation signposts and updates its planning range, associated price outlooks and cost of carbon assumptions. If such signposts indicate the appropriate measures are in place for achievement of a 1.5°C outcome, this will be reflected in the Group's planning range.

Capital allocation

The Group includes a 1.5°C scenario sensitivity in capital allocation processes, which compares the demand outlook for the Group's products in the planning range to that of a rapidly decarbonising global economy, should that eventuate.

Consideration of the Group's 1.5°C scenario in the capital allocation process is intended to test resilience of the Group's portfolio and mitigate the risk of stranded assets, and associated impairments, should global measures to achieve a 1.5°C outcome be adopted.

Equinor ASA provided disclosures of commodity price sensitivity aligned with a Paris Agreement scenario in its 2024 annual financial statements.

Illustration 1-6 — Equinor ASA - 2024 annual report (Oil and gas sector)

Note 3. Climate change and energy transition

Effects on estimation uncertainty

The effects of the initiatives to limit climate changes and the potential impact of the energy transition are relevant to some of Equinor's economic assumptions and future cash flow estimations. The resulting effects and Equinor's exposure to them are sources of uncertainty. Estimating global energy demand and commodity prices towards 2050 is challenging due to various complex factors, including technology change, taxation and production limits, which may change over time. This could lead to significant changes in accounting estimates, such as useful life (depreciation period and timing of asset retirement obligations), value-in-use (impairment assessments), and deferred tax assets (see note 11 Income taxes for expected utilisation period of tax losses carried forward and recognised as deferred tax assets).

Illustration 1-6 – Equinor ASA - 2024 annual report (Oil and gas sector) (cont'd)

Commodity prices

Significant changes in oil and gas prices outside planning assumptions could impact our financial performance. Equinor's commodity price assumptions applied in value-in-use impairment testing are based on management's best estimate of future market trends. This price-set is currently not equal to the price-set mapped out to achieve net zero emissions by 2050 and limit global warming to 1.5 °C as outlined in IEA's WEO Net Zero Emissions scenario. Changes in how the world acts with regards to achieving the goals in the Paris agreement could have a negative impact on the valuation of Equinor's assets. A calculation of possible impairments of Equinor's upstream production assets and certain intangible assets using price assumptions from two IEA WEO scenarios are provided in the sensitivity table below. In these estimates we use management's price assumptions until 2030, and from 2030 onwards we apply linear interpolation between IEA's prices. In previous years, a linear bridging was applied between the current commodity prices and the first price point provided in the WEO scenarios. To be comparable to Equinor management's price assumptions, we adjust the crude oil prices in the WEO scenarios for transportation cost and all prices for real inflation in 2024. These illustrative impairment sensitivity calculations are based on a simplified model with limitations as described in note 14 Impairments.

Sensitivity table

The table below presents some relevant prices and variables from two scenarios in IEA's WEO 2024 compared to management's price assumptions, and an estimated potential impairment effect given these scenarios. The IEA prices are adjusted for inflation and presented in 2024 real terms. Refer to section 3.2 E1 Climate change in the Annual Report 2024 for more details about the scenarios.

Illustration 1-6 – Equinor ASA – 2024 annual report (Oil and gas sector) (cont'd)

	Management's price assumptions[1]		Net Zero Emissions (NZE) by 2050 Scenario[4]		Announced Pledges Scenario (APS)[5]	
Brent blend, 2030	80	USD/bbl	42	USD/bbl	73	USD/bbl
Brent blend, 2040	75	USD/bbl	30	USD/bbl	64	USD/bbl
Brent blend, 2050	70	USD/bbl	25	USD/bbl	59	USD/bbl
TTF, 2030	8.3	USD/MMBtu	4.5	USD/MMBtu	6.2	USD/MMBtu
TTF, 2040	9.5	USD/MMBtu	4.2	USD/MMBtu	5.4	USD/MMBtu
TTF, 2050	9.5	USD/MMBtu	4.1	USD/MMBtu	5.4	USD/MMBtu
EU ETS[2),3)], 2030	116	USD/tCO_2	144	USD/tCO_2	139	USD/tCO_2
EU ETS[2),3)], 2040	156	USD/tCO_2	211	USD/tCO_2	180	USD/tCO_2
EU ETS[2),3)], 2050	190	USD/tCO_2	258	USD/tCO_2	206	USD/tCO_2
Illustrative potential impairment (USD)			~4	billion	<0.5	billion

1) Management's future commodity price assumptions applied when estimating value in use, see note 14 Impairments.
2) Scenarios: Price of CO_2 quotas in advanced economies with net zero pledges, not including any other CO_2 taxes.
3) EU ETS price assumptions have been translated from EUR to USD using Equinor's assumptions for currency rates, EUR/USD = 1.15
4) A scenario where the world moves on a potential path towards limiting global warming to 1.5 °C relative to pre-industrial levels.
5) A scenario where all national energy and climate targets made by governments are met on time and in full. Using this scenario, the world is expected to reach a 1.7°C increase in the year 2100.

It may be necessary to provide sensitivity analyses for a range of scenarios.

The assessment, and more specifically, the quantification, of climate-related risks generally require the application of judgements about highly uncertain future developments, such as future technology developments, political developments and government actions. A valuation may include multiple scenarios covering a wide range of possible outcomes. Therefore, it may be necessary to provide sensitivity analyses for a range of scenarios, as well as disclosures explaining how the entity has incorporated the uncertainties in the estimates relied on in the primary financial statements and in the sensitivities disclosed (as required by IAS 1). It may be that investor communities expect information about the potential future effects of specific future scenarios, such as those relating to limiting the global temperatures increase to 1.5 degrees Celsius as mentioned in the Paris Agreement.[17] In that case, an entity may find it relevant to explain whether and how the entity's valuations align with those scenarios and, if they should differ, why the entity believes other scenarios are more realistic. Similar to Equinor ASA in its 2024 annual financial statements illustrated above, BHP Group Limited made disclosures to this effect in its 2024 annual financial statements.

[17] The Paris Agreement, UNFCC website, accessed on 30 April 2025.

Illustration 1-7 – BHP Group Limited - 2024 annual report (Extractive sector)

16 Climate change

Demand for the Group's commodities

The Group acknowledges that there are a range of possible energy transition scenarios, including those that are aligned with the aims of the Paris Agreement, that may indicate different outcomes for individual commodities. The Group examines the resilience of its portfolio to a 1.5°C scenario (the Group's 1.5°C scenario) by considering the impact of the commodity and carbon prices under that scenario using the Group's latest operating plans.

There are inherent limitations with scenario analysis and it is difficult to predict which, if any, of the range of scenarios the Group utilises might eventuate and none of the scenarios considered constitutes a definitive outcome for the Group. The Group's 1.5°C scenario has a distinct impact on each of its commodities with current trends impacting the degree of likelihood of future outcomes aligning with different elements of the scenario. However, based on current trends, it is considered unlikely that the Group's 1.5°C scenario would occur.

As the electrification megatrend is well underway, there is a higher likelihood of a positive impact to demand reflected in the Group's 1.5°C scenario eventuating for commodities which stand to benefit from this megatrend, including copper, nickel and uranium.

The Group's 1.5°C pathway for potash is driven by increasing competition for land and the need for agricultural productivity.

The long-term commodity prices for potash, copper, nickel and uranium under the Group's 1.5°C scenario are favourable to or materially consistent with the price outlooks from the base case of the Group's planning range. Price-only sensitivities using the prices derived from the Group's 1.5°C scenario do not indicate an illustrative impairment for those commodities.

However, the global steelmaking sector, like many hard-to-abate sectors, is not currently seeing the investment, policy settings or technological progress needed to align with the trajectory in the Group's 1.5°C scenario. The Group's 1.5°C scenario assumes an aggressive decarbonisation pathway for the steelmaking sector as a result of increased scrap collection, progression or acceleration of currently challenging, evolving or early-stage decarbonisation technologies and top-down government policies. The current signposts do not indicate progress in line with this trajectory.

While GHG emissions intensity of steel production reduces significantly in the Group's 1.5°C scenario, underlying demand for steel (including the proportion from ore-based steel production) remains strong. As such, the price derived from the Group's 1.5°C scenario for iron ore remains materially aligned with the Group's base case assumptions and does not indicate an illustrative impairment.

The assumptions within the Group's 1.5°C scenario result in a greater relative impact to steelmaking coal prices, compared to the base case assumptions. Under the Group's base case assumptions within the planning range, headroom in excess of US$6 billion exists between the carrying value of the Group's steelmaking coal assets and their estimated valuation. In a price-only sensitivity, using the prices derived from the Group's 1.5°C scenario, while current headroom would reduce, no illustrative impairment of the Group's steelmaking coal assets is indicated.

In addition, to provide further analysis of the risk of potential impairment in a 1.5°C scenario, the Group has also performed a price-only sensitivity for steelmaking coal assets under a 1.5°C scenario published by Wood Mackenzie, a research and consultancy business for the global energy, power and renewables, subsurface, chemicals and metals and mining industries. This further analysis acknowledges the wide range of potential energy transition impacts for steelmaking coal.

Under the Wood Mackenzie 1.5°C scenario, reflecting the prices outlined below, a price-only sensitivity would also reduce the current headroom on the Group's steelmaking coal assets, but does not indicate an illustrative impairment.

Price source	CY2030 Price (real, US$/tonne)	CY2050 Price (real, US$/tonne)
Wood Mackenzie Net Zero (1.5°C) Scenario (June 2024)	180	143

The Group considers that it is currently impracticable to fully assess all potential Financial Statement impacts in scenario analysis. Accordingly, these price-only sensitivities reflect different prices while assuming that all other factors in the asset valuations, such as production and sales volumes, capital and operating expenditures, carbon pricing and the discount rate, remain unchanged from those used in the Group's FY2024 impairment assessments. As such, the sensitivities do not attempt to assess all potential impacts, including those on asset valuations, that may arise under a 1.5°C scenario and do not consider any actions the Group would take in respect of operating and investment plans to mitigate the cash flow and valuation impacts that may arise in a 1.5°C scenario.

As noted above, in many cases, it will be appropriate to further explain how such factors have impacted the estimations made by the entity, by including details about the assumptions relied on, for instance, the expected closure date of a plant, as well as sensitivity disclosures reflecting what the impact of an earlier closure date would be.

Some consider that the impact of climate risk and potential future developments on the entity, including the sustainability of its current business model, is too uncertain to allow for meaningful representation, through measurement and quantified disclosures, in the financial statements. Generally, where there is a high level of uncertainty, entities should consider disclosing their sensitivity analyses. They can be particularly helpful in conveying relevant information in such cases, as illustrated by the examples discussed above.

Others may be in a position in which management has not yet fully explored the potential impact of climate risk on the entity's financial position and future performance and, as a consequence, climate risk is not incorporated in the relevant valuations and judgements. In such cases, entities should consider disclosing information clarifying their inability to reflect climate risk in the financial statements, along with an explanation of how they consider the financial statements to present fairly the financial position, financial performance and cash flows of the entity, if the potential impact of climate risk on the entity might be material.

Judgements

IFRS requires disclosure of the management's accounting policy judgements that is separate from estimates that have the most significant effect on the amounts recognised in the financial statements. Climate-related matters may impact the judgement made when deciding the appropriate accounting policies, and thus may, in some cases, trigger judgement disclosures. For instance, as discussed in Section 3, judgement may be applied when assessing whether cash flows expected to arise in an entity's attempt to achieve certain sustainability targets in the future are to be considered asset maintenance or enhancements when determining value in use in an impairment assessment. Similarly, significant judgement may be required when determining whether an entity has a constructive obligation to clean a site or remove waste, as discussed in Section 4.

In its 2024 annual financial statements, Mercedes-Benz Group AG provided disclosures explaining the judgements made when assessing how climate-related aspects impact recognition and measurement of certain groups of assets and liabilities.

Illustration 1-8 – Mercedes-Benz Group - 2024 annual report (Automotive sector)

1. Material accounting policies

Consideration of sustainability related aspects in connection with the recognition and measurement of assets and liabilities

The Mercedes-Benz Group has set itself the target of net carbon-neutrality[1] for the new vehicle fleet by 2039, as far as market conditions allow. In addition to market conditions, the course of the transformation will be determined primarily by the infrastructure and the consumer behaviour. The Group is therefore preparing to be able to meet the various customer requirements, whether all-electric drives or electrified combustion engines. To achieve this, production is set up to be flexible in terms of drive systems. For the further development of the product portfolio, the Mercedes-Benz Group sustainably utilizes efficiencies between new and existing model series.

Recognition and measurement of the Group's assets and liabilities take into account climate-related risks and developments associated with the transformation, which also include the climate targets set in the Paris Climate Agreement.

Illustration 1-8 – Mercedes-Benz Group - 2024 annual report (Automotive sector) (cont'd)

Accounting estimates and management judgements in connection with sustainability-related aspects include, in particular, the following issues:

The determination and review of the useful lives of the capitalized development costs are based on the expected product life cycle. Changes in the originally envisaged product life cycles can result from the transformation to all-electric vehicles. Due to the resolutions regarding the accelerated transformation new developments in the area of conventional powertrains are reduced and already capitalized development expenditure is partly used for a longer time.

In the same way, the useful lives of property, plant and equipment assets are regularly reviewed in the light of the transformation to all-electric vehicles. This did not require any material adjustments of the useful lives up to the reporting date as the production facilities of the Group are basically flexible in use.

In the context of production network management, efforts are also being made to secure sites affected by the transformation by enhancing them. No significant obligations to dismantle or remove production facilities and plants that would give rise to a provision existed on the reporting date.

The recoverability of leased vehicles classified as operating leases is reviewed regularly. When determining recoverability, the residual value of the leased vehicles is particularly relevant. Due to the transformation to all-electric vehicles, residual values can be influenced by changing customer behaviour, new regulatory requirements and further technological developments. No significant impairment losses were required for conventionally powered vehicles in the reporting year. Due to the slower transformation towards all-electric vehicles, impairments of €0.4 billion were recorded for vehicles with electric drives.

The expected proceeds from the disposal of vehicles pledged as collateral are taken into account in the determination of expected credit losses for receivables from financial services. The expected proceeds from the disposal are based on an estimate of the market value at the expected time of a possible default. There were very few instances of a reduction of these estimated market values that could be traced to effects of climate change or of changing customer behaviour as of the reporting date.

In addition to traditional energy supply contracts, which are usually only recorded as pending transactions upon delivery, the Group has concluded contracts to secure purchase quantities and prices for renewable energies (in particular electricity from wind and solar energy). These are contracts that provide for a fixed remuneration per unit of energy and are mainly recognized either as derivatives or leases.

The impairment test on the level of the cash-generating units is based on the corporate planning and strategy of the Mercedes-Benz Group. This provides for a step by step substitution of vehicles with combustion engines by electric vehicles.

Corporate planning parameters in connection with the transformation affect the investment requirements and the currently higher variable costs of all-electric vehicles in comparison with vehicles with conventional powertrains. The simultaneous development, model refinement and production of electric and conventionally powered vehicles results in a high investment requirement, particularly in the detail planning period until 2029. No growth was assumed in the derivation of the terminal value, due in part to the not yet completely predictable effects of the competitive situation and customer behaviour in the course of the transition to electric mobility.

In addition, a risk assessment is being carried out for both the detailed planning period and the terminal value, which includes, for example, market risks as well as risks resulting from legal and political framework conditions (e.g. in connection with sustainability aspects such as CO_2 legislation).

The impairment test carried out in 2024 did not result in any impairment requirement for the cash-generating units.

Information regarding climate-related matters should be considered in conjunction with other uncertainties when assessing going concern.

Going Concern

IAS 1 explains "going concern" by stating that financial statements are prepared on a going concern basis "unless management either intends to liquidate the entity or to cease trading or has no realistic alternative but to do so".[18] In assessing whether the going concern basis of preparation is appropriate, information regarding climate-related matters should be considered in conjunction with other uncertainties.

Climate-related matters may affect an entity's going concern assessment, with assumptions regarding the nature of future business activities and restrictions on bank financing likely to be factored into the assessment. In addition, entities will need to consider external factors such as issues regarding water, energy, land use and waste management that are crucial to the continued operation of the business.

In making their going concern assessments, many entities only consider the next 12 months and conclude that the going concern uncertainties are not significant. However, according to IAS 1, an entity needs to look at a period of at least 12 months from the end of the reporting period when assessing whether to prepare financial statements on a going concern basis. In other words, considering going concern for only 12 months, if known uncertainties impact the assessment over a longer term, is not consistent with the requirements in IAS 1.

Although an entity may conclude that the going concern basis is still appropriate, IAS 1 requires disclosure of material uncertainties, if any, that would cast significant doubt upon an entity's ability to continue as a going concern. Climate-related matters could create material uncertainties related to events or conditions that cast significant doubt upon an entity's ability to continue as a going concern. In such a case, although going concern may be assumed, additional disclosures explaining the uncertainties associated with the assumption would be required.

In its 2024 annual financial statements with a 31 December 2024 reporting date, Rolls Royce Holdings Plc stated that it had concluded that climate change risks did not materially impact the going concern assessment.

Illustration 1-9 – Rolls Royce Holdings Plc – 2024 annual report (Civil aerospace and defence sectors)

1 Accounting policies

Going concern – Given the short-term nature of the Group's going concern assessment, the impact of climate change does not have a significant impact. The Directors have considered the level of liquidity available, and the potential impact of the climate change risks, in making their assessment.

Although in many cases, climate risk may not add significant going concern uncertainty in the shorter term, it cannot be disregarded for the purpose of assessing an entity's ability to continue as a going concern. If, based on an analysis of the sustainability of an entity's business over the longer term, there is significant going concern uncertainty regarding that entity's ability to continue over that longer term, disclosures addressing those uncertainties should be considered.

[18] Paragraph 25 of IAS 1.

Consistency and transparency

Consistency between disclosures made by an entity outside the financial statements, such as in the management report, a sustainability report, etc., and the disclosures provided in the financial statements is a key feature of relevant reporting that has been gaining increased attention. For instance, in March 2023, ESMA published two decisions in which European enforcers had concluded that entities had not provided sufficient disclosure about climate-related matters in their 2021 financial statements. The decisions cited disclosures made by the same entities outside the financial statements.[19]

Effective communication about climate risk also involves structuring relevant disclosures within the financial statements. One of the approaches to transparent discussion of climate-related risks is to provide an overall disclosure of climate-related matters in the notes to the financial statements, together with a summary of key estimates and critical judgements, and cross-references to other notes to the financial statements elaborating and quantifying the impacts of climate-related matters.

In its disclosure on sources of estimation uncertainty and critical judgements, Volvo AB specifically identified the areas where climate change risks and opportunities are a source of estimation and uncertainty in its 2024 annual financial statements and refers the reader to the relevant note where their impact is discussed.

Illustration 1-10 — Volvo AB – 2024 annual report (Automotive sector)

2. Key sources of estimation uncertainty, critical judgments and climate-related risks and opportunities

Sources of estimation uncertainty and critical judgments

The sources of estimation uncertainty and critical judgments identified by the Volvo Group and which are considered to fulfill these criteria are presented in connection to the items considered to be affected. **Table 2:1** discloses where to find these descriptions and climate-related risks and opportunities, if applicable.

[19] ESMA, 27th Extract from the EECS's Database of Enforcement, 29 March 2023, https://www.esma.europa.eu.

Illustration 1-10 – Volvo AB – 2024 annual report (Automotive sector) (cont'd)

2:1 Source of estimation uncertainty and critical judgments

	Note		Climate-related risks and opportunities
Sales with residual value commitments and variable sales price	7	Revenue	●
Deferred taxes and uncertainty over income tax treatments and claims	10	Income taxes	
Impairment of goodwill and other intangible assets	12	Intangible assets	●
Impairment of tangible assets and residual value risks	13	Tangible assets	●
Measurement of lease liabilities and right-of-use assets	14	Leasing	
Allowance for expected credit losses	15 16	Customer-financing receivables Receivables	●
Write down of inventories	17	Inventories	●
Assumptions when calculating post-employment benefits	20	Provisions for post-employment benefits	
Provisions for product warranty, other provisions and provisions for legal proceedings	21	Other provisions	●

Other approaches to providing climate-related risk disclosures may also work. Regardless of the approach taken, it is important that entities carefully assess how to best ensure that users can navigate the financial statements in an effective way to allow for a good understanding of the entity-specific financial impact of climate-related matters.

How we see it

Climate-related risks are a major source of estimation uncertainty and could add complexity in the application of IFRS accounting standards. Furthermore, entities should consider uncertainties associated with future climate-related developments when assessing an entity's ability to continue as a going concern.

Entities need to, therefore, ensure that relevant disclosure of assumptions and estimates are made; those disclosures need to be entity-specific, taking care to avoid generic, boilerplate-type language. Entity-specific disclosures include quantifiable information about assumptions, as well as explanations of deviations from known market expectations regarding the same assumptions. Furthermore, sensitivity disclosures, quantified if relevant, to illustrate the uncertainty embedded into the estimates relied on by entities, should also be made. It is important that entities ensure consistency in both the disclosures about climate-related matters outside the financial statements (e.g., in separate sustainability reports or management commentaries) and how they incorporate climate-related risks in the financial information (e.g., in measurements and disclosures in the financial statements).

When assessing the uncertainty associated with an entity's ability to continue as a going concern, climate-related risk impacts beyond those expected to materialise in the short term, should be considered.

2. Property, plant and equipment

2.1 What is the issue?

IAS 16 *Property, Plant and Equipment* requires an item of property, plant and equipment (PP&E) to be recognised if it is probable that future economic benefits associated with the item will flow to the entity and its cost can be measured reliably.

An item of PP&E is depreciated over its useful economic life in a manner that reflects the pattern in which the asset's future economic benefits are expected to be consumed by the entity. IAS 16 requires the useful life and residual value of an asset to be estimated on a realistic basis and reviewed at least at the end of each financial year.

An entity may be required by legislation to incur certain expenditures, for example, safety or environmental protection equipment, that do not directly increase the future economic benefits expected to flow from the asset. IAS 16 explains that these expenditures may qualify for recognition as part of the cost of an asset if they allow an entity to derive future economic benefits from related assets in excess of those that would flow if such expenditure had not been made.

Refer to Section 3 below for a discussion on impairment requirements in relation to PP&E.

2.2 What is the impact?

Climate-related matters may affect the value of an item of PP&E, its economic life and its residual value.

Climate change, the legislation enacted to address it, and growing societal pressure have the potential to significantly affect the value of an item of PP&E, its economic life and its residual value. For example, some technologies will be phased out by legislation, renewable technologies are becoming cost competitive as a result of strong learning curve effects and research and development investments, and some assets are prone to damage from extreme weather events.

In particular, entities need to consider the following in assessing the impact of climate-related risks on its PP&E.

- *Useful life* – Climate-related risks, including any associated legislation, may affect how, and for how long, items of PP&E are used. IAS 16 requires entities to review the useful life of an asset at least at the end of each year-end. Entities will need to consider climate-related factors annually when determining the expected useful life of their assets and, therefore, the period over which such assets are depreciated. An entity would need to assess whether it expects, for example, the early closure of fossil-fuel producing assets (e.g., coal producing assets) or continued use of carbon-emitting assets (e.g., high-emission ships). Similarly, an entity would need to consider if its PP&E assets could be indirectly affected if, for example, it is used to provide services to customers in high emission industries.

Illustration 2-1 – National Grid - 2024 annual report (Utility sector)

Notes to the consolidated financial statements

13. Property, plant and equipment

(c) Gas asset lives

The role that our US gas networks play in the pathway to achieving the greenhouse gas emissions reductions targets set in the jurisdictions in which we operate is currently uncertain. Policymakers in New York and Massachusetts continue to indicate an increase in electrification to meet their respective decarbonisation targets, whilst as a Group we are committed in our transition to net zero. As a result, there is a risk that the UELs of certain elements of our gas networks may be shortened in line with future policy, regulatory frameworks and planning systems aimed to support the decarbonisation of the energy sector.

In the US, our gas distribution asset lives are assessed as part of detailed depreciation studies completed as part of each separate rate proceeding. Depreciation studies consider the physical condition of assets and the expected operational life of an asset. The weighted average remaining UEL for our US gas distribution fixed asset base is circa 53 years; however, a sizeable proportion of our assets are assumed to have UELs which extend beyond 2080. In assessing these UELs, we consider a range of different pathways related to our gas assets. These pathways factor in the net zero ambitions of the Group and the jurisdictions that we operate in, anticipated changes in customer behaviour, developments in new technology, the feasibility and affordability of electrification, and the ability to decarbonise fuel through the use of renewable natural gas (RNG) and green hydrogen. On balance of the different pathways considered, we continue to believe the lives identified by rate proceedings are the best estimate of the assets' UELs given the need to provide safe, affordable and reliable heating services. We keep this assumption under review and we continue to actively engage and support our regulators to enable the clean energy transition.

Asset depreciation lives feed directly into our US regulatory recovery mechanisms, such that any shortening of asset lives and regulatory recovery periods as agreed with regulators should be recoverable through future rates, subject to agreement, over future periods, as part of wider considerations around ensuring the continuing affordability of gas in our service territories.

Given the uncertainty described relating to the UELs of our gas assets, below we provide a sensitivity analysis for the depreciation charge for our New York and New England segments were a shorter UEL presumed. It should be noted that the net zero pathways which we consider probable all suggest some role for gas in heating buildings beyond 2050, so our sensitivity analysis for 2050 illustrates an unlikely worst-case scenario.

	Increase in depreciation expense for the year ended 31 March 2024		Increase in depreciation expense for the year ended 31 March 2023	
	New York £m	New England £m	New York £m	New England £m
UELs limited to 2050	208	66	185	54
UELs limited to 2060	100	26	90	21
UELs limited to 2070	46	6	42	3

Note that this sensitivity calculation excludes any assumptions regarding the residual value for our asset base and the effect that shortening asset depreciation lives would be expected to have on our regulatory recovery mechanisms. In the event that any of the US gas distribution assets are stranded, the Group would expect to recover the associated costs. While recovery is not guaranteed and is determined by regulators in the US, there are precedents for stranded asset cost recovery for US utility companies.

Illustration 2-2 – A.P. Moller-Maersk - 2024 annual report (Logistics sector)

3.2 - Property, plant and equipment

ⓘ SIGNIFICANT ACCOUNTING ESTIMATES

Useful life and residual values

Useful lives are estimated annually based on experience. When an asset's useful life changes, Management revises the estimates for individual assets or groups of assets with similar characteristics due to factors such as quality of maintenance and repair, technical development, or environmental requirements. Management has also considered the impact of decarbonisation and climate-related risks on the useful lives of existing assets. Such risks include new climate-related legislation restricting the use of certain assets, new technology demanded by climate-related legislation and the increase in restoration costs for terminal sites due to new and/or more comprehensive policies. The useful lives of vessels and related assets that operate on bunker fuel have been considered in conjunction with the net-zero by 2040 target.

Residual values of vessels are difficult to estimate given their long useful lives, the uncertainty of future economic conditions, the market for conventional fuel vessels and the uncertainty of future steel prices, which is considered the main determinant of the residual value. Additionally, the acceleration of development of vessels with a lower carbon footprint may generate downward pressure on the market for second-hand conventional fuel vessels. Generally, the residual values of vessels are initially estimated at 10% of the purchase price excluding dry-docking costs.

- *Business models* – Climate-related ambitions will result in the development of new business models and projects with the aim of reducing carbon emissions. For example, carbon capture and storage may use a depleted oil or natural gas reservoir and utilise existing infrastructure that is partially or fully depreciated (e.g., pipelines or offshore facilities linked to producing or decommissioned oil and gas fields). In such a scenario, as the degree of certainty surrounding the future use of such assets increases, an entity needs to assess whether it needs to change the method and/or period over which existing facilities are depreciated. That is, the useful life of existing infrastructure could be extended by a clean energy project.

- *Decommissioning* – If the useful life of an item of PP&E is shorter than previously expected, this would result in earlier decommissioning and would increase both the decommissioning provision and the decommissioning component of the asset as a result of the discounting effect. In addition, it should be noted that IFRIC 1 *Changes in Existing Decommissioning, Restoration and Similar Liabilities* creates profit and loss volatility in the case of end-of-life assets, which have a carrying amount that is small compared to the potential movements in the decommissioning liability.

- *Residual value* – The residual value of an item of PP&E is reviewed at least at each year-end. While residual values of PP&E assets are generally fairly predictable, this is not necessarily the case if there are relatively few buyers of second-hand PP&E assets that use technologies that are being phased out before a legal deadline. In the illustration below, easyJet Plc described in its 2023 annual financial statements how the residual values of its fleet are affected by climate change.

Illustration 2-3 — Royal Schiphol Group – 2024 annual report (Airport Management)

3. Critical judgements and estimates

Useful lives and residual values of intangible assets and assets used for operating activities
Estimates of useful lives and residual values are significant inputs to determine (accumulated) amortisation/depreciation on intangible assets and assets used for operating activities.

The useful life of an asset and its estimated residual value may change under the influence of technological developments, market circumstances, changes in the use of the asset or changes in climate and environmental-related legislation and regulations. The estimated useful life and residual value of an asset is reassessed if changes in circumstances occur or new information becomes available which indicate a possible change estimates.

Estimates of useful lives of significant classes of Schiphol Group's assets as of 31 December 2024 are disclosed in notes 2.3.9 and 2.3.10.

- *Development costs* –An entity may incur expenditure on the development of infrastructure relating to new technologies (i.e., hydrogen processing or carbon capture and storage (CCS) facilities). Such development costs are recognised as an item of PP&E if (and only if) it is probable that future economic benefits associated with the item will flow to the entity and the cost of the item can be measured reliably. The entity will need to consider at which point there is sufficient and reliable information to meet the PP&E recognition criteria. This is key as there will be more uncertainty about the total project costs of assets relating to new technologies compared to existing technologies. Therefore, there is greater potential for significant time and cost overruns.

- *Overhauls or redesigns* – In certain instances, major overhauls or redesigns may be required to convert or repurpose an existing asset (e.g., specialty ships used in the offshore oilfield services industry might be repurposed to service offshore wind farms). To the extent that such activities result in the replacement of asset parts, entities will need to apply the 'major inspection and overhaul' principles of IAS 16 in determining the appropriate treatment of additional expenditure as well as the carrying value of pre-existing PP&E.

Entities need to ensure that sufficient and appropriate disclosure allows users to understand how PP&E is affected by the risks from, and exposures to, climate change.

As a result, entities may need to reconsider the useful lives of certain parts that are expected to be replaced earlier than previously expected.

How we see it

Climate-related matters have the potential to significantly impact the useful life, residual value and decommissioning of PP&E. Climate change, and the associated legislation to promote sustainability, increase the risk that items of PP&E become 'stranded assets' whose carrying value can no longer be recovered within the entity's existing business model.

Given the uncertainties around the impact of climate change, disclosures should be included to allow the users of the financial statements to understand and evaluate the judgements applied by management in recognising and measuring items of PP&E.

3. Impairment of assets

3.1 What is the issue?

IAS 36 *Impairment of Assets* requires an entity to assess at the end of each reporting period (either year-end or interim reporting date), whether there are any impairment indicators for an entity's assets. If there are, the standard requires an entity to perform an impairment assessment. For goodwill, intangible assets with indefinite useful lives and intangible assets not yet available for use, IAS 36 requires entities to perform an impairment test at the same time every year and also when indicators of impairment exist. Impairment indicators include significant changes in the technological, market, economic or legal environment that have an adverse effect on the entity, evidence of an asset's obsolescence and observable indications that the asset's value has declined. Increased awareness of the consequences of environmental change is triggering regulatory action, which is affecting stakeholder perspectives. In turn, this is impacting market prices for commodities and is driving entities to change the way they operate. An entity would need to consider whether such events and circumstances indicate impairment.

Entities often provide information on climate-related risks outside the financial statements, e.g., in the directors' report or the sustainability report. It is likely that this will become more prevalent with the adoption of sustainability reporting requirements, such as those developed by the ISSB, requiring the disclosure of the anticipated effects of climate-related risks and opportunities on the entity's financial position, financial performance and cash flows over the short, medium and long term. When determining the existence of any impairment indicators, entities should take into consideration all relevant sources of information available, and include such sources, to help ensure that consistent conclusions are drawn.

If one or more impairment indicators have been identified, the recoverable amount of an asset or cash-generating unit (CGU) has to be determined and compared with its carrying amount. In determining the recoverable amount an entity would need to consider both the direct and indirect impacts of environmental change.

Finally, IAS 36 requires an entity to disclose sufficient information for a user to understand how an asset or CGU was tested for impairment, such as key estimates and judgements, and the events and circumstances that led to the recognition of any impairment loss.

3.2 What is the impact?

Indication of impairment

Government actions to manage environmental change, such as committing to reach net-zero emissions by 2050 in line with the Paris Agreement or locally-set emissions targets, could indicate:

- There is a decline in the value of an entity's asset significantly exceeding what would be expected from the passage of time or normal use due to penalties for the use of assets exceeding certain emission targets. In addition, it could indicate the asset would be abandoned earlier than previously anticipated.
- There is a significant adverse change to the market, economic or legal environment in which the entity operates. For example, a legal requirement

to surrender carbon credits based on greenhouse gas emissions could mean certain activities become less profitable or even loss making in their current form. Alternatively, the introduction of a regulation to restrict certain production methods could mean an investment is required or production needs to be abandoned or required inputs need to be replaced with new ones, which may not exist yet.

- There is significant adverse change to the technology employed by the entity, requiring significant investments in technology to adapt to the changes in the market.

Furthermore, stakeholders, such as investors, insurers, suppliers, lenders and customers are becoming more environmentally aware when making investment or purchasing decisions. They also factor in the exposure to certain industries. These developments could result in the presence of the following impairment indicators:

- The economic performance of an asset or CGU is likely to be worse than previously expected due to changes in customer preferences (e.g., competitors introducing more sustainable goods or services or a decline in customer demand for products that are non-biodegradable)

- Increase in general costs, for example when suppliers pass on higher costs, suppliers stop producing parts for certain assets, as well as increased maintenance costs due to physical impact of extreme weather events that may negatively impact the asset's or CGU's expected economic performance

- There is an increase in market interest rates or other market rates of return which are likely to affect the discount rate used in calculating an asset's or CGU's value in use. This, in turn, could decrease the asset's or CGU's recoverable amount materially. For example, an entity operating in an industry with high carbon emissions or high risk of flooding may face higher interest rates, or investors would require a higher rate of return to compensate for the increased risk they are exposed to from investing in such an entity. Whereas an entity operating in a 'green' industry may face lower interest rates, positively impacting their discount rate. A higher discount rate which reflects a higher risk specific to the asset or CGU would reduce the present value of the future cash flows and result in a lower value in use and vice versa.

- The carrying amount of the entity's net assets exceeds its market capitalisation. When investors are moving away from industries with high emissions, an entity's share price is likely to be negatively impacted, which could result in its market capitalisation dropping below the carrying amount of its net assets.

- There is an increase in insurance costs as insurers manage their risk exposure to environmental change by, for example, factoring in the increased probabilities associated with the physical impact of extreme weather events. In more extreme instances, the inability to obtain insurance may be an indicator that significant changes with an adverse effect on the entity have taken place regarding the extent to which, or manner in which, an asset is used or is expected to be used.

In addition, management needs to consider whether sustainability disclosures, such as those required by IFRS S1 and IFRS S2 *Climate-related Disclosures* (for example, material business risks as a result of climate change) in their directors' report or sustainability report could be considered an impairment indicator. In this context, it is important to consider whether the disclosures are qualitatively and/or quantitatively material, and to ensure there is consistency between these reports. For example, this could be done by disclosing how climate-related risk and opportunities disclosed in these reports are considered in the context of identifying impairment indicators and/or in the impairment assessment.

Entities should also reflect on how the current or anticipated financial effects of a climate-related risk or opportunity in the short, medium or long-term need to be considered in the cash flow forecast used for the impairment test. In some instances, climate-related risks or opportunities are considered as assumptions in the impairment test but have no quantitatively material impact. This raises questions about whether disclosure is needed to clarify why no impairment was accounted for if this could be considered qualitatively material. This was considered as part of the IASB's exposure draft, *Climate-Related Risks and Other Uncertainties in the Financial Statements*. Such an assessment would require significant judgement and depend on the facts and circumstances. See the IASB projects and IFRS Interpretations Committee discussions in the Overview of this publication.[20]

Finally, an entity's commitment to reduce its carbon footprint or more generally its impact on the environment, could indicate:

- Evidence of obsolescence of an asset. For example, an entity could look to abandon assets not compatible with its decarbonisation strategy.
- Significant changes in the extent, or manner, in which an asset is used or is expected to be used, have taken place in the period or soon after, that will have an adverse effect on it. For example, an entity could look at reducing certain activities to reduce its carbon footprint, its use of fossil fuels, or it could phase out assets with high energy consumption.

The asset's, or CGU's, operating costs can be negatively affected by the required offsetting of its greenhouse gas emissions or investments to reduce energy and/or water consumption.

This means that the sustainability commitments disclosed should equally be considered when assessing impairment indicators and, subsequently, in the impairment test itself (i.e., are the cash outflows needed to achieve these commitments considered).

ArcelorMittal SA described in its 2024 financial statements how it had considered the impact of climate change as part of its impairment assessment.

[20] *IFRS Developments*, Issue 230, *IASB proposes examples of climate-related and other uncertainties*, Available on ey.com/IFRS

Illustration 3-1 – ArcelorMittal SA – 2024 annual report (Steel manufacturing and extractive sectors)

5.3 Impairment of intangible assets, including goodwill, and tangible assets

The Company considered its exposure to certain climate-related risks which could affect its estimates of future cash flow projections applied for the determination of the recoverable amount of its GCGUs and CGUs. With the switch to electric vehicles and the move to wind and solar power generation, the Company sees also additional opportunities as customers deepen their understanding of embedded and lifecycle emissions of the materials where steel compares favorably.

The Company is committed to the objectives of the Paris agreement and announced its ambition to achieve group-wide carbon neutrality by 2050. These announced goals will require significant long-term investments which require global level playing field, access to abundant and affordable clean energy, facilitating necessary energy infrastructure, access to sustainable finance for low-emissions steelmaking and accelerated transition to a circular economy. In addition, the Company considered the legal obligation of carbon neutrality by 2050 effective within the EU and in Canada following adoption of the Climate Law and the Net Zero Emission Accountability Act, respectively. Accordingly, with respect to its flat steel operations in the EU and in Canada, ArcelorMittal concluded that future decarbonization capital expenditures, which correspond essentially to the construction of DRI-EAF facilities, are necessary to maintain the level of economic benefits expected to arise from the assets in their current condition and should therefore be included in the Company's assumptions for future cash flows of the recoverable amount of the respective GCGUs and CGUs. At the same time, the Company is engaged in developing in the near to medium term a range of innovative low-emission technologies for the transition to decarbonized steel and required investments are considered in the Company's future cash flow projections. ArcelorMittal acknowledges that CGUs and GCGUs applying the BF-BOF route in other jurisdictions than the EU and Canada will apply decarbonization at a different pace. They may also not yet be subject to a legal obligation of carbon neutrality, as a result of which the future estimated decarbonization cost for such operations is reflected through an additional risk premium embedded in discount rates until they are able to accelerate their decarbonization strategy to meet the 2050 carbon neutrality objective and a legal obligation arises in the relevant jurisdiction.

Illustration 3-1 – ArcelorMittal SA - 2024 annual report (Steel manufacturing and extractive sectors) (cont'd)

ArcelorMittal's most substantial climate-related policy risk is the EU Emissions Trading scheme ("ETS"), which applies to all its European plants. The risk concerns the Company's primary steelmaking plants which are exposed to this regulation. On April 25, 2023, the EU adopted a revision of the ETS Directive including a regulation establishing a carbon border adjustment mechanism ("CBAM") which entered into force on May 17, 2023. The ETS and CBAM regulations will impact the carbon emissions allowances from the second trading period of Phase IV (2026-2030) onwards as they will be gradually phased out (2.5% by 2026, 5% by 2027, 10% by 2028, 22.5% by 2029, 48.5% by 2030, 61% by 2031, 73.5% by 2032, 86% by 2033 and 100% by 2034). The Company's assumptions for future cash flows include an estimate for costs that the Company expects to incur to acquire emission allowances, which primarily impacts the flat steel operations in the EU under the ETS scheme and in Canada. The assumption for carbon emission cost is based on historical experience, implementation of decarbonization strategies to mitigate or otherwise offset such future costs and information available of future regulatory or operational changes. With respect to the EU ETS scheme, the assumption for carbon emission cost includes also the gradual phasing out of free emission allowances and the forecast market price of emission rights, for which the Company considered in its five-year cash flow projections internal estimates of 90€/t, 99€/t, 105€/t, 107€/t and 101€/t for 2025, 2026, 2027, 2028 and 2029, respectively.

Similarly, Rothschild & Co provides information on how it incorporates the climate risk in its impairment tests in its December 2024 Consolidated accounts.

Illustration 3-2 – Rothschild & Co - 2024 Consolidated accounts (Financial services sector - advisory, wealth and asset management)

8.2 Climate risk applied to the Group's accounts

8.2.1 Consideration of climate risk when testing for impairments of intangible assets and goodwill

When valuing its intangibles and CGUs, the Group mostly uses inputs such as discount rates, royalty rates and growth rates i perpetuity that are market-observed, and that therefore reflect current expectations of climate impacts. The impact of climate ris is not considered financially significant to the Group's accounts.

Unilever Plc, in its 2024 financial statements below, disclosed that the impact of climate change on the growth rates and projected cash flows was considered as part of its goodwill impairment testing:

Illustration 3-3 — Unilever Plc – 2024 annual report (Consumer goods sector)

Notes to the Consolidated Financial Statements Unilever Group

9. Goodwill and intangible assets

KEY ASSUMPTIONS

Projected cash flows include specific estimates for a period of five years. The growth rates and operating margins used to estimate cash flows for the five years are based on past performance and on the Group's three-year strategic plan, de-risked to ensure reasonability and extended to years four and five. The Group's three-year strategic plan factors in initiatives we are undertaking to reduce carbon emissions in line with our Climate Transition Action Plan (CTAP) and impacts of climate change on our operational costs. The growth rates used in this exercise for GCGUs and significant CGUs are set out below:

Active markets and identifying CGUs

IAS 36 stresses the significance of an active market for the output of an asset or group of assets in identifying a CGU. An active market is a market in which transactions for the asset or liability take place with sufficient frequency and volume to provide pricing information on an ongoing basis. If there is an active market for the output produced by an asset or group of assets, the assets concerned are identified as a CGU, even if some or all of the output is used internally.

In the context of an entity's transition to a low carbon economy, an entity discloses in its sustainability report that it makes significant investments in energy generating assets (for example, solar panels or a windfarm) for internal use only, and the investment decision may be focused on internal cost savings (i.e., substituting the electricity bought from the market). However, where an active market exists for electricity, the entity needs to assess its ability to access the active market to sell its electricity in determining whether the (group of) assets (for example the solar panels or windfarm) should be identified as a separate CGU (i.e., not included in the operational CGU that intends to consume most of the energy produced).

Determining the recoverable amount

Entities should consider the statement in IAS 36 that greater weight is given to external evidence when factoring in environmental change.

IAS 36 defines the recoverable amount as the higher of fair value less costs of disposal and value in use. When the recoverable amount is based on value in use and, therefore, requires an estimation of future cash flows, IAS 36 requires that the entity's cash flow projections are based on reasonable and supportable assumptions that represent management's best estimate of the range of economic conditions that will exist over the remaining useful life of the asset. When doing so, an entity would need to take into account various elements and aspects of risk, which may be dealt with either as adjustments to the discount rate or to the cash flows. These elements include expectations about possible variations in the amount or timing, and other factors market participants would reflect in pricing the future cash flows the entity expects to derive from the asset, as well as the price for bearing the uncertainty inherent in the asset/CGU. With the general uncertainty about the impact of climate change and limited

availability of historical information to assess assumptions against, significant challenges are expected when preparing the forecast or budgets for future cash flows.

Variations in amount or timing of cash flows

Factoring in environmental change, means the need to address significant uncertainties about the future impact, which is beyond an entity's control, and requires incorporating data which may not have been incorporated in the past. As a result of the adoption of sustainability reporting requirements, data which may not have been available in the past, now needs to be collected and reported. The methodology applied, key assumptions made, and resulting cash flows might need to be updated in order to ensure consistency with this data.

In addition, entities cannot ignore external evidence and should consider the statement in IAS 36[21] that greater weight is given to external evidence. The best information available to the entity should be used, and the entities' own data should be adjusted if "reasonably available information indicates that other market participants would use different data or there is something particular to the entity that is not available to other market participants such as an entity-specific synergy". For example, entities could use projected energy prices, commodity prices or carbon prices (refer to the example in Illustration 3-12 below). Where such prices are disclosed in the sustainability report, there is an expectation that consistent assumptions are used for impairment testing, where needed. Incorporating projected prices is complex and requires significant judgement of, among others, the relevant timeframe and the climate change scenario used. Forecasts for commodity prices could, for instance, be obtained from commodity brokers or some banks. Whereas the spot carbon price of the relevant markets could be a starting point for carbon pricing. Alternatively, entities can start with the downscaled scenarios for carbon pricing provided by the Network for Greening the Financial System (NGFS), International Energy Agency (IEA), and the World Economic Outlook (WEO). Judgement will be required to determine the appropriate source for the industry, market and jurisdictions in which the entity operates.

When the inputs for the cash flow forecast have been determined, the next consideration is the extent to which an entity is able to pass these costs on to customers, which depends on the specific contract and the price elasticity in the market.

Beach Energy Limited disclose in its 2024 financial statements below how it considered the impact of climate change and factored carbon pricing into their impairment assessment.

[21] See IAS 36. 33(a) regarding the measurement of value in use. Also, see section 5 of this publication for the determination of fair value in relation to the measurement of fair value less costs of disposal.

Illustration 3-4 – Beach Energy Limited – 2024 annual report (Oil and gas sector)

9. Petroleum assets (continued)

Future cash flow information used for the recoverable amount calculations is based on the Group's latest reserves, budget, five-year plan and economic life of field plans which includes information sourced and reviewed from operators of our non-operated interests.

The impact of the Safeguard Mechanism through either a carbon price or earning of SMCs on Beach facilities depending on emissions relative to their baseline and the earning of ACCUs on Beach's interest in the Moomba carbon capture and storage project have been included as part of the recoverable amount calculations for each CGU where applicable. The actual and proposed investments required to deliver the Group's emissions target of a 35% emissions intensity reduction by 2030 (against 2018 levels) for Scope 1 emissions and the target of <0.2% methane emissions intensity by 2025 as well as the ability to pass through any carbon costs incurred to customers are also included as part of the recoverable amount calculations for each applicable CGU. Beach continues to monitor the uncertainty around climate change risks and will reassess its assumptions as the energy transition progresses.

Current climate change legislation is also factored into the calculation and future uncertainty around climate change risks continue to be monitored. These risks may include a proportion of a CGU's reserves becoming incapable of extraction in an economically viable fashion; demand for the Group's products decreasing, due to policy, regulatory (including carbon pricing mechanisms), legal, technological, market or societal responses to climate change and physical impacts related to acute risks resulting from increased severity of extreme weather events, and those related to chronic risks resulting from longer-term changes in climate patterns.

Inclusion of future investments

It is key to understand whether the investment is required to continue operating the assets and, therefore, would be akin to maintenance.

Another aspect to consider is how investments in fixed assets need to be considered in a cash flow forecast used to determine the recoverable amount of an asset or CGU. Where entities disclose future capital investments (for example, in renewable energy sources, cooling technologies or carbon capture and storage projects) as part of their mitigation and adaption efforts in their sustainability report, these investments might also need to be considered in the context of the cash flow forecasts.

When assessing fair value less costs of disposal, these investments should be reflected, if a market participant would make such investments. However, when assessing the CGU's value in use, the requirements in IAS 36 are more prescriptive. Future cash flows are estimated for the asset in its current condition and do not include estimated future cash inflows or outflows that are expected to arise from future restructuring to which an entity is not yet committed or that improve the asset's performance. This raises the question to what extent such cash flows should be included where an entity is trying

either to achieve certain sustainability targets or to cut their greenhouse gas emissions, which would require capital investments. It is key to understand whether the investment is required to continue operating the assets and, therefore, would be akin to maintenance (that is, necessary to maintain the level of economic benefits expected to arise from its current operations). In contrast, if such capital investments were to, in effect, represent improvements or enhancements to the asset (for example, substantially replacing the existing assets with different assets), they are only included when the entity is committed to, or has substantively commenced, the investment. For example, is disclosing a pathway or a commitment to becoming net zero by a certain date deemed sufficient to include both the cash inflows and outflows associated with this in the value in use? This requires judgement depending on the facts and circumstances.

Example 3-1: Are cash flows classified as maintenance capital expenditure or growth capital expenditure in a cash flow forecast used to determine the value in use?

Scenario 1

Entity X operates a plant and needs to replace the filter in the plant's chimney every 5 years to comply with legislation. If Entity X does not replace the filter every five years, it will incur significant penalties under the legislation and ultimately be suspended as long as they are in breach of the legislation. Consequently, Entity X needs to replace this filter every five years to continue their existing operations.

In this example, the cash outflows are more likely to be considered maintenance capital expenditure. That is, the cash outflows are necessary to maintain the level of economic benefits expected to arise from the Entity X's existing operations.

Scenario 2

Entity X operates a plant and needs to replace the filter in the plant's chimney every 5 years to comply with legislation. If Entity X does not replace the filter every five years, it will incur significant penalties under the legislation and ultimately be suspended as long as they are in breach of the legislation. Consequently, Entity X needs to replace this filter every five years to continue their existing operations.

Building on Scenario 1, instead of replacing the filter every five years, Entity X considers changing the chimney, to allow for the gas to be captured and converted into electricity. In addition to complying with the regulations, this would also be an additional revenue stream for Entity X.

In this scenario, the cash outflows are expected to be growth capital expenditure in nature as Entity X expects to expand their operations, rather than simply maintain the current level of economic benefits expected to arise from its operations.

Scenario 3

Assume the same facts as in Scenario 1, but now, in addition to replacing the filter every five years, Entity X replaces the filter earlier if filters that would significantly reduce its emissions become available, enhancing Entity X's performance. Entity X has not committed to more regular replacements at the reporting period end.

Example 3-1: Are cash flows classified as maintenance capital expenditure or growth capital expenditure in a cash flow forecast used to determine the value in use? (cont'd)

Whether cash outflows are maintenance capital expenditure or growth capital expenditure in nature is more judgemental in this example and depends on the entity-specific facts and circumstances. Entity X considers question such as:

- Is the cash outflow a direct consequence of a regulation in force (i.e., legally required for the entity to continue to operate its business in the future)?
- What is the economic impact of not changing (e.g., penalties, loss of market access or suspension of operations)?
- Are the cash outflows necessary to maintain the level of economic benefits expected to arise from its current operations? How does the future capacity compare to the current capacity?
- Has the nature of the entity's output changed?
- Have the production or delivery processes changed?
- How significant are the changes to the current condition of the affected assets? To what extent do they represent the replacement of components of the asset (i.e., part of the day-to-day servicing of the asset)?

The questions above are intended to help assess the extent to which the capital expenditure is necessary to maintain the level of economic benefits expected to arise from its current operations. Hence, it is important to consider whether the entity is compelled to invest in order to continue to operate or whether it is a business decision. Generally, it is expected that, in the absence of an external force to change, the more transformative the change, the more likely it would indicate the cash expenditure to be a growth capital expenditure.

These questions are non-exhaustive. For example, depending on what the output is, it may need to be considered whether capital expenditure has the potential to change whether there is an active market, as discussed above, for the output before and/or after. The change could also impact the unit of account or determination of the CGU.

In addition, the assumptions about the future, and other major sources of estimation uncertainty at the end of the reporting period that have a significant risk of resulting in a material adjustment to the recoverable amount within the next financial year need to be disclosed

Illustration 3-1 demonstrates how ArcelorMittal determined which of their capital expenditure projections to include (or exclude) to determine the recoverable amount of their CGUs and group of CGUs.

Inclusion of insurance proceeds

Where an asset is damaged due to climate change (e.g., flooding, bushfires, etc.), IAS 36 considers this physical damage as an indicator of impairment. As a second step, some replacement or repair of the asset meets the definition of maintenance expenditure that is included in the future cash flows.

How we see it

We believe in this case that any related insurance recoveries should also be included in the future cash flows, in the event that this relates to the repair or replacement of the damaged asset and the inclusion of such amounts in the impairment test is based on reasonable and supportable assumptions that represent management's best estimate of the range of economic conditions that will exist over the remaining useful life of the asset.

For simplicity, the following example assumes that the insurance proceeds equal the costs to repair the damage. In practice, this may not be the case and would impact the accounting outcome reflected here.

Example 3-2: Insurance recovery for damage incurred

Directors' report - Material business risks

The entity's operating facility is located in an area prone to flooding, which could significantly damage the asset. To manage this exposure, the entity enters into insurance contracts.

Financial statements – Impairment

The entity has a 31 December 202X financial year end. In November 202X, the entity's operating facility was physically damaged due to a flood. The carrying value of the operating facility was reduced following the derecognition of the damaged components. Although the entity has insurance covering the damage, at 31 December 202X, it was not virtually certain this would be received (e.g., subject to the insurer accepting the claim). Therefore, the entity has not recognised an insurance receivable.

Management identified the impact of the flooding as an impairment indicator and used a value in use to determine the recoverable amount. For impairment testing purposes, management determined the operating facility does not generate largely independent cash inflows from other production assets. Hence, the impairment test is performed at the level of the whole production site, being the smallest identifiable CGU.

The cash flow forecast considered the impact of flooding by:

- increasing insurance premiums,
- expense to repair damage caused to bring the asset back into the same state as before the damage (i.e., not enhancing the asset), and
- insurance recovery.

And are based on reasonable and supportable assumptions that represent management's best estimate of the range of economic conditions that will exist over the remaining useful life of the operating facility.

When the entity repairs the operating facility, it capitalises expenses in accordance with IAS 16. Once the entity becomes virtually certain of being reimbursed by the insurer, it recognises a receivable in accordance with IAS 37.

At the next reporting period end, the entity again identifies impairment indicators and performs an impairment test. The carrying value of the CGU containing the operating facility increased because of the capitalisation of the replacement components. This decreases the recoverable amount, because the cash inflows from the insurance proceeds are no longer included

in the cashflow forecast as they were received and recognised as a receivable. If consequently the recoverable value of the CGU has reduced below its carrying value, an impairment expense needs to be recognised.

Due to the complexity and significant degree of uncertainty surrounding probable physical risk in the future, entities might need to probability weight different scenarios in determining the recoverable amount. There is an expectation that these would be consistent with the scenarios disclosed in accordance with the sustainability reporting requirements. This is illustrated in Example 3-3 below.

Example 3-3: Insurance recovery for probable damage in the future

Sustainability report - Material business risks

The sustainability report for the 31 December 202X financial year end describes how the entity's operating facility is located in an area prone to flooding, which could cause significant damage to the asset. In contrast to Example 3-1, during the financial year, no flooding occurred. However, there is the expectation that a flooding event could take place every two to three years. To manage the expected financial exposure from this, the entity enters into insurance contracts.

Financial statements – Impairment

Due to climate change, Management expects there to be an increase in the frequency and magnitude of flooding in the area the entity operates. This is expected to increase the probability of damage to the operating facility and disrupt the entity's operation. Management identified this as an impairment indicator. Management considers there is a 10% probability of flooding occurring every year, a 50% probability of flooding occurring every two years, a 35% probability of flooding occurring every five years, and a 5% probability of flooding not occurring.

To determine the recoverable amount, a value in use calculation was performed based on probability weighted forecasted cashflows for each of the four scenarios. As the number of flooding events increases in the different scenarios:

- the cash outflows for insurance premiums increases,
- the cash outflows to repair damage caused to the operating facility to bring it back into the same state as before the damage (i.e., not enhancing the operating facility) increases, and
- the cash inflow of insurance recovery increases, although the portion of the damage covered decreases as a result of an increased excess (i.e., co-contribution).

Each of the scenarios and the assigned probability is based on reasonable and supportable assumptions that represent Management's best estimate of the range of economic and environmental conditions that will exist over the remaining useful life of the operating facility.

Since this involves significant judgement, the entity discloses the key assumptions used and a sensitivity analysis showing the possible impact of a reasonably possible change in these assumptions.

Where significant uncertainty and judgement exists, an expected cash flow approach, based on probability-weighted scenarios, may be more appropriate.

In addition to insurance covering damage to assets, entities could also have business interruption insurance, which would be considered similarly.

Use of multiple scenarios

Significant uncertainty and judgement also arise when considering how different scenarios of environmental change may materialise, for instance, the speed of decarbonisation and the extent to which the average global temperature is increasing. With sustainability reporting resulting in more detailed disclosure of an entity's forecasted greenhouse gas emissions pathways, scenarios and decarbonisation strategy, connectivity between the disclosures in the sustainability report and the financial statements becomes more important. Where significant uncertainty and judgement exists, an expected cash flow approach, based on probability-weighted scenarios, may be more appropriate than a single best estimate for determining value in use (see the example in Illustration 3-4 below). In practice, this could mean probability weighting scenarios (i.e., worst case, base case and best case), as well as factoring in different pricing curves. Even where a probability-weighted scenario approach is used, an entity would still need to consider adjusting the discount rate for the general uncertainties and risks not reflected in the cash flows. Scenario analyses will be particularly relevant for highly impacted industries, such as extractives and manufacturing industries. Industries impacted to a lesser extent, could instead consider incorporating the exposure from environmental change through the discount rate and perform sensitivity analysis. For fair value considerations, see section 5 below.

Tesco Plc described how it probability-weighted its cash flow forecasts and considered climate change scenarios in its 2024 annual financial statements:

Illustration 3-5 – Tesco Plc – 2024 annual report (Retail sector)

Note 14 Impairment of non-current assets

Value in use
Retail

The Group applies an expected cash flow approach by probability-weighting different cash flow scenarios. The greatest probability weighting is applied to the cash flows derived from the three-year internal forecasts. One downside scenario takes account of the risks presented by ongoing geopolitical and global supply issues triggering further inflation, leading to weak consumer confidence and intensified competition. A second downside scenario takes account of climate change impacts. These are consistent with the viability statement scenarios (see the Longer term viability statement in the Strategic report). The viability statement scenarios reflect 'severe but plausible' risks, to which management applies probability weightings in order to reflect management's best estimate of future economic conditions. There is also an upside scenario which assumes a moderate outperformance of the three-year internal forecasts.

In addition to the climate change scenario included within the probability-weighted cash flows, the Group incorporates other climate change related assumptions into the impairment modelling, including, but not limited to, investments in technology to aid the Group's net zero commitments, the costs associated with replacing end-of-life assets with more environmentally-friendly alternatives, and assumptions over the cash flow profile of the Group's fuel business.

In contrast to Tesco Plc, Eni SpA did not apply multiple climate risk-related scenarios to determine its future expected cash flows, but rather described how the discount rate of future expected cash flows included a market risk premium estimated by management to reflect the risks of the energy transition in its 2024 annual financial statements.

Illustration 3-6 — Eni SpA - 2024 annual report (Oil and gas sector)

15 Reversals (Impairments) of tangible and intangible assets and right-of-use assets. Sensitivity of outcomes to decarbonization scenarios

The discount rate of the future cash flows of the CGUs was estimated as the weighted average cost of equity (Ke) and net borrowings, based on the Capital Asset Pricing Model methodology. The cost of equity considers both a premium for the non-diversifiable market risk measured on the basis of the long-term returns of the S&P500, and an additional premium that considers exposure to operational risks of the countries of activity and the risks of the energy transition. For 2024, a Group cost of capital ("WACC") of approximately 6% was estimated and was slightly lower than in 2023 due to a lower market risk premium and reduced yields on risk-free assets. The Group WACC is adjusted to account for the specific operational risks of each geography against the average portfolio, where oil & gas activities are conducted, by adding a corrective factor (WACC adjusted on a country-by-country basis).

An entity's operations and/or assets can be exposed to physical risks, such as flooding, drought, heatwaves and bushfires. Typically, challenges due to the expected timing, frequency and magnitude of climate-relate risks manifesting over longer timeframes are typically more significant for assets with longer remaining useful lives. This increases the complexity and degree of uncertainty to consider. Therefore, entities may need to use multiple scenarios to assess the probability of physical risks occurring.

In addition, entities need to disclose information about the assumptions they make about the future, and other major sources of estimation uncertainty with a significant risk of resulting in a material adjustment to the assets' carrying amounts within the next financial year. These assumptions are expected to be consistent with those disclosed in the sustainability report.

Downer EDI described how physical risks were considered in its 2024 annual financial statements:

Illustration 3-7 — Downer EDI Limited - 2024 annual report (Service provider)

C7. Intangible assets

Impact of climate change

The Group's approach to Environmental, Social and Governance (ESG) risks including those related to climate change is discussed in Downer's Climate Statement contained in the 2024 Sustainability Report.

For impairment assessment the Group has assessed the following:

- Physical risks to Downer's non-current assets, including key sites and locations, arise from events such as extreme heat, and increased frequency and severity of bushfires and flooding. The Group estimates physical climate change impact, principally due to flooding, to be immaterial to the Group's future cash flows. Whilst prolonged periods of wet weather can impact short-term prospects, the assessment indicates Downer is resilient to physical risks due to the Group operating across multiple industries and diverse locations, insurance coverage and contract pass through mechanisms.

BHP described how potential physical risks were considered in its 2024 annual financial statements:

Illustration 3-8 — BHP Group Limited – 2024 annual report (Extractive sector)

Notes to the Financial Statements

16 Climate change

Physical climate-related risks and asset carrying values

The Group's operations are exposed to physical climate-related risks. In FY2024, the Group continued to progress studies of physical climate-related risks to better understand the potential impacts on safety, productivity and cost, with the work to continue in FY2025.

The studies consider potential impacts of acute and chronic risks from material climate hazards, which differ based on an operated asset's geographic region, asset infrastructure and operational processes. The studies are ongoing and therefore the Group's consideration of physical climate-related risks, including factors such as potential operational interruptions caused by extreme weather events, therefore includes only the Group's current best estimates of related potential financial impacts.

Given the complexity of physical climate-related risk modelling and the status of the Group's ongoing physical risk assessment process, the identification of additional risks and/or the detailed development of the Group's response may result in material changes to financial results and the carrying values of assets and liabilities in future reporting periods.

Key estimates, assumptions and judgements

Key assumptions are those to which the asset's, or CGU's, recoverable amount are most sensitive. We believe that entities should give particular attention to assumptions with the potential to result in a material adjustment within the next financial year, as those would be captured by disclosure requirements in IAS 1. To determine key assumptions to disclose under IAS 36, consideration could be given to:

- The size of the CGU's carrying amount
- The subjectivity or complexity of the judgements to determining the assumptions
- The degree in which new information and/or new developments can materially affect the recoverable amount
- The sensitivity of changes in the assumptions

In the light of climate change, examples of key assumptions to consider include:

- Sales prices, including competitive pricing strategies, inflation expectations, effects of technological advancements, evolving consumer preferences
- Input costs, including changes in raw material costs, key costs (such as labour and energy), economies of scale, cost-saving initiatives

- Inclusion of and expected return from future climate-related investments (research and development and/or early replacement of less sustainable production equipment) in the future cash flows that are necessary to maintain the level of economic benefits expected to arise from the group of assets (i.e., they would need to close the business if they would not make those investments), see Illustration 3-1 and "Inclusion of future investments" in Section 3.2 above
- Assumptions related to the determination of the discount rate (often derived from the weighted average cost of capital), including the criteria to determine the peers (for example, their progress in reaching carbon neutrality)
- The probabilities of different possible transition paths towards a carbon neutral economy on the entity's operations (e.g., whether carbon prices should reflect alignment with the Paris Agreement, effects of expected market disruptions due to sustainable innovations)

South 32 Limited described the key estimates, assumptions and judgements regarding how extreme weather events were considered in its 2024 annual financial statements:

Illustration 3-9 – South 32 Limited – 2024 annual report (Extractive sector)

2. Basis of preparation continued

(c) Key estimates, assumptions and judgements

Physical impacts of climate change

The Group's operations are located in regions that may experience climate-related extremes, including but not limited to, extreme temperatures, bushfires, tropical cyclones, flooding and/or droughts. The Group has performed a baseline risk assessment of the physical impacts of climate change on its operated portfolio, with the assessment based on scenarios RCP4.5 and RCP8.5 as described by the Intergovernmental Panel on Climate Change (IPCC)[2].

Longer term assets (including those that move into closure) are likely to face more significant challenges due to the expected severity of climate risks manifesting over longer timeframes. Climate change is likely to exacerbate the risks to water supply, storage and usage that we currently manage, particularly for operations in areas of water scarcity and other sensitive environmental aspects.

Risks associated with the physical impacts of climate change are contemplated during the development of our life of operation plans (including closure estimates) and additional capital costs and/or increases to operating costs are incorporated into our forward-looking estimates when deemed appropriate. The Group's ongoing analysis of reasonable alternative assumptions with respect to future climate conditions has not identified any additional indicator that the carrying value of assets cannot be recovered or that useful lives of assets will be shortened.

The Group's key estimates, assumptions and judgements with respect to the physical impacts of climate change are based on the Group's expectations and assessments as at the date of this report, and actual results may differ. The high degree of uncertainty around the nature, timing and magnitude of weather events and long-term changes in climate patterns, as well as the Group's continued physical risk assessment process and the development of its direct adaptation strategies, may result in material changes to financial results and the carrying value of assets and liabilities in future reporting periods.

Period of reliable cash flow projections

Due to climate change, or climate-related risks, some entities might experience significant difficulties in preparing future cash flow projections beyond the next few years.

As a result of the significant uncertainty outside an entity's control, the period for which reliable cash flow projections are available and the impact of climate change or climate-related risks on the growth rate applied to the last year of cash flow forecast needs careful consideration. While IAS 36 states that cash flow projections for value in use must cover a maximum period of five years, it allows for a longer period if it can be justified. Due to climate change or climate-related risks, some entities may experience significant difficulties in preparing future cash flow projections beyond the next few years. Basing the extrapolation of longer-term cash flows on the short-term cash flow forecasts may also raise challenging questions. Other entities could be required to forecast longer before calculating a terminal value, or adjust their terminal

value, and some may even find that the cash flow projections should be made for the full remaining estimated useful life of the asset or CGU.

Terminal value

Entities significantly exposed to climate-related risks will have to assess the impact on the growth rate applied and might even need to consider negative growth rates.

Value in use for many long-term assets will mainly be driven by the terminal value and, therefore, by the level of cash flows in the final year of cash flow projections and the growth rate applied to it. As such, it is important to ensure that the final year of the cash flow forecast represents a sustainable level, also reflecting climate-related aspects. For example, the climate-related risks and opportunities that could reasonably be expected to affect the entity's cash flows, access to finance or cost of capital over the medium and/or long term disclosed in its sustainability report are expected to be considered in determining the terminal value. If final year of the cash flow forecast does not represent a sustainable level, adjustments to reflect future expenditure to address the impact of climate-related risks may be required (see the above discussion on the inclusion of future investments). It is important to ensure that the growth rate applied is appropriate and that it considers the impact of climate-related matters. IAS 36 requires the application of a steady or declining growth rate, unless an increasing rate can be justified. Entities significantly exposed to climate change risk will have to assess the impact on the growth rate applied and might even need to consider negative growth rates. Furthermore, determining the terminal value may become particularly challenging when different growth rates need to be considered depending on the time passed.

In the illustration below, Enel SpA disclosed in its 2024 annual financial statements how it took into account the impact of climate-related risks in the long term in the impairment test, and, in particular, the impact these risks have on the terminal value and the growth rate assumed.

Illustration 3-10 – Enel SpA - 2024 annual report (Energy sector)

22. Goodwill – *€12,850 million*

Note also that the Group has used sensitivity analysis to take account of the impacts of climate change in the long term. More specifically:

- we consider a perpetual long-term growth rate for cash flows after the explicit period that is in line with the change in electricity demand over the 2026-2050 period, based on the specific features of the businesses concerned, adopting certain assumptions concerning the increase in temperature due to climate change and trends connected with the energy transition;
- we consider changes in the hydroelectric, wind and photovoltaic generation levels of our portfolio assets, associated with each projection of underlying climate variables (for example, temperature, irradiance, wind speed and precipitation);
- we assume that the Group will incur the costs provisioned for decommissioning fossil fuel generation plants in line with the goal of zero direct (Scope 1) and indirect emissions from retail activities (Scope 3).

Shell Plc, in its 2024 annual financial statements, referred to a number of external climate change scenarios and disclosed the sensitivity of carrying amounts to prices under the assumption that all other factors in the models used to calculate recoverability of carrying amounts remain unchanged.

Illustration 3-11 – Shell Plc – 2024 annual report (Oil and gas sector)

4. Climate change and energy transition

Price sensitivities using climate pricelines

As noted, in accordance with IFRS, Shell's financial statements are based on reasonable and supportable assumptions that represent management's current best estimate of the range of economic conditions that may exist in the foreseeable future. The mid-price outlook informed by Shell's scenario planning represents management's best estimate. A change of -10% or +10% to the mid-price outlook, as an average percentage over the whole life cycle of assets, would result in around $5-9 billion (2023: $5-8 billion) impairment or $2-5 billion (2023: $2-5 billion) impairment reversal respectively in Integrated Gas and Upstream (see Note 13).

The energy transition will continue to bring volatility and there is significant uncertainty as to how commodity prices will develop over the next decades. Some pricelines see a structurally lower price during the transition period, while other pricelines see structurally higher commodity prices as a result of changes in supply and demand. As the risk of stranded assets is prevalent with downside price risk in energy transition scenarios, sensitivities have only been undertaken for such downside scenarios. If different price outlooks from external and often normative climate change scenarios were used, this would impact the recoverability of certain assets recognised in the Consolidated Balance Sheet as at December 31, 2024. These external scenarios are not representative of management's mid-price reasonable best estimate.

Sensitivity of carrying value to commodity prices described below is under the assumption that all other factors in the models used – such as cost levels, volumes, mid-price CO_2 assumptions and the discount rate – to calculate recoverability of carrying value remains unchanged. Sensitivity testing has been performed by applying the alternative commodity price scenarios to cash flows for the whole period until the end of life of the assets tested, which may extend beyond the Operating Plan period. The alternative commodity prices were applied in the local cash flow models and thereafter aggregated by segment. Changes to commodity prices are applied because of the significant impact on Shell's business. It should be noted that a significant decrease in long-term forecasted commodity prices would probably lead to further changes, such as in portfolio choices and cost levels.

Sensitivity to changes in commodity prices in value in use calculations has been tested as follows:
Priceline 1 – Average prices from three 1.5-2°C external climate change scenarios: in view of the broad range of price outlooks across the various scenarios, the average of three external price outlooks was taken.

- **IHS Markit/ACCS 2024** – under this scenario oil prices (real terms 2024 (RT24)) decrease from $110 per barrel (/b) in 2025 to around $100/b in 2026-2027. From 2028 prices gradually decrease from $50/b towards $31/b in 2037, gradually recovering to $92/b in 2048 with a subsequent decrease towards $90/b in 2050. Gas prices (RT24) are around $3 per million British thermal units (/MMBtu) until 2042 and gradually increase towards $4/MMBtu until 2050 for Henry Hub. For Europe, prices decrease from $10/MMBtu in 2025 towards around $4/MMBtu in 2032, with a subsequent increase to some $5/MMBtu until 2050. For Asia, prices decrease from $11/MMBtu in 2025 towards around $6/MMBtu in 2033, and gradually increase towards $7/MMBtu until 2050.
- **Woodmac WM AET-1.5 degree** – under this scenario oil prices (RT24) gradually decrease from $64/b in 2025 towards $28/b in 2050. Gas prices (RT24) increase from $3/MMBtu in 2025 towards around $4/MMBtu until 2035, staying on that level until 2050 for Henry Hub. For Europe, gas prices (RT24) decrease gradually from around $13/MMBtu in 2025 to some $6/MMBtu in 2030, then gradually increase towards $9/MMBtu in 2035 and subsequently decrease towards $6/MMBtu in 2050. For Asia, gas prices decrease from $14/MMBtu in 2025 to $7/MMBtu in 2030, subsequently increasing to $10/MMBtu around 2036 and subsequently decreasing towards $7/MMBtu in 2050.
- **IEA NZE50** – under this scenario oil prices (RT24) gradually decrease from $72/b in 2025 towards some $26/b in 2050. Gas prices (RT24) decrease from some $3/MMBtu in 2025 to around $2/MMBtu until 2050 for Henry Hub. For Europe and Asia, gas prices (RT24) decrease from some $10/MMBtu and $11/MMBtu respectively in 2025 to some $4/MMBtu in 2050 for Europe and $5/MMBtu around 2030, for Asia staying at that level until 2050.

This average priceline provides an external view of the development of commodity prices under 1.5-2°C external climate change scenarios over the whole period under review.

Applying this priceline to Integrated Gas assets of $74 billion (2023: $72 billion) and Upstream assets of $77 billion (2023: $84 billion) as at December 31, 2024, shows recoverable amounts that are $11-15 billion (2023: $12-16 billion) and $1-3 billion (2023: $3-5 billion) lower, respectively, than the carrying value as at December 31, 2024.

Priceline–2 - Hybrid Shell Plan and IEA NZE50: this priceline applies Shell's mid-price outlook for the first 10 years (see Note 13). Because of the greater uncertainty for the period after 10 years, the International Energy Agency (IEA) normative Net Zero Emissions scenario is applied. This gives less weight to the price-risk uncertainty in the first 10 years reflected in the Operating Plan period and applies more risk to the more uncertain subsequent periods.

Applying this priceline to Integrated Gas assets of $74 billion (2023: $72 billion) and Upstream assets of $77 billion (2023: $84 billion) as at December 31, 2024, shows recoverable amounts that are $7–10 billion (2023: $8-10 billion) and up to $1 billion (2023: $1-3 billion) lower, respectively, than the carrying value as at December 31, 2024.

Priceline–3 - IEA NZE50: this priceline applies the International Energy Agency normative Net Zero Emissions by 2050 (IEA NZE50) scenario over the whole period under review. This priceline has been applied in order to also reflect the sensitivity to a pure net-zero emissions scenario from the IEA.

Applying this priceline to Integrated Gas assets of $74 billion (2023: $72 billion) and Upstream assets of $77 billion (2023: $84 billion) as at December 31, 2024, shows recoverable amounts that are $21-27 billion (2023: $15-20 billion) and $5-7 billion (2023: $3-5 billion) lower, respectively, than the carrying value as at December 31, 2024. For Integrated Gas the change in sensitivity compared with 2023 is largely driven by lower oil and Asia gas prices applied in sensitivity testing for the whole period under review.

Disclosures

Entities should disclose how climate-related risks and opportunities have been translated into assumptions and how they are reflected in the impairment test.

Where entities use significant assumptions and judgements to reflect the climate risk in their impairment test, this should be reflected in the disclosures. Similarly, an entity's disclosure in its sustainability report needs to be considered when assessing the qualitative and quantitative significance of assumptions, judgements and estimates. It is important to disclose how climate-related risks and opportunities have translated into assumptions and how they are reflected in the impairment test, or alternatively, why they have not been considered. For example, entities committed to meet the Paris Agreement target of net-zero emissions by 2050 might disclose how this translated into assumptions about pricing of commodities, levies, forced decommissioning of assets, divestments of businesses, etc. This would help

users understand the interaction between what the entity discloses in their financial statements and other sections of the annual report, such as the sustainability report or press releases. Refer to Section 1 above for further discussion on disclosures.

The effects of published ambitions in terms of climate change on financial reporting were addressed by Coles Group Limited in its 2024 annual financial statements, in which the entity stated that it had not identified any impairment as a result of climate-related risks.

Illustration 3-12 — Coles Group Limited – 2024 annual report (Retail sector)

4.1 Impairment of non-financial assets

Forecast future cash flows

Forecast future cash flows are based on the Group's latest Board approved internal five-year forecasts and reflect management's best estimate of income, expenses, capital expenditure and cash flows for each asset or CGU. Internal forecasts have considered the ongoing impacts of the cost of living on income and expenses. Changes in selling prices and direct costs are based on past experience and management's expectation of future changes in the markets in which the Group operates.

Climate-related risks were considered in assessing the potential financial impacts of climate change on the Group's CGU impairment testing through the inclusion of committed initiatives. This review did not indicate any impairment due to the available headroom in each of the Group's CGUs and scenario anaysis. Management will continue to monitor and assess the financial impact of climate-related risk.

When calculating the FVLCOD of an asset or CGU, future forecast cash flows also incorporate reasonably available market participant assumptions such as enhancement capital expenditure.

A sensitivity analysis can be useful to explain the impact of a reasonably possible change in the key inputs used on the headroom, or the change in key assumptions required to cause an impairment. In this context, consideration is given to, for example, how the terminal value is sensitive to the successful completion of future investments that are included in the cash flow projections, changes to the cost of raw materials and the discount rate applied. Entities are required to provide a sensitivity analysis for each cash-generating unit or group of units for which the carrying amount of goodwill or intangible assets with indefinite useful lives allocated to that unit or group of units is significant. This disclosure is made if a reasonably possible change in a key assumption used to determine the CGU's recoverable amount would cause its carrying amount to exceed its recoverable amount. Consistent scenarios and assumptions are expected to be used for the sensitivity analysis and for sustainability reporting, where appropriate.

How we see it

- The extent to which certain assets, processes or activities will be impacted by climate-related business requirements and how climate-related risks and opportunities will affect an entity's forward-looking information, such as cash flow projections in the prognosis period, may require significant judgement.
- Entities should consider what information users rely on in assessing the entity's exposure to climate-related risks.

4. Provisions, contingent liabilities and contingent assets

4.1 What is the issue?

IAS 37 *Provisions, Contingent Liabilities and Contingent Assets* requires a provision to be recognised when an entity has a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation, and a reliable estimate can be made of the obligation. At the same time, IAS 37 does not allow an entity to recognise a provision for future operating losses.

Except in the case of an onerous contract, the amount required to be recognised as a provision is the best estimate of the expenditure required to settle the present obligation at the end of the reporting period. In the case of an onerous contract, the amount required to be recognised as a provision is not based on an estimate of an expected outcome. Instead, the provision reflects the lower of the costs of fulfilling the contract and any compensation or penalties from a failure to fulfil it (regardless of what the entity expects to do).

If any of the conditions for recognition are not met, no provision is recognised and an entity may instead have a contingent liability. Contingent liabilities are not recognised, but explanatory disclosures are required, unless the possibility of an outflow in settlement is remote.

IAS 37 requires disclosures to enable users to understand the nature, timing and amount of provisions and contingent liabilities. For both provisions and contingent liabilities, this includes an indication of the uncertainties relating to the amount or timing of any outflow.

On 12 November 2024, the IASB published an exposure draft, *Provisions — Targeted Improvements*, setting out proposals for three improvements to IAS 37. Any resulting amendments are expected to replace IFRIC 21 *Levies*.

The first aspect of IAS 37 that the IASB proposes improving is one of its three criteria for recognising a provision — the requirement in paragraph 14(a) of IAS 37 that an entity needs to recognise a provision only if it has a present obligation as a result of a past event. The proposal would revise the present obligation recognition criterion such that it is met when three distinct conditions (obligation, transfer and past-event conditions) are fulfilled. In addition, the IASB has proposed updating the definition of a liability in IAS 37 and the wording of the present obligation recognition criterion to align with the *Conceptual Framework*.

The IASB's second proposed amendment to IAS 37 would require the measure of a long-term provision to be discounted to its present value using a rate that reflects the time value of money and "the risks specific to the liability". Under the IASB proposal, IAS 37 would specify that the discount rate excludes non-performance risk and require additional disclosures.

Thirdly, the IASB proposed clarifying that the types of costs an entity includes when measuring a provision are the same as those it uses to identify whether a contract is onerous.

The exposure draft also proposes changes to the *Guidance on implementing IAS 37* to add, or revise, examples illustrating the proposed requirements, including new examples in the context of climate-related matters (e.g., net zero commitments).

The comment period ended on 12 March 2025 and, at the time of writing, the IASB was discussing the feedback received and the project's direction.[22]

4.2 What is the impact?

Actions to address the consequences of climate change may result in the recognition of new liabilities or the disclosure of new contingent liabilities.

As entities take action to address the consequences of climate change, these actions may result in the recognition of new liabilities or, where the criteria for recognition are not met, new contingent liabilities may have to be disclosed.

In particular, entities should consider the following in assessing the impact of climate on provisions and contingent liabilities.

New laws or regulations

Legislation introduced in response to climate change may give rise to new obligations that did not exist previously. For example, new requirements could be introduced for the recycling or removal of products, such as the first EU Directive on 'Waste Electrical and Electronic Equipment in 2003.[23] If a new law is proposed but not yet enacted, an obligation arises only when the legislation is virtually certain to be enacted as drafted.[24] In many jurisdictions, this will not be until the law is enacted.

Legal requirements to incur expenditure in order to operate in a particular way in the future will not, in themselves, justify the recognition of a provision if there is no present obligation to incur the future expenditure, as illustrated in Example 4-1 below.

Example 4-1: Legal requirement to incur future expenditure

Under legislation passed in 2024, an entity is required to replace gas heating systems in all owned properties with hydrogen or other low-carbon alternatives by 30 June 2028. The company does not start to replace its heating systems until 2029.

At the end of the 2025, 2026 and 2027 reporting periods, no event has taken place to create an obligation. Only when the heating systems are replaced or the legislation takes effect, will there be a present obligation as a result of a past event.

Non-compliance with the legislation by the due date (that is, 30 June 2028) does not mean that there is an obligating event to justify provision for the cost of replacing heating systems required under the legislation. However, a provision would be recognised for the best estimate of any fines and penalties if it is determined to be more likely than not that such fines and penalties will be imposed.

[22] Project page: *Provisions—Targeted Improvements*, IFRS Foundation website, accessed 14 April 2025.

[23] IFRIC 6 *Liabilities arising from Participating in a Specific Market – Waste Electrical and Electronic Equipment* was developed to provide guidance on identifying the obligating event for recognition of a provision in accordance with paragraph 14(a) of IAS 37. However, it was the existing guidance in IAS 37 that required recognition of a provision where there is a past obligating event, and a probable outflow of resources that could be reliably measured.

[24] Refer to IAS 37.50.

In addition, new levies may be introduced by governments to encourage (or discourage) specified activities, for example, an environmental tax charged on the energy that businesses use. Applying the guidance in IFRIC 21, the activity that creates the obligation under the relevant legislation to pay the levy is the obligating event for the purposes of the recognition of a provision, in this case the consumption of energy.

Constructive obligations

Entities should assess whether public commitments create a constructive obligation.

An entity may make a public commitment to behave in a certain way or undertake certain activities in response to climate change. Such an entity must assess whether they have created a constructive obligation that requires recognition of a provision. Under IAS 37, only those obligations arising from past events that exist independently of an entity's future actions can be recognised as a provision.

Entities worldwide have been declaring their commitment to be net-zero for greenhouse gas emissions in the future. Disclosed net-zero commitments might simply establish the premise of greenhouse gas emissions reductions with no details provided on the route to reach any goals. Others might provide details of short- or medium-term plans. Even entities make similar statements, the impact on financial statements can vary significantly.

In November 2023,[25] the IFRS Interpretations Committee (the Committee) discussed a submission related to climate-related (net-zero) commitments made by an entity. The Committee discussed in detail the IAS 37 requirements with regards to the existence of constructive obligations. It noted that determining whether the entity has created a valid expectation will depend on the facts of the commitment and the circumstances surrounding it. Therefore, management needs to apply judgement to reach a conclusion. If those facts or circumstances change over time, the conclusion could do so as well. The Committee discussed several factors, which are not exhaustive, that entities should consider in their analysis, such as:

- What language is used in the statement? If statements describe the actions an entity 'will take', 'is committed to taking' or 'pledges to take', they are more likely to indicate that an entity will fulfil the commitment than statements that describe the entity's 'ambitions', 'targets' or 'aspirations'
- What is the specificity and status of plans supporting the statement? Statements are more likely to raise a valid expectation that the entity will achieve its greenhouse gas emission reductions target if they are supported by formally-approved plans detailing, for example:
  - The nature and timing of the actions an entity will take to achieve the reductions
  - Milestones an entity has committed to achieve on the path to longer-term goals
  - How management will measure progress towards the milestones and longer-term goals (for example, the metrics an entity will use)

[25] *IFRIC Update, March 2024*

- What is the expected timing of the actions required to fulfil the commitment? Plans for short- and medium-term actions are less likely to be changed than those for longer-term actions
- Is evidence of progress to date publicly available? Evidence that an entity has achieved milestones it committed to in previous statements may enhance expectations that it will achieve milestones and longer-term goals it currently declares to commit to in its statement. Conversely, evidence that an entity has failed to achieve previous milestones may reduce those expectations

While such statements indicate to the public that an entity has accepted responsibility for reducing or removing greenhouse gas emissions, it does not automatically mean that a provision can, or must, be recognised. Rather, the financial reporting consequences and the applicable requirements in IFRS will depend on the planned actions. For example, an entity that plans to replace certain assets with low-emitting ones will need to consider whether, or when, it has a capital commitment under IAS 16. Retiring existing assets could affect both impairment assessments and reassessments of useful life. In some cases, while called a 'commitment', the planned actions might be subject to change without penalty or contingent on future events; they might also be covered by other liabilities, such as decommissioning provisions.

The timing of an entity's actions is particularly relevant when considering the existence of a constructive obligation. The Standard suggests, in paragraph 74, that for an announced plan to give rise to a constructive obligation, its implementation needs to be planned to begin as soon as possible and to be completed in a timeframe that makes significant changes to the plan unlikely. Any extended period before commencement of implementation, or if the restructuring will take an unreasonably long time, will mean that recognition of a provision is premature, because the entity still has a chance to change its plan.

Therefore, understanding the specific planned actions underlying the entity's net-zero commitment is crucial to the appropriate application of IFRS accounting standards. If the entity's actions are to be accounted for under IAS 37 (for example, if the entity determines it will need to pay penalty), it is important to determine the existence of present obligation, which may trigger recognition of a provision. IAS 37 requires the existence of present obligation in order to recognise any liability. A past event can lead to a present obligation only if "the entity has no realistic alternative to settling the obligation created by the event".[26] In its discussion, the Committee observed that "... just as the enactment of a law is not sufficient to give an entity a present legal obligation, the publication of a policy or statement is not sufficient to give an entity a present constructive obligation — an entity has a present legal or constructive obligation only when the event to which the law, policy or statement applies has occurred. For example, as illustrated in Illustrative Example 2B accompanying IAS 37, an entity with a widely published policy of cleaning up land it contaminates incurs a present obligation only when it contaminates land

[26] IAS 37.17.

– publishing the policy is necessary but not sufficient to give the entity a present obligation.

In explaining the requirement for a present obligation, paragraph 18 of IAS 37 states that 'no provision is recognised for costs that need to be incurred to operate in the future' and paragraph 19 of IAS 37 states that "it is only those obligations arising from past events existing independently of an entity's future actions (ie the future conduct of its business) that are recognised as provisions..."[27]

In the context of climate-related (net-zero) commitments, the Committee noted that:

- When the entity publishes a climate-related (net-zero) commitment that requires future action (e.g., modifying its manufacturing methods, purchasing and retiring carbon credits in the future), the related costs need to be incurred to operate in the future. The obligations to incur those costs do not exist independently of the entity's future actions. Accordingly, there is no present obligation for those costs, when the entity publishes its commitment.
- An entity will have a present obligation for the modifications to its manufacturing methods once it has to pay for resources it purchases to modify its methods – for example, to pay for new plant or equipment or for renewable energy – but only when it receives those resources. Similarly, in case of commitment to offset greenhouse gas emissions, the entity will have a present obligation only when the entity emits the gases it has committed to offset.

Since an entity's specific plans are key to appropriately accounting for net-zero commitments, entities need to consider including appropriate explanatory disclosures to assist users of financial statements to understand the impact.

Since an entity's specific plans are key to appropriately accounting for net-zero commitments, entities need to consider including appropriate explanatory disclosures to assist users of financial statements to understand the impact. . Furthermore, entities should be careful to ensure that clear language is used in describing their aspirations, targets and intended actions in response to the climate change challenge. For example, a reader may have difficulty understanding the extent to which the entity can realistically withdraw from a course of action described in its transition plan.

In its note to 2024 financial statements, Vale S.A. states that it assessed its decarbonization goals and concluded that no provision should be recognised in line with IAS 37 criteria with that regards.

Illustration 4-1 – Vale S.A. - 2024 Financial Statements (Mining sector)

4. Climate-related financial information

The Company evaluated its decarbonization targets by analyzing the criteria for recognition of provision according to IAS 37 – Provisions, Contingent Liabilities and Contingent Assets. There is no provision as of December 31, 2024 because the target does not represent a present obligation for the Company.

[27] *IFRIC Update*, March 2024

Decommissioning and asset retirement obligations

Climate-related risks, and any associated legislation, may require past judgements to be reconsidered.

Provisions may not have previously been recognised for the decommissioning costs of assets such as coal, or oil and gas plants, because they were considered to have indefinite useful lives. Climate-related risks, and any associated legislation, may require this judgement to be reconsidered and new decommissioning provisions recognised, or new contingent liabilities disclosed, as Shell Plc disclosed in its 2022 annual financial statements.

Illustration 4-2 —Shell Plc - 2022 annual report (Oil and gas sector)

31. Legal proceedings and other contingencies

Decommissioning and restoration of manufacturing facilities

Prior to 2020, in line with industry practice, Shell's policy had been not to recognise decommissioning and restoration provisions associated with manufacturing facilities in Oil Products and Chemicals. This was on the basis that these assets were considered to have indefinite lives and, therefore, that it was considered remote that an outflow of economic benefits would be required.

In 2020, the changed macroeconomic fundamentals were considered, together with Shell's plans to rationalise the Group's manufacturing portfolio. It was also reconsidered whether it remained appropriate not to recognise decommissioning and restoration provisions for manufacturing facilities.

It was concluded that the assumption of indefinite lives for manufacturing facilities was no longer appropriate, and the need for either recognition of decommissioning and restoration provisions or contingent liability disclosure was reviewed. In 2020, provisions had been recognised for certain shorter-lived manufacturing facilities, but for the remaining longer-lived facilities, where decommissioning would generally be more than 50 years away, it was concluded that, while there is a present obligation that has arisen from past events, the amount of the obligation cannot be measured with sufficient reliability. This conclusion was reached on the basis that the settlement dates are indeterminate; and that other estimates, such as extremely long-term discount rates for which there is no observable measure, are not reliable. Consequently, a decommissioning and restoration obligation exists that cannot be recognised or quantified and that is disclosed as a contingent liability.

Given the inherent uncertainty related to climate change, entities may also need to perform, and disclose, a sensitivity analysis of the impact of possible scenarios. In its 2024 financial statements, Equinor ASA provided a sensitivity analysis regarding its asset retirement obligation by quantifying the financial statement impact if it were to perform removals five years earlier then currently scheduled.

Illustration 4-3 — Equinor ASA – 2024 annual report (Oil and gas sector)

Note 3. Climate change and energy transition

Timing of Asset Retirement Obligations (ARO)

As mentioned above, there are currently no assets triggered for earlier cessation as a result of Equinor's ambitions in the Energy transition plan However, if the business cases of Equinor's producing oil and gas assets should change materially, this could affect the timing of cessation of the assets. A shorter production period will increase the carrying value of the liability. To illustrate, performing removal five years earlier than currently scheduled would increase the liability by around USD 1.1 billion before tax and excluding held for sale assets (around USD 1.2 billion in 2023), which is mainly related to E&P Norway. See note 23 Provisions and other liabilities for more information regarding Equinor's ARO, including expected timing of cash outflows of recognised asset retirement obligations. The most significant cash outflows are expected between 2035-2039.

As well as creating new decommissioning obligations for entities, climate-related risks or any related legislation could also result in earlier decommissioning. This would result in an increase to a previously recognised provision, as a result of the impact of discounting. The decommissioning component of the related PP&E asset would also increase as a result of the requirements of IFRIC 1. Changes in the estimated cost of decommissioning activities as a result of climate-related matters may also impact the measurement of existing decommissioning and asset retirement obligations as Rio Tinto Plc discussed in their 2024 annual financial statements.

Illustration 4-4 – Rio Tinto Plc - 2024 annual report (Extractive sector)

14 Close-down and restoration provisions

Impact of climate change on our business – close-down, restoration and environmental costs

The underlying costs for closure have been estimated with varying degrees of precision based on a function of the age of the underlying asset and proximity to closure. For assets within 10 years of closure, closure plans and cost estimates are supported by detailed studies which are refined as the closure date approaches. These closure studies consider climate change and plan for resilience to expected climate conditions with a particular focus on precipitation rates. For new developments, consideration of climate change and ultimate closure conditions are an important part of the approval process. For longer-lived assets, closure provisions are typically based on conceptual level studies that are refreshed at least every 5 years; these are evolving to incorporate greater consideration of forecast climate conditions at closure.

Closure cost composition as at 31 December	2024 US$m	2023 US$m
Decommissioning, decontamination and demolition	3,065	3,591
Closure and rehabilitation earthworks[a]	4,628	4,609
Long-term water management costs[b]	1,316	1,236
Post-closure monitoring and maintenance	1,581	1,806
Indirect costs, owners' costs and contingency[c]	5,141	5,908
Total	**15,731**	17,150

(a) A key component of earthworks rehabilitation involves re-landscaping the area disturbed by mining activities utilising largely diesel-powered heavy mobile equipment. In developing low-carbon solutions for our mobile fleet, this may include electrification of the vehicles during the mine life. The forecast cash flows for the heavy mobile equipment in the closure cost estimate are based on existing fuel sources. The cost incurred during closure could reduce if these activities are powered by renewable energy.

(b) Long-term water management relates to the post-closure treatment of water due to acid rock drainage and other environmental commitments and is an area of research and development focus for our Closure team. The cost of this water processing can continue for many years after the bulk earthworks and demolition activities have completed and are therefore exposed to long-term climate change. This could materially affect rates of precipitation and therefore change the volume of water requiring processing. It is not currently possible to forecast accurately the impact this could have on the closure provision as some of our locations could experience drier conditions whereas others could experience greater rainfall. A further consideration relates to the alternative commercial use for the processed water, which could support ultimate transfer of these costs to a third party.

(c) Indirect costs, owners' costs and contingency include adjustments to the underlying cash flows to align the closure provision with a central-case estimate. This excludes allowances for quantitative estimation uncertainties, which are allocated to the underlying cost driver and presented within the respective cost categories above.

Onerous contracts

Increased costs related to the use of new environmentally friendly materials or processes could mean that contracts previously expected to be profitable are now expected to be loss making. If determined to be onerous, a provision may be required for the least net cost of exiting from the contract, which is the lower of the cost of fulfilling it and any compensation or penalties arising from failure to fulfil it. However, if there are no fines or compensation payable on exiting the contract, no provision would be allowed, even if the entity chooses to honour the contract.

Climate change and any related legislative changes could mean that certain operations are no longer feasible.

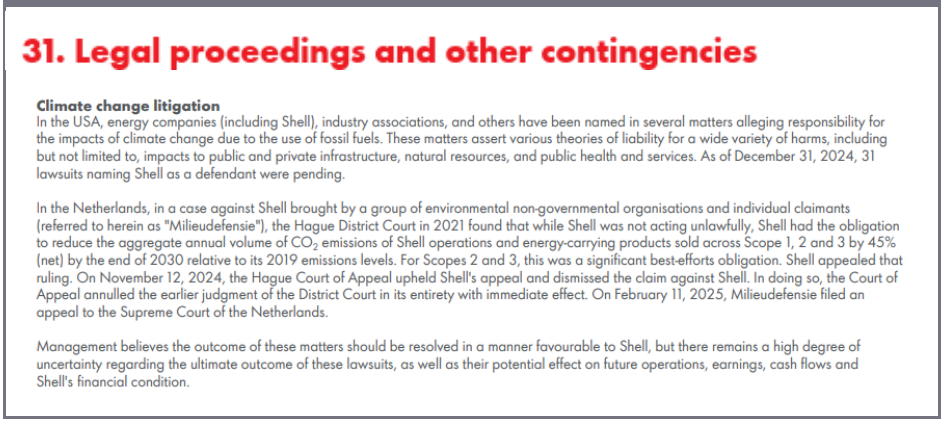
Business model

Climate change and any related legislative changes could mean that certain areas of current operations of an entity are no longer feasible in their current form, for example, operations related to drilling for oil, or building diesel engines. This might mean that contracted projects, or capital commitments are abandoned resulting in possible onerous contracts, or in more extreme cases, restructuring or closure of individual divisions or businesses. Entities will need to assess whether, and when, business model changes require the recognition of related restructuring provisions.

Legal claims

In most situations, assessing the need to provide for legal claims is one of the most difficult tasks in the field of provisioning. This is due mainly to the inherent uncertainty in the judicial process itself, which may be very long and drawn out. Whether an entity needs to make provision for the costs of settling a case or to meet any award given by a court will depend on a reasoned assessment of the particular circumstances, based on appropriate legal advice. Entities might expect lawsuits linked to climate-related matters to become more common in the future and the outcome more uncertain, as is discussed in the below disclosure made by Shell Plc in its 2024 annual financial statements.

Illustration 4-5 – Shell Plc - 2024 annual report (Oil and gas sector)



31. Legal proceedings and other contingencies

Climate change litigation
In the USA, energy companies (including Shell), industry associations, and others have been named in several matters alleging responsibility for the impacts of climate change due to the use of fossil fuels. These matters assert various theories of liability for a wide variety of harms, including but not limited to, impacts to public and private infrastructure, natural resources, and public health and services. As of December 31, 2024, 31 lawsuits naming Shell as a defendant were pending.

In the Netherlands, in a case against Shell brought by a group of environmental non-governmental organisations and individual claimants (referred to herein as "Milieudefensie"), the Hague District Court in 2021 found that while Shell was not acting unlawfully, Shell had the obligation to reduce the aggregate annual volume of CO_2 emissions of Shell operations and energy-carrying products sold across Scope 1, 2 and 3 by 45% (net) by the end of 2030 relative to its 2019 emissions levels. For Scopes 2 and 3, this was a significant best-efforts obligation. Shell appealed that ruling. On November 12, 2024, the Hague Court of Appeal upheld Shell's appeal and dismissed the claim against Shell. In doing so, the Court of Appeal annulled the earlier judgment of the District Court in its entirety with immediate effect. On February 11, 2025, Milieudefensie filed an appeal to the Supreme Court of the Netherlands.

Management believes the outcome of these matters should be resolved in a manner favourable to Shell, but there remains a high degree of uncertainty regarding the ultimate outcome of these lawsuits, as well as their potential effect on future operations, earnings, cash flows and Shell's financial condition.

New legislation related to climate change may also mean that outflows for existing legal claims become probable rather than possible, resulting in the need to recognise a provision, rather than disclose a contingent liability.

Disclosure

Where relevant, entities need to disclose how climate transition has been taken into account when accounting for provisions.

The timing and impact of the effects of climate change is uncertain. Entities will need to ensure that sufficient and appropriate disclosure allows users to understand those uncertainties and the assumptions and judgements made in recognising and measuring provisions. Where relevant, entities need to disclose how climate transition has been taken into account in the measurement of a provision or disclosure of a contingent liability, disclosure of the values assigned to key assumptions (such as the timing of decommissioning outflows), any material changes to key assumptions in the reporting period, the reason for the changes, and sensitivities of material climate-related provisions to changes in cost or timing assumptions. Refer to Section 1 for further discussion on disclosures.

How we see it

Climate-related matters have the potential to have a significant impact on the recognition and measurement of provisions, and the need for disclosure of contingent liabilities. However, under IAS 37, only those obligations arising from past events that exist independently of an entity's future actions shall be recognised as a provision.

Given the significant uncertainties involved in assessing the extent and impact of climate change, entities need to ensure that sufficient information is disclosed to allow users of financial statements to understand those uncertainties, how climate transition has been taken into account in the measurement of a provision or disclosure of a contingent liability, and the assumptions and judgements made by management in recognising and measuring provisions.

5. Fair value measurement

5.1 What is the issue?

IFRS 13 *Fair Value Measurement* defines fair value as an exit price and requires an entity to use the assumptions that market participants would use when pricing the asset or liability. Fair value is not the value specific to the reporting entity and it is not the specific value to one market participant whose risk assessment or specific synergies may differ from other market participants.

Since fair value focuses on what market participants in the principal (or most advantageous) market would consider when pricing the asset or liability, care is needed in determining whether, and to what extent, climate change might affect the assumptions used to measure fair value. This may include, for example, how market participants believe climate-related risks would affect the price of the asset or liability; the effect of restrictions imposed on assets in response to climate change (if it is a characteristic of the asset); and the highest and best use of a non-financial asset, which must be physically possible, legally permissible and financially feasible, and is presumed to be the entity's current use. Sustainability reporting disclosures might provide more information about an asset or liability and, therefore, affect what market participants would be willing to pay. However, determining the impact of that information on market participant assumptions, inputs and sensitivities, is likely to require significant judgement. For example, a 'green' building could command a rental premium, however, judgement would be required in determining whether the premium is due to the green qualities of the building or due to other factors such as the building's location, or both.

IFRS 13 requires an entity to prioritise the use of observable inputs over unobservable ones. This may be more challenging if risks are not yet priced in a market and would affect the categorisation of the fair value measurement (as a whole) within the fair value hierarchy. For example, providing climate information is expected to improve investor sentiment towards an entity, but the impact of that sentiment on the entity could be difficult to quantify.

Among other disclosure requirements, IFRS 13 requires entities to provide a narrative description of the sensitivity of recurring Level 3 fair value measurements to changes in the unobservable inputs used, if changing those inputs would significantly affect the fair value measurement. For financial instruments, further quantitative information is required about the effects of reasonably possible alternative assumptions.

5.2 What is the impact?

Measurement

Entities need to ensure that the fair value measurements appropriately consider relevant climate-related risk factors.

Entities should ensure that the relevant fair value measurements appropriately consider the relevant climate-related risk factors. Climate change can have a tangible effect on an entity's assets and liabilities now or in the future (e.g., rising water levels, changing weather patterns, increased pollution levels). The International Valuation Standards (issued by the International Valuation Standards Council) effective 31 January 2025 state that "The impact of significant [environmental, social and governance] factors should be considered in determining the value of a company, asset or liability." Environmental factors

include climate change, hence, integrating climate change into valuation methodologies may become customary. [28]

A government or entity's response to climate change may be known (e.g., changes to legislation or regulation, commitments to agreed targets or spending to mitigate effects of pollution) or only anticipated (e.g., potential changes in business models, changing behaviours of consumers, competitors, suppliers, lenders and investors). All of these could potentially affect the fair value of an asset or liability, whether the risk or opportunity is real or perceived.

IFRS 13 requires fair value to be measured consistent with the unit of account for the asset or liability being measured. Therefore, entities need to understand to which assets and/or liabilities climate-related factors are attributable, and ensure they do not double count or omit relevant factors. For example, anticipated increases in costs due to climate-related developments may affect the carrying value of an item of property, plant or equipment held by a mining company and also a related rehabilitation provision. However, when measuring the fair value an item of property, plant or equipment, the entity would need to consider only those inputs that market participants would consider relevant when pricing the asset.

If market participants would consider adjustments for the inherent risk of the asset or liability or for the risk in the valuation technique used to measure fair value (e.g., the valuation technique did not explicitly consider climate-related matters), then such risk adjustments should be considered in the fair value assumptions. For example, when estimating future cash flows for an investment property, climate change may affect assumptions such as the cost of energy, the rental income that is achievable from the property, the vacancy rates and expenditure on maintenance. However, despite the increased focus on climate-related factors, incorporating such factors into a fair value measurement may be particularly challenging and inputs might not be observable at this stage. In some cases, there might be no standard framework to measure, validate and monitor related programmes. In others, changes may be agreed in principle, but the timing may be unknown or subject to change. Even if the risk can be quantified and timing estimated, the market(s) and market participants might not yet know how to adjust for it in the price of the asset or liability. As a result, entities need to consider whether, and how, they can factor relevant climate-related risks into a fair value measurement.

The ability of market participants to reliably price climate risk and incorporate climate change variables into valuations is expected to gradually improve. This may be similar to the gradual process that market participants took when switching to overnight index swap (OIS) discounting from London interbank offering rate (LIBOR) discounting for collateralised derivatives.[29] During the transition period, entities may be required to exercise significant judgement to determine the appropriate market participant assumptions.

[28] *International Valuation Standards*, effective 31 January 2025, Red-line edition, p69. Available on the International Valuation Standards Council's website.

[29] There was a period of time during which only some market participants switched to using OIS discounting and others continued using LIBOR discounting.

When considering whether adjustments should be made in a fair value measurement, the following questions could be relevant:

- Have the market or market participants for the asset or liability changed?

  Entities may need to reassess who the market participants are, for example, with the gradual decline in demand for diesel, market participants may lose the ability to sell products in the diesel market and turn to alternative markets.

- Are market participants likely to incorporate climate change variables into the fair value measurement?

  An entity may consider the effect of climate change variables in its use, and value, of an asset, but if other market participants do not incorporate these variables in transactions, then it would be inappropriate to include them as inputs in an IFRS 13 fair value measurement.

- When using a proxy as part of the market approach, are climate change variables considered in the choice of the appropriate proxy?

  It is important that the chosen proxy displays similar exposure to climate risk factors as the item being valued. For example, when valuing an investment in an oil company, the equity valuation of an oil company that has invested heavily in developing a renewable energy product offering is likely to be impacted differently by climate risk factors than the equity valuation of a similar oil company that does not have a transition plan to develop its product offering. If using a proxy with different climate risk factors, an adjustment may be necessary.

- When using a proxy in measuring the credit valuation adjustments against less liquid uncollateralised derivative counterparties, are climate change variables considered when choosing the appropriate proxy?

  If there is no observable counterparty-specific credit spread and a proxy is used, the measurement of credit valuation adjustments might need to be adjusted when that counterparty is materially exposed to climate-related risks (provided the adjustment is consistent with those that market participants would make).

- Have any restrictions on the assets been considered? Have any restrictions been added or changed?

  If the restrictions are a characteristic of the asset being measured (as opposed to a characteristic of the entity itself), then the restrictions should be factored into the fair value measurement. For example, if a portion of a forest is restricted from harvest as part of a carbon capture scheme, this restriction would be considered since it does represent a characteristic of the asset being measured. Restrictions may change over time, for example, due to changes in legislation (e.g., requirements to phase out certain high-emitting vehicles) and need to be reassessed in the context of a fair value measurement.

When using the income approach (e.g., a discounted cash flow technique), the following questions could be relevant:

- Does the technique incorporate the impact of climate risk factors and, if so, to what extent?

  Entities need to check whether the projected cash flows and/or the discount rate factor in the existence of climate risk factors and are internally consistent. For example, for the equity valuation of an automotive company producing internal combustion engines (ICEs), it may not be appropriate to assume indefinite sales growth from ICEs in their cash flow projections given the regulatory risks that threaten the longevity of ICEs.

- Have any climate change risk factors been double counted?

  Double counting the risk in both the cash flow projection and discount rate should be avoided. Conversely, to the extent the risks are not adequately captured in the cash flows, then an adjustment to the discount factor may be warranted (provided the adjustment is consistent with adjustments that market participants would make).

For non-financial assets, the following questions could be relevant:

- Have developments in response to climate risk changed the entity's current use of the asset?

- Are there any indications that market participants have changed the use of similar assets?

- Is the asset positively or negatively affected by current and/or anticipated changes in the climate (e.g., rising water levels, changing weather patterns)?

- If the current use differs from its highest and best use, why?

  For stranded assets, for example, an entity may believe the value from their perspective is low (perhaps because it is not part of their future plans given their selected climate change transition business plans), IFRS 13 would consider the highest and best use from a market participant's perspective, which may result in a fair value measurement that is higher than when assuming the entity's current use.

Disclosure

Regardless of whether an entity can adjust for relevant risks in measuring fair value, disclosure of those risks and their potential effect will be important. In particular, users of financial statements will need to understand whether, and how, the relevant climate-related factors have been incorporated within the methodologies and inputs.

In instances where climate risk factors have a material impact on the fair value measurements, additional disclosures would be required, particularly for those categorised within Level 3 of the fair value hierarchy. This includes any changes in the valuation processes, and sensitivity to changes in unobservable inputs and the interrelationship of those inputs. Entities may need to consider whether additional information is needed to meet the disclosure objective in IFRS 13.

Should entities wish to convey more information (e.g., the entity's incorporation of climate-related factors for its own purposes, rather than financial reporting), entities need to consider whether disclosure within the financial statements is appropriate or it is better presented in the management's discussion and analysis (MD&A).

Illustration 5-1 below contains an example of disclosures that could be included in the financial statements. It represents an extract from the Mondi Plc 2024 annual financial statements, and shows, for a Level 3 fair value measurement, a description of the impacts of climate change on the relevant inputs into the fair value measurement. It highlights how climate-related factors (e.g., water scarcity, fire risks) affect the inputs that are considered by market participants and used in the fair value measurement.

Illustration 5-1 – Mondi Plc – 2024 annual report (Containers and packaging sector)

15 Forestry assets

The following assumptions have a significant impact on the valuation of the Group's forestry assets:

- The net selling price is defined as the selling price less the costs of transport, harvesting, extraction and loading, and all selling prices and costs are denominated in South African rand. The net selling price is based on third-party transactions and is influenced by the species, maturity profile and location of timber. In 2024, the net selling price used ranged from the South African rand equivalent of €15 per tonne to €58 per tonne (2023: €15 per tonne to €53 per tonne), with a weighted average of €32 per tonne (2023: €34 per tonne).
- The conversion factor, which is used to convert hectares of land under afforestation to tonnes of standing timber, is dependent on the species, the maturity profile of the timber, the geographic location and a variety of other environmental factors, such as the anticipated impact of climate change on water scarcity and fire risks. In 2024, the conversion factors ranged from 7.7 to 25.3 (2023: 7.6 to 25.0).
- The risk premium on immature timber of 12.6% (2023: 12.4%) is based on an assessment of the risks associated with forestry assets in South Africa and is applied for the years the immature timber has left to reach maturity. A risk premium on mature timber of 4.0% (2023: 4.0%) was applied. The risk premium applied to immature and mature timber includes factors for the anticipated impact of climate change on water scarcity and fire risks. An increase in the severity and frequency of extreme weather events, such as higher temperatures, changes in rainfall patterns and drought conditions, may result in higher timber losses in future years caused by stronger winds, erosion, fires, pests and diseases.

In the illustration below for Channel Infrastructure NZ Limited, the valuation of its Import Terminal System incorporates updated fuel demand forecasts reflecting the political commitment to net zero by 2050.

Illustration 5-2 — Channel Infrastructure NZ Limited - 2024 annual report (Fuel Infrastructure sector) - extract

Notes to the Consolidated Financial Statements - Note 9 Property, Plant and Equipment

Revaluation of the Import Terminal system

The Import Terminal System (ITS) was independently valued by Deloitte at 31 December 2024. The valuation, undertaken in accordance with NZ IAS 16 *Property, Plant and Equipment* and NZ IFRS 13 *Fair Value Measurement*, established a "fair value" based on the price a market participant could obtain from selling the asset in an orderly, well-structured competitive sales process, and includes the benefit from a higher tax depreciable value of property, plant and equipment for an acquirer. The net present value methodology was used to determine a market participants sales value. This approach values the assets of the ITS that are currently in operation and the land that the ITS occupies.

The fair value of the ITS excludes the unutilised land, the residual value of refining assets and the revenue from tanks that require additional growth capex as at the valuation date, including the 10-year jet fuel storage contract with Z Energy (announced in August 2024) and the contract to develop a bitumen import terminal for Higgins (announced in November 2024). The fair value was determined to be in the range of $1,069 million to $1,234 million, with a mid-point valuation of $1,145 million used for asset revaluation purposes. This valuation exceeded the carrying value of property, plant and equipment by $274 million which was recognised through the Statement of Comprehensive Income (Revaluation reserve). As a consequence of the revaluation, accumulated depreciation on the import terminal assets has been reset to nil.

The fair value of the ITS has increased since 31 December 2023 as a result of changes in the discount rate, and execution of the Company's strategy which has resulted in additional contracted storage revenue and changes in the terminal value methodology to reflect use of the ITS for future fuels storage and transportation.

Assumptions underpinning the ITS valuation

The key assumptions used in the ITS valuation are described below.

- **Fuel demand outlook.** Demand outlooks were formulated by Envisory, a third party oil and gas market expert, and are consistent with the outlook published on Channel's website (www.channelnz.com). This forecast is a revision of Envisory's (Hale & Twomey) forecast released in 2022, which was an input in the previous ITS valuation, updating for the political consensus to make progress towards net-zero emissions by 2050, updates to national fuels volume forecast, Channel's market share and Auckland Airport demand data. For the ITS valuation, the 2060 demand forecast is considered 'steady-state' with volumes assumed flat thereafter. The jet fuel forecast has the most significant impact on the valuation and the broadest range of forecast outcomes.
- **Import terminal fees.** Terminal fees were estimated based on the fuel demand outlooks, and the pricing that is consistent with Terminal Services Agreements ("TSA") and Contracted Storage Agreements agreed with the customers, and subject to a PPI escalation. Approximately 50% of Channel's current revenue is fixed and independent of fuel volume. The current TSA's are forecast to roll-over at the expire in August 2042. Each of the existing storage contracts are forecast to roll-over at their respective expiry, indexed at PPI. Contracted storage tanks that require additional growth capex as at the valuation date have not been included in the valuation.
- **Long term growth rate (PPI).** The long term inflation rate adopted in the ITS valuation is 2%.
- **Discount rate.** The nominal post-tax weighted average cost of capital was estimated to be in a range of 6.5% to 7.5%, with the mid-point estimate of 7.0% used in the ITS valuation.

Segro Plc described in its 2023 annual report how sustainability and environmental matters are considered in the valuation of real estate.

Illustration 5-3 — Segro Plc – 2024 annual report (Real estate sector)

25. Property Valuation Techniques, Sustainability and Climate Change Considerations and Related Quantitative Information

Sustainability valuation considerations

The Group's valuers, CBRE, note in their valuation report that the impact of sustainability factors on valuations have been considered. In a valuation context, 'sustainability' encompasses a wide range of physical, social, environmental, and economic factors that can affect value of an asset, even if not explicitly recognised. The valuers consider the following areas to have the most potential to impact on the value of an asset: Energy Performance; Green Certification; Sources of Fuel and Renewable Energy Sources and Physical Risk/Climate Risk. The valuers have considered in particular the EPC ratings and the appropriate capital expenditure which will be required to obtain the necessary EPC rating to attract and maintain the tenants required in the future. The valuers are also aware of the impact of flood risk and have noted the impact this has had on potential purchasers.

Climate risk legislation

The UK Government and the EU is currently producing legislation on the transition to net-zero. The UK Government is currently producing legislation which enforces the transition to net-zero by 2050, and the stated 78 per cent reduction of greenhouse gases by 2035. This is understood to include an update to the Minimum Energy Efficiency Standards, stated to increase the minimum requirements for non-domestic properties from an E to a B in 2030. The UK Government also intends to introduce an operational rating. It is not yet clear how this will be legislated, but fossil fuels used in buildings, such as natural gas for heating, are incompatible with the UK's commitment to be net-zero carbon by 2050. This upcoming legislation could have a potential impact to future asset value.

The introduction of mandatory climate-related disclosures in the UK and EU (including 'Task Force on Climate-related Financial Disclosures' (TCFD) in the UK and 'Sustainable Finance Disclosure Regulations' (SFDR) and 'Corporate Sustainability Reporting Directive' (CSRD) in the EU), including the assessment of physical and transition climate risks, may potentially have an impact on how the market views such risks and incorporates them into the sale and letting of assets.

Sustainability and climate risk legislation has an impact on the value of an asset, even if not explicitly recognised. Where the valuers recognise the value impacts of sustainability and legislation, they are reflecting their understanding of how market participants include sustainability and legislation requirements in their bids and the impact on market valuations.

How we see it

Entities need to ensure that any climate change variables incorporated in a fair value measurement are those that market participants would consider when pricing the asset or liability to ensure it is an IFRS 13 fair value measurement. More information about climate-related risks will be made available in future, including information disclosed outside the financial statements, for example, following the recent publication of IFRS S2 by the ISSB. Reliably pricing climate-related risk and incorporating climate change variables into valuations is expected to gradually improve.

Significant judgement may be needed when considering climate-related factors in fair value measurements, which might lead to greater estimation uncertainty. As a result, entities will need to provide sufficient transparency in their disclosures about the impact of climate-related risks on fair value measurements.

6. Financial instruments

6.1 What is the issue?

IFRS 9 *Financial instruments* requires entities to recognise expected credit losses (ECL) on financial assets measured at amortised cost and on debt assets measured at fair value through other comprehensive income, as well as on certain financial guarantees and loan commitments. Climate change may affect an entity's assessment of expected credit losses on these instruments, potentially leading to higher allowances for expected credit losses. The longer the term of the exposures and the greater the extent to which the counterparty is likely to be affected by climate change, the greater this effect is likely to be.

IFRS 9 also requires entities to classify and measure financial assets based on the business model in which they are held and their contractual terms. The assessment of contractual terms is particularly relevant for so-called 'sustainability-linked' loans or bonds, which are financial instruments that incentivise borrowers to achieve specific sustainability performance. These targets are typically related to environmental, social and governance (ESG) related criteria. Instruments with these features are becoming increasingly prevalent and the contingent rate adjustments inherent in them may introduce additional variability to the cash flows that is inconsistent with a basic lending arrangement, which would then result in failure of the solely payment of principal and interest (SPPI) test. This would result in the asset being classified as at fair value through profit or loss.

6.2 What is the impact?

Expected credit losses

A variety of adverse future climate risk economic scenarios could impact the probability of borrowers defaulting.

IFRS 9 requires use of forward-looking information to recognise expected credit losses. There is a variety of increasingly possible adverse future climate risk economic scenarios that could impact the probability of borrowers defaulting and the extent of losses that lenders may incur in the event of default. Climate-related risks are broadly categorised into physical and transition risks. Physical risks include the risk of loss due to specific weather events (such as storms or wildfires) and due to longer-term changes in weather trends (such as rising sea levels). Transition risks relate to the risk of financial loss due to the economic transition toward a more sustainable economy (such as the automative industry shifting from internal combustion engine vehicles to electric vehicles).

Physical risks can impact the creditworthiness of borrowers due to business interruption, impacts on economic strength, asset values and unemployment. Transition risks could also result in a rapid deterioration of credit quality in sectors and/or countries affected, particularly if policy changes are radical or quickly implemented, and these factors should be considered in a borrower's ability to repay and service debt.

From a credit risk perspective, physical and transition risks related to climate change could potentially impact:

- *Probability of Default* – This affects staging of exposures and the measurement of ECL allowances. Historical correlations that predict defaults may no longer be relevant. Methods for risk rating customers may, therefore, need to be updated as new financial and non-financial metrics capturing the impacts of climate change are made available. The impact of regulatory actions should also be considered.

- *Loss Given Default* – This affects the ultimate measurement of the ECL allowance. Physical and transition risks may affect collateral values, for example, on mortgage loans, and lead to entities employing different collection strategies for distressed debt.

- *Model adjustments* – Entities may make use of judgemental in-model or post-model adjustments to incorporate climate risk into their ECL allowances, particularly in the short term due to data and model limitations. Enhanced governance processes will be required to support these judgements.

- *Forward-looking information* – Entities may need to incorporate climate risk factors into their macroeconomic scenarios. The impact of climate risk on these scenarios is likely to be greater, the longer the duration of the underlying exposures and the greater an entity's exposure is to vulnerable sectors or geographies.

- *Concentration risk* – Climate risk is likely to increase risk exposures in vulnerable sectors or geographies. Sectors like agriculture and insurance may be particularly vulnerable to physical risks. Mining and oil and gas may be particularly exposed to transition risk. Some geographies such as those at low altitude or exposed to drought or flooding may be particularly exposed to physical risks. Changes in risk concentrations may affect the modelling of ECL allowances and the disclosure of credit risk concentrations.

Entities, particularly those with large credit risk exposures like banks, are in various stages of integrating climate-related risks into their risk frameworks, and there exist several challenges in this regard:

- Climate-related risks are uncertain, non-linear and pervasive

- There are multiple projections and scenarios available to estimate the size and impact of climate risk, but limited projections for economic and financial effects

- Data and projections available are not always comparable, given divergence in taxonomies and standards globally

- Entities need to collect new types of data on their customers and put in place new processes and governance

- Identifying the right metrics to measure climate risk exposure can be challenging

- Clarity or consensus on incorporating climate scenario analysis and into risk assessments is still emerging

Illustration 6-1 shows how National Australia Bank Limited considered its exposure to climate-related risks as part of its credit risk assessment in its 2023 annual financial statements. In this example, the exposure to ESG risks has been captured as part of a forward-looking adjustment.

Illustration 6-1 – National Australia Bank Limited- 2023 annual report (Financial services sector - banking)[30]

ESG risks

The Group is exposed to ESG and other emerging risks. The following items are examples of how these risks may impact the Group:

- Increases in the frequency and severity of climatic events could impact customers' ability to service their loans or the value of the collateral held to secure the loans.
- Action taken by governments, regulators and society more generally, to transition to a low-carbon economy, could impact the ability of some customers to generate long-term returns in a sustainable way or lead to certain assets being stranded in the future.
- Failure to comply with environmental and social legislation (emerging and current) may impact customers' ability to generate sustainable returns and service their loans.
- If in future customers don't hold appropriate levels of insurance for physical assets against certain risks, this may impact the value the Group can recover in the event of certain natural disasters.

The Group considers these risks as part of the credit risk assessment and due diligence process before relevant customers are granted credit and for new product development. The Group also manages its total credit portfolio within established risk appetite and limits, particularly for specific industries or regions that are more exposed to these types of risks. In addition, the Group may recognise FLAs to the provision for credit impairment for the impact of adverse climate events. In the 2022 financial year, the Group recognised a FLA of $14 million for the potential impact of the Lismore floods (2023: nil).

Illustration 6-2 shows how ABN AMRO Bank N.V accounted for the potential transition risk by including a management overlay in the ECL calculation in its Annual report.

Illustration 6-2 – ABN AMRO Bank N.V. - Integrated Annual Report 2024 (Financial services sector - banking)

Credit risk overview section

During 2024, management overlays decreased to a total of EUR 140 million (31 December 2023: EUR 260 million). Some of the management overlays were recorded for risks in corporate loans portfolios, where the impairments decreased from EUR 177 million to EUR 56 million. In 2024, the management overlays changed mainly due to:

[30] The provision was subsequently released during 2024, as a result of changes in circumstances, as disclosed in the Annual Reports and Accounts 2024.

Illustration 6-2 – ABN AMRO Bank N.V. - Integrated Annual Report 2024 (Financial services sector - banking) (cont'd)

- Discontinuation of the management overlay for geopolitical and market sensitivity (geopolitical risk). In combination with the changed macroeconomic scenario weights, revised forecasts for macroeconomic variables, and credit risk assessments at both the sectorial and individual levels, we captured the current geopolitical risks in our modelled loan impairment calculations. The decommissioning resulted in a release of EUR 86 million.
- The existing overlays, which cover potential additional risk costs relating to the wind-down of portfolios, decreased over the year by EUR 23 million.
- The overlays that are in place for climate transition risk decreased by EUR 6 million to EUR 19 million, based on the updated materiality impact assessment.
- The overlay that is in place for the potential impact of the government's nitrogen reducing measures on clients in livestock farming businesses in the Netherlands decreased slightly from EUR 35 million to EUR 29 million.

In its 2024 Annual report, UBS Group disclosed the impact of sustainability and climate risk on the measurement of ECL. As shown in Illustration 6-3, while the impact was not material, the reasons for this outcome were disclosed.

Illustration 6-3 – UBS Group AG - 2024 annual report (Financial services sector - banking and wealth management)

Note 20 Expected credit loss measurement

Sustainability and climate risk

Sustainability and climate risk may negatively affect clients or portfolios due to direct or indirect transition costs, or exposure to chronic and acute physical risks in locations likely to be impacted by climate change. Such effects could lead to a deterioration in credit worthiness, which in turn would have an impact on ECLs.

While some macroeconomic indicators used in the current PD models could be influenced by climate change, UBS currently does not use a specific sustainability and climate risk scenario in addition to the typically four general economic scenarios applied to derive the weighted-average ECL. The rationale for the approach at this point in time is the significance of model risks and challenges in calibration and probability weight assessments given the paucity of data.

Instead, UBS focuses on the process of vetting clients and business transactions, where both physical and transition risks for selected sensitive portfolios use internally developed, counterparty level, climate assessment models. This review process may lead to a downward revision of the counterparty's credit rating, or the adoption of risk mitigating actions, impacting the individual contribution to ECLs.

At the portfolio level, UBS has started to use stress loss assumptions to assess the extent to which sustainability and climate risk may affect the quality of the loans extended to small and medium-sized entities (SMEs), large corporate clients and financial institutions.

The tests used were based on a set of assumptions and methodologies from a mainstream leading climate model vendor and complemented by the Network for Greening the Financial System (the NGFS) (2023) climate pathway scenarios. Such analysis undertaken during 2024 as part of a regulatory climate scenario analysis exercise mandated by FINMA concluded that the counterparties are not expected to be significantly impacted by physical or transition risks, mainly as there are no material risk concentrations in high-risk sectors. The analysis of the corporate loan book has also shown that any potential significant impacts from transition costs or physical risks would materialize over a time horizon that exceeds in most cases the contractual lifetime of the underlying assets. The analysis and its results are also subject to challenges in model assumptions, calibration and heightened model uncertainty, as are other climate models in the novel discipline of climate risk modeling. Based on current internal modeling exercises, this conclusion holds for the portfolio of private clients with mortgages and the portfolio of real estate financing.

As a result of the aforementioned factors, it was assessed that the magnitude of any impact of sustainability and climate risk on the weighted-average ECL would not be material as of 31 December 2024. Therefore, no specific post-model adjustment was made in this regard.

- **Refer to "Sustainability and climate risk" in the "Risk management and control" section of this report**
- **Refer to "Our focus on sustainability" in the "Our strategy, business model and environment" section of this report**
- **Refer to the "UBS Group AG consolidated supplemental disclosures required under SEC regulations" section of this report for more information about the maturity profile of UBS's core loan book**

It is important to note that the factors outlined here need to be considered by any entity that holds financial assets that are in the scope of the IFRS 9 impairment requirements - this includes financial institutions, as well as corporates. For example, Illustration 6-4 discloses how Rolls-Royce considered the impact of potentially vulnerable sectors when estimating ECL.

Illustration 6-4 – Rolls-Royce Holdings PLC - Annual Report 2024 (Civil aerospace and defence sectors)

1 Accounting policies

Climate change

Useful lives of assets – The useful lives of property, plant and equipment and right-of-use assets could be reduced by climate-related matters, for example, as a result of physical risks, obsolescence or legal restrictions. The change in useful lives would have a direct impact on the amount of depreciation or amortisation recognised each year from the date of reassessment. The Directors' review of useful lives has taken into consideration the impacts of the Group's decarbonisation strategy and has not had a material impact on the results for the year. The Directors have also considered the remaining useful economics lives of material intangible assets, including the £2,001m and £632m capitalised development spend associated with the Trent and business aviation programmes disclosed in note 9. Given the measures the Group is taking, including demonstration that all the commercial aero-engines and 80% of the portfolio in Power Systems are compatible with alternative and sustainable fuels, the Directors judge that no adjustment is required to the useful economic lives.

Inventory valuation – Climate-related matters may affect the value of inventories as a result of a decline in selling prices or could become obsolete due to a reduction in demand. After consideration of the typical stock-turns of the inventory in relation to the rate of change in the market the Directors consider that inventory is appropriately valued.

Recoverability of trade receivables and contract assets – The impact of climate-related matters could have an impact on the Group's customers in the future, especially those customers in the Civil Aerospace business. No material climate-related issues have arisen during the year that have impacted the assessment of the recoverability of receivables. The Group's expected credit loss (ECL) provision uses credit ratings which inherently will include the market's assessment of the climate change impact on credit risk of the counter parties. Given the maturity time of trade receivables and the majority of contract assets, climate change is unlikely to cause a material increase on counter party credit risk in that time.

How we see it

The impact of climate risk on an entity's ECL calculations is likely to be greater the longer the duration of the underlying exposures and the greater the entity's exposure to vulnerable sectors or geographies. Given the judgemental nature of incorporating climate-related risks into ECL calculations, it is important that entities establish strong governance processes to support material judgements that they make in this regard, and that there are enhanced disclosures made about the risks and the impact significant judgements and estimation uncertainty.

Sustainability-linked (ESG-linked) financial assets

Careful analysis of the terms of sustainability-linked financial assets is required to assess whether they meet the SPPI test.

Sustainability-linked (ESG-linked) financial assets, such as loans and bonds, are structured such that their interest rates vary based on whether the borrower achieves pre-determined targets defined in the loan agreement. For example, the terms may include a reduction or increase in the interest rate if the borrower does, or does not, attain a certain rating on a type of green-building rating system for an agreed number of the borrower's manufacturing buildings. These contingent rate adjustments introduce variability to the cash flows of the financial asset which is linked to the underlying performance of the borrower. This may not be consistent with a basic lending arrangement.

In a basic lending arrangement, consideration for the time value of money and credit risk are typically the most significant elements of interest, however, in practice there could be other elements included. Contractual terms that introduce exposure to risks, or volatility in the contractual cash flows, that are unrelated to a basic lending arrangement, (e.g., exposure to changes in equity prices or commodity prices), do not give rise to contractual cash flows that are SPPI.

How we see it

There is no bright line to determine whether sustainability-linked features cause a financial asset to fail the SPPI test. Therefore, analysis of the terms of these instruments is required. It is important to consider whether they provide commensurate compensation for basic lending risks, such as credit risk, or whether they introduce compensation for new risks that are inconsistent with basic lending arrangements. Some features may be *de minimis* or non-genuine, and judgement will be needed based on the facts and circumstances.

In May 2024, the IASB issued narrow-scope amendments to the classification and measurement requirements for financial instruments, providing further guidance relevant to the SPPI assessment and disclosure of sustainability-linked features. Illustration 6-5 contains an extract from NatWest Group Plc's 2024 annual financial statements which gives an example of the judgements and considerations made when classifying sustainability-linked loans.

Illustration 6-5 — NatWest Group Plc – 2024annual report (Financial services sector - banking)

9 Financial instruments - classification

Financial instruments are contracts that give rise to a financial asset of one entity and a corresponding financial liability or equity instrument of a counterparty entity, such as cash, derivatives, loans, deposits and settlement balances. This note presents financial instruments classified in accordance with IFRS 9 – Financial Instruments.

Judgement: classification of financial assets

Classification of financial assets between amortised cost and fair value through other comprehensive income requires a degree of judgement in respect of business models and contractual cashflows.

- The business model criteria is assessed at a portfolio level to determine whether assets are classified as held to collect or held to collect and sell. Information that is considered in determining the applicable business model includes: the portfolio's policies and objectives; how the performance and risks of the portfolio are managed, evaluated and reported to management; and the frequency, volume and timing of sales in prior periods, sales expectation for future periods, and the reasons for sales.
- The contractual cash flow characteristics of financial assets are assessed with reference to whether the cash flows represent solely payments of principal and interest (SPPI). A level of judgement is made in assessing terms that could change the contractual cash flows so that it would not meet the condition for SPPI, including contingent and leverage features, non-recourse arrangements and features that could modify the time value of money.

For accounting policy information refer to Accounting policies 3.8, 3.9 and 3.11.

We originate loans that include features that change the contractual cash flows based on the borrower meeting certain contractually specified environmental, social and governance (ESG) targets. These are known as ESG-linked, or sustainability-linked, loans. As part of the terms of these loans, the contractual interest rate is reduced or increased if the borrower meets, or fails to meet, specific targets linked to the activity of the borrower, for example reducing carbon emissions, increasing the level of diversity at Board level, or achieving a sustainable supply chain. ESG features are first assessed to ascertain whether the adjustment to the contractual cash flows results in a de minimis exposure to risks or volatility in those contractual cash flows. If this is the case the classification of the loan is not affected. If the effect of the ESG feature is assessed as being more than de minimis, we apply judgement to ensure that the ESG features do not generate compensation for risks that are not in line with a basic lending arrangement. This includes, amongst other aspects, a review of the consistency of the ESG targets with the asset or activity of the borrower, and consideration of the targets within our risk appetite. Some of these loans are an integral part of our climate and sustainable funding and financing target disclosed on page 13.

The table below analyses financial assets forming a component of ESG-linked loans and other products with contractual terms that could change the timing or amount of cash flows. This is based on balance sheet values as at 31 December and the maximum impact of the potential margin changes on these over a 12 month period.

	2024			2023
	Carrying value £bn	Positive impact on product margin bps	Negative impact on product margin bps	Carrying value £bn
Sustainability-linked loans	6.9	3.1	4.0	6.5
Other products	20.2	-	-	16.1
Lending subject to performance triggers	27.1			22.6

The following EY guidance is relevant and applicable immediately, as it is consistent with the requirements of IFRS 9 as issued at the date of this publication. More specific guidance has been issued by the IASB in May 2024, which is effective from annual periods beginning on or after 1 January 2026, with early application permitted. This guidance is illustrated in the paragraph, "Amendments to IFRS 9 and IFRS 7" in this section.

EY guidance[31]

Compensation for credit risk

Instruments are more likely to meet the SPPI requirements if the attainment of the target resulting in a decrease (or an increase) in the interest rate is likely to result in the improvement (or deterioration) of the borrower's credit risk during the life of the loan such that the change in interest rate is commensurate with the change in credit risk of the borrower. IFRS 9 acknowledges that clauses that allow changes to the timing and amount of contractual cash flows might not fail the SPPI test if there is a relationship between the changes and an increase in credit risk. An entity may be able to prove the relationship if it can demonstrate that it takes the sustainability metric into account when pricing and monitoring the credit risk on the loan. This could be the case if there is a link between the feature and the value of the collateral pledged against the loan (see Example 6-2 below), or if there is a link between the feature and the probability of default on the loan (see Example 6-3 below). If the link to credit risk is too indirect (see Example 6-4 below), the feature will have to be further assessed (see sections on *de-minimis* and compensation for other basic lending risks below).

If there is a link between the feature and the loan's credit risk, the lender should also establish whether the magnitude of the change in the contractual cash flows due to the feature is commensurate with the anticipated change in credit risk. If the feature gives rise to leveraged exposure to credit risk, the loan is likely to fail the SPPI test. The exception to this is where the feature gives rise to non-commensurate changes in interest rates, not to introduce leverage to the contract, but to introduce a punitive interest rate to act as a disincentive against the borrower allowing its credit risk to deteriorate. The following examples demonstrate these considerations:

Example 6-1: Sustainability-linked loans

A bank grants a loan to fund the acquisition of a new fleet of vessels. The loan is collateralised by that fleet. In addition, the loan contains a sustainability feature that reduces or increases the interest rate based on the borrower's performance against a commonly used metric in the industry for carbon emissions. The metric is based on the carbon emissions of the entity's fleet after factoring in the distance travelled by the fleet and the ships' size.

In this scenario, there may be a link between the emissions targets and the value of the collateral (the fleet). The bank would need to consider:

- Whether the value of the fleet is linked to the attainment of the carbon emission targets:
  - This might be the case, as, all things being equal, a better maintained and therefore more efficient fleet should attract a higher resale value than a less efficient fleet.

[31] For more information, see International GAAP® 2025, Chapter 44, section 5.4.7.A.

Example 6-1: Sustainability-linked loans (cont'd)

- However, better efficiency may not necessarily indicate that the fleet is in a better condition. Efficiency will depend on other factors such as the ships' payloads, the skill of the crew in operating them, time spent waiting to dock at busy ports and weather conditions.
- Judgement would need to be exercised in determining the strength of the link based on the facts and circumstances.

- Whether the change in value of the fleet would affect the entity's assessment of the credit risk on the loan:
  - In this scenario, the fleet has been pledged as collateral on the loan. A more valuable fleet could, therefore, reduce the loss given default on the loan and decrease the entity's assessment of the loans' credit risk.
  - However, if the loan is not collateralised, or if the metric considers the performance of additional ships that have not been pledged as collateral against the loan, the link with credit risk may be harder to demonstrate.

Example 6-2: Sustainability-linked loans

A ten-year loan is granted to a power generating entity to finance an overhaul of a coal-fired power plant. Operating this power plant is the entity's sole business. New local legislation will prohibit the power plant from continuing to operate if a specified carbon emissions target is not met on, or after, a date in three years' time. Therefore, the bank has included a series of annual targets in the loan terms, building up to the final deadline. If the power plant does not meet these contractual emissions targets, the interest rate on the loan increases.

It is likely that the lender will be able to demonstrate a link between the ESG feature and the credit risk of the loan. If the final emissions target is not met, the plant will not be able to operate. As this is the borrower's sole business, it would be unlikely that it will be able to repay the loan if that were to happen. The contractual emissions targets are designed to incentivise the borrower to incrementally work towards meeting the overall legislative target. The closer the borrower gets to the legislative deadline and the further it is from achieving it, the higher its credit risk becomes. The contractual features increase the interest rate in response to this increase in credit risk. Therefore, there is a clear link between the contractual targets and the credit risk on the loan.

The lender would also need to establish whether the magnitude of the change in the interest rate is commensurate with the change in credit risk. If the change is not commensurate, the lender must consider whether the feature is designed as a punitive feature to disincentivise the borrower against allowing its credit risk to increase by making slow progress towards the important legislative deadline. If that is the case, it is likely that the feature will be consistent with the SPPI criterion.

Example 6-2: Sustainability-linked loans (cont'd)

In practice, this link to credit risk may not be so clear. For example, the link may be blurred when the entity's credit risk is a function of multiple comingled businesses, but the loan and the sustainability-feature relate to a single business, or portion thereof, or when the cost of attaining the sustainability target is high and could outweigh the benefits.

Example 6-3: Sustainability-linked loans

A short-term loan is granted to a food retailer. The interest rate on the loan varies depending on the performance of the retailer against a sustainability scorecard. The scorecard includes three targets based on:

a) The reduction in the Group's CO_2 emissions

b) The percentage of new hires that are female

And

c) The number of training hours in sustainable food production provided to previously underprivileged people

The group's performance against each target is weighted and used to determine an overall score. The interest rate will be reduced if the Group achieves a score above a predetermined level.

In this Illustration, achievement of the ESG target benefits the entity in a broader, intangible manner. For example, the Group could achieve the training target by providing training as a corporate social initiative to people who are not employed by the Group and have no contractual or financial relationship with the Group. While this may improve its reputation, and possibly improve its business performance and credit risk in the long term, such a link is indirect and, most likely, weak. In addition, the loan is short-term and, therefore, it will be difficult to demonstrate a link between the feature and the credit risk on the loan.

De minimis or non-genuine sustainability features

Lenders or holders should also consider whether the sustainability feature is *de minimis* or non-genuine. A lender might decide, as an operational simplification, to introduce a quantitative threshold below which features would be considered *de minimis* without a detailed analysis. Judgement needs to be exercised in determining the appropriate threshold. This is especially relevant in a low-interest environment, whereby sustainability-linked discounts or penalties could easily become significant in relative terms.

Other considerations

When analysing sustainability features that are not *de minimis* and which introduce cash flows that are not commensurate with the change in the credit risk on the loan, we believe that the following considerations may clarify whether the sustainability feature introduces compensation for a new risk that is inconsistent with a basic lending arrangement:

- The record of contract negotiations between the borrower and the lender
- The nature of the sustainability feature

- The lender's pricing decisions
- The extent to which the counterparties monitor and manage the resulting sustainability risk
- The level and frequency of data on the sustainability feature that the borrower is required to report to the lender

Amendments to IFRS 9 and IFRS 7

On 30 May 2024, the IASB issued *Amendments to the Classification and Measurement of Financial Instruments* which amended IFRS 9 and IFRS 7 *Financial Instruments: Disclosures*.[32] The amendments are effective for annual periods beginning on or after 1 January 2026, with early adoption permitted. These amendments followed the completion of the *Post-Implementation Review of IFRS 9 – Classification and Measurement*. The amendments provide further guidance to address the assessment of the contractual cash flow characteristics of financial assets whose cash flows could vary based on contingent events, including those with ESG-linked features.

The first amendment clarifies the assessment of whether the compensation the lender receives is consistent with a basic lending arrangement. The focus is on *what* the lender is compensated for, rather than *how much* compensation they receive. However, the amount of compensation might indicate that the lender is being compensated for something other than basic lending risks and costs. The amendment states that:

"Contractual cash flows are inconsistent with a basic lending arrangement if they are indexed to a variable that is not a basic lending risk or cost (for example, the value of equity instruments, the price of a commodity) or if they represent a share of the debtor's revenue or profit, even if such terms are common in the market in which the entity operates."[33]

If the contractual cash flows are inconsistent with a basic lending arrangement, no further analysis is required, and the instrument will fail the SPPI requirements.

The second amendment covers how contractual terms that change the timing or amount of contractual cash flows over the life of the financial asset are assessed for meeting the SPPI requirement by considering:

- Whether the contractual cash flows that could arise both before and after the change would meet the SPPI requirements, irrespective of the probability of the contingent event occurring. The amendments clarify that the contractual cash flow assessment is based on all contractual cash flows that could arise over the life of the financial instrument – it is not a probability-based assessment. This means an entity is required to consider the effect on contractual cash flows of any contingent event specified in the contract, however likely or unlikely the event is to occur (unless the terms are not genuine).

[32] For further information, refer to our publication, *Applying IFRS*: *Amendments to classification and measurement of financial instruments* (November 2024), available on www.ey.com/IFRS
[33] Refer to IFRS 9.B4.1.8A

- Whether the nature of the contingent event relates directly to, and the contractual cash flows change in the same direction as, changes in basic lending risks and costs. The amendments clarify that, if the nature of the contingent event relates directly to, and the contractual cash flows change in the same direction as, changes in basic lending risks and costs, it is more likely that the contractual cash flows over the life of the instrument will be SPPI (for example, a financial instrument with an interest rate that is reset to a higher rate if the debtor misses a particular number of payments). The IASB included two examples in the amendments[34] to support the consistent application of the SPPI condition, as indicated below:

Instrument	Analysis
Instrument EA Instrument EA is a loan with an interest rate that is adjusted every reporting period by a fixed number of basis points if the debtor achieves a contractually specified reduction in carbon emissions during the preceding reporting period. The maximum possible cumulative adjustments would not significantly change the interest rate on the loan.	The contractual cash flows are solely payments of principal and interest on the principal amount outstanding. The entity considers whether the contractual cash flows that could arise both before and after each change in contractual cash flows are solely payments of principal and interest. If the contingent event of achieving the carbon emissions target occurs, the interest rate is adjusted by a fixed number of basis points, resulting in contractual cash flows that are consistent with a basic lending arrangement. It is only because the nature of the contingent event itself does not relate directly to changes in basic lending risks and costs that the entity cannot conclude – without further assessment – whether the cash flows on the financial asset are solely payments of principal and interest. The entity, therefore, assesses whether, in all contractually possible scenarios, the contractual cash flows would not be significantly different from the contractual cash flows on a financial instrument with identical contractual terms, but without the contingent feature linked to carbon emissions. Because any adjustments over the life of the instrument would not result in contractual cash flows that are significantly different, the entity concludes that the loan has contractual cash flows that are solely payments of principal and interest on the principal amount outstanding.

[34] Refer to IFRS 9.B4.1.13

Instrument	Analysis
Instrument I Instrument I is a loan with an interest rate that is adjusted every reporting period to track the movements in a market-determined carbon price index during the preceding reporting period.	The contractual cash flows are not solely payments of principal and interest on the principal amount outstanding. The contractual cash flows are indexed to a variable (the carbon price index), which is not a basic lending risk or cost. The contractual cash flows are, therefore, inconsistent with a basic lending arrangement.

Finally, the amendments introduce new disclosures to allow users to better understand the effect of contractual terms that could change the timing or amount of contractual cash flows based on the occurrence or non-occurrence of a contingent event that is not related to a basic lending risk or cost, such as the time value of money or credit risk. The disclosures will apply to financial instruments with ESG-linked features discussed above, and to all other financial assets at amortised cost, or fair value through other comprehensive income and financial liabilities at amortised cost, with contingent features. In particular, the disclosures will require:

- A qualitative description of the nature of the contingent event
- Quantitative information about the possible changes to contractual cash flows, e.g., a range of possible changes to contractual interest rates

  And

- The gross carrying amount of financial assets and the amortised cost of financial liabilities subject to the contingent features.

The above disclosures should be provided separately for each class of financial assets measured at amortised cost and fair value through other comprehensive income and for each class of financial liabilities measured at amortised cost. The considerations of paragraph 6 of IFRS 7 should be used to group financial instruments into classes. This information is not required to be disclosed for financial instruments measured at fair value through profit or loss, as the changes in fair value are considered to provide sufficient information to enable users to assess the future cash flows of those instruments.

Entities will need to apply judgement to decide how much detail to disclose, the level of aggregation and whether any additional explanation is needed to help users understand the disclosures.

The amendments are effective for annual periods beginning on or after 1 January 2026, with early adoption permitted. Early adoption will also depend on whether the amendments have been locally endorsed. The amendments apply retrospectively, with an adjustment to the opening balance of financial assets and financial liabilities and the cumulative effect as an adjustment to the retained earnings opening balance. Prior periods are not required to be restated and can only be restated without the use of hindsight.

How we see it

The amendments provide much needed guidance on the treatment of ESG-linked features of financial assets. The approach is broadly consistent with our interpretation of existing requirements. In order to apply the necessary judgement in deciding the appropriate level of qualitative and quantitative disclosure for financial instruments with contingent features, it will be necessary for entities to understand the information needs and expectations of users of their financial statements.

Entities need to consider the extent to which IFRS 7 requires disclosures in relation to climate-related risks.

Disclosures

IFRS 7 requires entities to provide disclosures in their financial statements that enable users to evaluate the significance of financial instruments for the entity's financial position during the period and at the end of the reporting period.

Entities should consider to what extent they are exposed to climate-related risks as a result of their involvement in financial instruments. IFRS 7 requires qualitative and quantitative disclosures unless the information resulting from that disclosure is not material.

For instruments with ESG-linked features, or with contractual cash flows linked to other contingent events, measured at amortised cost or fair value through other comprehensive income, additional disclosure requirements have been included in the amendments discussed above. The revised requirements apply to both financial assets and financial liabilities.

7. Carbon credits and renewable energy certificates

7.1 What is the issue?

The specific features of carbon credits, including whether they are traded in compliance or voluntary markets, are key to determining the appropriate accounting.

The ambitious goals of greenhouse gas emission reductions as set by the 2015 Paris Agreement, or imposed by the local jurisdictions, has increased the pressure on entities to find ways to reduce their carbon footprint. For some entities, neutralising or offsetting their carbon footprint includes the use of carbon credits and/or renewable energy certificates that can help accelerate investment in carbon reducing solutions as well as turning emission reduction and removal projects into tradeable assets. Projects that generate carbon credits are generally categorised into those that reduce emissions (e.g., generation of energy from renewable sources) and those that remove emissions (e.g., regenerative farming projects, carbon capture and storage).

Carbon markets are broadly split into two types of markets: compliance markets and voluntary markets. Hybrid markets are also possible and can include governments strongly encouraging the use of voluntary markets, or governments accepting voluntary carbon credits in lieu of cash payments to settle emissions obligations. Appropriately accounting for carbon credits depends on the specific features (e.g., whether they can be traded) and the role the entity plays in those markets (e.g., project developer, broker/dealer, emitter).

Currently, there are no explicit requirements that address the accounting for mandatory emissions trading schemes (including mandatory carbon credits) or for voluntary carbon credits. In July 2022, the IASB concluded its third agenda consultation, which sets out the IASB's priorities for its work plan and activities for the period 2022 – 2026. While many respondents considered this a high priority, the Board concluded that it should be included on the reserve list and noted that additional research would be needed before considering whether to undertake a standard-setting project. The IASB had several discussions to consider prioritisation of a project on PPMs in 2024. At the time of writing, is the project was still on the reserve list and the IASB had deferred the decision about whether to add the project to its work plan until the next agenda consultation.[35]

While there are no explicit requirements, several standards provide relevant guidance that entities need to consider.

The award of carbon credits or renewable energy certificates in compliance markets generally represents a government grant. IAS 20 *Accounting for Government Grants and Disclosure of Government Assistance* permits the award of initial recognition of such non-monetary grants either fair value or a nominal amount, depending on the entity's chosen policy.

- Whether received from a grant or purchased, if credits or certificates are recognised, IAS 2 *Inventories* or IAS 38 *Intangible Assets* might apply, depending on whether the credits are held for sale or consumption in

[35] IASB Pipeline Projects page, IFRS Foundation website, accessed 22 April 2025.

the ordinary course of business or to settle an emissions liability in the ordinary course of business.

- If IAS 2 applies, they will be held at the lower of cost and net realisable value. However, broker-dealers applying IAS 2 have the choice to either measure inventories at fair value less costs to sell or at the lower of cost and net realisable value.
- If IAS 38 is applied, an entity applies the cost model unless the credits or certificates are traded in an active market, in which case, the revaluation model can be applied. Emission rights that are accounted for as intangible assets are unlikely to be amortised as their depreciable amount is usually nil. Their expected residual value at inception will be equal to their fair value. Thereafter, although their residual value is equal to their market value, there is no consumption of economic benefit while the emission right is held. The economic benefits are realised instead by surrendering the rights to settle obligations under the scheme for emissions made, or by selling rights to another party. It is necessary to perform an IAS 36 impairment test whenever there is an indication of impairment.

- Whether IAS 2 or IAS 38 applies is also important in the accounting for any sale of carbon credits as IAS 38 has specific requirements on how to account for disposals of intangible assets, while entities that hold them as inventories will typically apply IFRS 15 *Revenue from Contracts with Customers* or, for broker-dealers, IFRS 9 may apply, depending on the specific contractual arrangement.

AENA S.M.E., S.A. accounts for greenhouse gas emissions as inventories and recognises a government grant as a current liability for free allocation of the emissions allowance. Likewise, it recognises a provision measured at its best estimate.

Illustration 7-1 — AENA S.M.E., S.A. — 2024 Consolidated annual accounts (Airport management sector)

2.11 Inventories

Greenhouse gas emission allowances

The greenhouse gas emission allowances received free of charge in accordance with the corresponding allocation plans have been recorded under the 'Inventories' heading of the attached statement of financial position, as established in the first additional provision of Royal Decree 602/2016, of 2 December. Their valuation is carried out at the prevailing market price at the start of the period for which they are granted, and they are recorded as a grant balancing entry within the 'Grants' heading of Current Liabilities. The allocation to results is made based on the effective consumption of the emission allowances. Following the latest applicable provisions, the greenhouse gas emission allowances acquired from third parties are recorded in inventories. The allowances are initially valued at the acquisition price, and assessed at the end of the fiscal year on whether the market value is below their book value for the purpose of determining whether there is evidence of impairment. If applicable, it is determined whether those rights will be used in the production process or intended for sale, in which case, the appropriate value adjustments would be made. Such corrections will be voided to the extent that the causes underlying the emission allowances' value correction cease to exist.

Expenses derived from the consumption of greenhouse gas emission allowances are recorded in the 'Other operating expenses' heading of the profit and loss account, based on its accrual as the greenhouse gases are being emitted. As a balancing entry, a provision for risks and expenses is recorded. This provision will be maintained until the time the Company effectively delivers to the National Emissions Trading Registry (RENADE [Registro Nacional de Derechos de Emisión]).

Note 26.1 of this report includes detailed information about the emission allowances received and consumed in the current fiscal year.

Illustration 7-1 – AENA S.M.E., S.A. – 2024 Consolidated annual accounts (Airport management sector)

26. Environmental commitments

26.1 Information on greenhouse gas emission allowances

Until January 2021, the Group's parent Company had eight airports affected by the regulations of the Business with Rights of Emissions Regulation, which were the following: Barcelona-El Prat Josep Tarradellas Airport, Palma de Mallorca Airport, Alicante-Elche Airport, Valencia Airport, Málaga-Costa del Sol Airport, Fuerteventura Airport, Gran Canaria Airport and Tenerife Sur Airport.

As of 1 January 2021, the exclusion from the Emissions Trading Scheme for Alicante-Elche Airport, Valencia Airport, Málaga-Costa del Sol Airport, Fuerteventura Airport, Gran Canaria Airport and Tenerife Sur Airport came into force for the period 2021-2025, as they meet the conditions for low-emission installations established in the Royal Decree. Therefore, these airports are only required to prepare the Annual Emissions Report and submit it for verification, to demonstrate to the competent bodies that they continue to be low emissions facilities, and that, therefore, they continue to comply with the requirements of the exclusion granted. Therefore, in 2024 (with assignment, purchase and delivery of rights in 2023) there are only two airports in the network under the Emissions Trading Scheme: Barcelona-El Prat Josep Tarradellas Airport and Palma de Mallorca Airport. And in the same way as in previous years, before 31 March 2024, the assignment of rights corresponding to fiscal year 2023 is performed.

Some of the exclusion resolutions granted include a commitment to reduce emissions for each year of the 2021-2025 period, in such a way that airports exceeding the maximum annual emissions set in these commitments must deliver the excess emissions in the form of emission rights/EUAs. Specifically, the airports that have included the reduction commitment in their exclusion resolution are Alicante-Elche Airport, Valencia Airport, Málaga-Costa del Sol Airport, Fuerteventura Airport, Gran Canaria Airport and Tenerife Sur Airport; of which, after the calculation and verification of 2023 (carried out in March 2024), it was verified that none of them had exceeded the maximum emissions set for the fiscal year by the competent bodies. As a result, when emission allowances were purchased in 2024, the necessary allowances for Barcelona-El Prat Josep Tarradellas Airport and Palma de Mallorca Airport were purchased.

As regards the types of rights assigned, all airports are assigned emission allowances the EUA type that must be acquired in the auction market. In addition, Barcelona-El Prat Josep Tarradellas Airport was granted the free assignment, so that in 2024 it received 1,532 free rights (2023:1,532 free rights).

At the end of fiscal year 2024, a total of 1,909 greenhouse gas emission allowances, acquired or received free of charge by the parent company for consumption, are recorded in inventories (Note 14) for an amount of €139 thousand (2023: €193 thousand corresponding to 2,074 greenhouse gas emission rights).

Likewise, the Group has made a provision for 2,999 rights, valued at €241 thousand, which corresponds to the best estimate of the rights consumed by the parent company during 2024, and which amount to 4,908 rights (2023: 4,868 rights, valued at €584 thousand, corresponding to the best estimate of the rights consumed during 2023, which amounted to 6,942 rights).

To calculate the provision of the allowances consumed during 2024, an estimate has been made based on the projection of current consumption, in line with the provisions of the parent Company's Climate Action Plan, which would imply a total of 4,919 Mt of CO2. From this amount, the balance of rights currently available in the accounts of both indicated airports is deducted and, finally, the price of a tonne of CO2 at the time of purchase is estimated. To estimate the price per tonne of CO2, due to price fluctuations, it has been taken into account that the parent company formalised a contract in the fiscal year 2024 with the aim of minimising the impact of the market and thus deferring the purchase of rights throughout the period, taking advantage of the most convenient market moments, instead of making a single purchase just before the delivery of the rights, as had been done in previous years. This practice, together with the clear downward trend in the price per tonne (the price was €70/Mt on 8 January 2025) and other factors such as the macroeconomic situation or the price of gas or electricity, means that the estimated price of a tonne of CO2 has been €80/Mt CO2.

- For broker-dealers that trade derivatives based on the emission rights, then such contracts fall within the scope of IFRS 9 and are accounted for at fair value through profit or loss, unless they hedge the fair value of the emission rights granted to the entity or qualify for the 'own use exemption'.

7.2 What is the impact?

Compliance markets

Compliance markets may not exist in all jurisdictions, but where they do, participation is mandatory for certain entities. These markets are typically run by governments or their agencies.

In such markets, the carbon credits can (or must) be used to settle obligations to pay for greenhouse gas emissions. Therefore, while the pricing of carbon credit will depend on supply and demand, the amount an entity needs to pay to settle an emissions liability with the government is also a relevant factor. Mandatory emission schemes include several variants that differ in the way that entities receive emissions rights and settle emissions liabilities. For example, some schemes only include a cap on emissions for which the entity is assigned an emissions limit above which it is required to offset the excess by paying the

government or surrendering emissions rights, and rights cannot be traded. Another example, and the most common type of mandatory scheme, involves a cap-and-trade model whereby participants are allocated emission rights or allowances equal to a cap (i.e., a maximum level of allowable emissions) and are permitted to trade those allowances (e.g., the European Union's emissions trading scheme).

Renewable energy certificates are similar. Typically, producers of electricity are granted certificates by the government based on the power output (kWh) derived from renewable sources. Entities distributing electricity (produced from both renewable and traditional sources) are required to hand over to the government a number of certificates based on the total kWh of electricity sold to consumers during the year or pay a penalty to the extent that an insufficient number of certificates is rendered. Producers can sell their certificates to distributors, using the income to subsidise, in effect, the higher cost of generation from renewable sources. The pricing of green certificates depends on many variables, but primarily on the required number of certificates that have to be delivered relative to the amount of power that is produced from renewable sources, and the level of penalty payable if the required number of certificates is not remitted.

Mandatory carbon credits

Since there are no explicit requirements under IFRS for mandatory emissions trading schemes, entities need to develop their own policy in accordance with IAS 8.

The accounting for emission rights and carbon credits in compliance markets (mandatory carbon credits) needs to be considered together with the related liability for greenhouse gas emissions. Since there are no explicit requirements under IFRS, entities need to develop their own accounting policy in accordance with IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors*.

For schemes that have only a limit (or cap) and credits are not tradeable, the liability is recognised when the entity emits above the limit. Upon exceeding the limit, the liability is measured at the best estimate of the cost to settle.

In 'cap and trade' schemes every tonne of emissions made creates an obligation. In such schemes, allowances received from the government represent economic resources of the entity (because they can be used for an alternative purpose, for example, sale to a third party) and, therefore, as the entity emits greenhouse gases it is probable there will be an outflow of economic resources (i.e., the allowances) to settle the obligation. In this situation, a liability is recognised as the entity emits, from the first tonne. In practice, three approaches have gained acceptance for accounting for 'cap and trade' emission schemes:

- The IFRIC 3 *Emission Rights* approach, which despite having been withdrawn, is considered to be an appropriate interpretation of existing IFRS. This approach leads to the recognition of: an asset for the credits or allowances; a government grant; and the liability in respect of emissions. However, this approach can result in accounting mismatches because the liability for the obligation to deliver allowances is measured at the current market price.
- The net liability approach where, in practice, two approaches have gained acceptance:

- The 'net liability/carrying value' approach - under this approach, the allowances (or emission rights) received by way of a grant are recorded at a nominal amount (in most cases, nil) and purchased rights are initially recognised at cost. The liability component is measured at the best estimate of the cost to settle the liability taking into account the cost of any allowances currently held (both granted and purchased). The measurement of the emissions liability can be estimated on a FIFO or on a weighted average basis. Using FIFO basis, an entity measures the liability taking into account the allowances held at the end of the (interim or annual) reporting period first, and then includes the expected cost per unit, using the current market price, for the actual shortfall at the end of the reporting period. Using a weighted average basis, an entity measures the liability by calculating the weighted average cost per unit of expected emissions over the entire compliance period (i.e., including the estimated shortfall).

- The ' net liability/reimbursement rights' approach - under this approach, the allowances (or emission rights) received by way of a grant are recorded initially at a nominal amount (in most cases, nil) and purchased rights are initially recognised at cost, but the entity remeasures (to fair value) the emission rights (or allowances) that it holds and can use to settle the liability up the amount of emission made in the period. The liability component is measured at the best estimate of the cost to settle the liability taking into account the cost of any allowances currently held (and remeasured to fair value).

- The government grant approach leads to the recognition of: an asset for the credits or allowances; a government grant; and the liability in respect of emissions. Therefore, it is similar to the IFRIC 3 approach, except that the liability is measured by reference to the carrying value of the credits or allowances to the extent they will be used to settle the liability.

In Illustration 7-2, Shell plc disloses its accounting policy for liabilities recognised under Emissions Trading Schemes and in Illustration 7-3, Orlen S.A. applies the net liability/carrying value approach on a weighted average-basis to measure the liability related to emissions.

Illustration 7-2 – Shell plc – 2024 annual report (Oil and gas sector)

2. Material accounting policies, judgements and estimates continued

Emission schemes and related environmental programmes
Emission certificates, biofuel certificates and renewable power certificates (together "environmental certificates") held for trading purposes are recognised at cost or net realisable value, whichever is lower, and classified under inventory.

Emission trading schemes
Emission certificates acquired for compliance purposes are initially recognised at cost and classified under intangible assets. In the schemes where a cap is set for emissions, the associated emission certificates granted are recognised at cost, which may be zero. An emission liability is recognised under other liabilities when actual emissions occur that give rise to an obligation. To the extent the liability is covered by emission certificates held for compliance purposes, the liability is measured with reference to the value of these emission certificates held and for the remaining uncovered portion at market value. The associated expense is presented under "Production and manufacturing expenses". Both the emission certificates and the emission liability are derecognised upon settling the liability with the respective regulator.

Biofuel programmes
Biofuel certificates acquired that are held for compliance purposes are initially recognised at cost under intangible assets. Self-generated biofuel certificates are recognised at nil value, as they primarily offset the obligation. A biofuel liability is recognised under other liabilities when the obligation arises under local regulations. To the extent covered by biofuel certificates held for compliance purposes, the liability is measured with reference to the value of these certificates held and for the remaining uncovered portion at market value. The associated expense is presented under "purchases". Biofuel certificates and the biofuel liability are both derecognised upon settling the liability with the respective regulator.

Illustration 7-2 – Shell plc – 2024 annual report (Oil and gas sector) (cont'd)

Renewable power programmes

Renewable power certificates acquired for compliance purposes are initially recognised at cost as an intangible asset. Self-generated renewable power certificates are generally transferred to the customer upon sales of electricity. A renewable power liability is recognised under other liabilities when electricity sales take place that give rise to an obligation to retire renewable power certificates. The associated cost is recognised in "purchases" in the income statement. If the obligation relates to power consumed in business operations, it is presented in other liabilities with cost reflected in "Production and manufacturing expenses". To the extent covered by renewable power certificates held for compliance purposes, the liability is measured with reference to the value of these renewable power certificates and for the remaining uncovered portion at market value. Renewable power certificates and the renewable power liability are derecognised upon settling the liability with the respective regulator.

Illustration 7-3 – Orlen S.A. – 2024 annual report (Oil and gas sector)

13.2 Intangible assets and goodwill

Property rights

The primary category of tradable rights comprises CO_2 emission allowances, which are not amortised but are tested for impairment.

Free allocations of CO_2 emission allowances are recognised and presented as intangible assets, with a corresponding entry in deferred income, at fair value as at the date of their registration. Government grants are recognised on a systematic basis over the periods in which the related costs are incurred, ensuring matching with the recognition of the corresponding provision. Purchased allowances are recognised at cost.

A provision is recognised for estimated CO_2 emissions for the reporting period, with a corresponding charge to operating expenses (taxes and charges).

Property rights also include energy certificates.

Property rights, including CO_2 emission allowances and energy certificates, are surrendered against the carrying amount of the provision as part of its settlement. Derecognition of CO_2 emission allowances and energy certificates upon their use is accounted for using the weighted average cost method.

13.11 Provisions

CO_2 emissions and energy certificates

The Group recognises a provision for estimated CO_2 emission costs incurred during the reporting period, which is charged to operating expenses (taxes and charges). The provision is measured based on the carrying amount of emission allowances held, applying the weighted average cost method. Where there is a shortfall in allowances, the provision is recognised at either the purchase price of allowances under committed forward contracts, or the market price of allowances as at the reporting date.

Renewable energy certificates in compliance markets

An entity's role in the market is key to the accounting treatment:

- Producers - If an entity is a producer that uses renewable energy sources, the award of renewable energy certificates is treated as a government grant by a producer. Thereafter, the entity will apply IAS 2 or IAS 38, depending on whether they will be sold or used.
- Distributors – an important consideration is whether the distributor is also a producer.

  When the distributor is also a producer of renewable energy, it has the option to use certificates granted to it or to sell them on the market and pay a penalty if it has insufficient certificates to remit to the government. If so, the permissible accounting treatments of green certificates are, in principle, the same as those for mandatory carbon credits discussed above.

  When the distributor is not also a producer, it needs to recognise a liability representing the obligation to remit the certificates to the government as sales of energy are made to customers. If the entity purchases the certificates in the market, it can account for them either by applying IAS 38 or IAS 2, unless the certificates are held for sale (then IAS 2 applies only).

Broker-dealers

If a broker-dealer holds credits or certificates for own use and also has a trading department trading in credits or certificates, it must split the books between emission rights held for own use and those held for trading. Credits or certificates held by broker-dealers for trading are within the scope of IAS 2. In most instances, broker-dealers measure such inventories at fair value less costs to sell with changes in fair value less costs to sell recognised in profit or loss. However, this is a choice, and broker-dealers can choose to measure those inventories at the lower of cost and net realisable value instead. If certificates are held for own use, brokers-dealers account for them as intangible assets or inventory, as appropriate, and the considerations above are relevant.

As noted above in section 7.1, in terms of sales transaction, broker-dealers will generally apply IFRS 15, but IFRS 9 may also be applicable, depending on the specific contractual arrangements.

Voluntary markets

The features of voluntary carbon credits make each one of them unique.

Voluntary markets function outside the compliance markets. Carbon credits are verified by independent verifiers (e.g., Gold Standard, Verra), each with their own models and verification requirements, and credits in these markets are not intended to be used for compliance purposes. Entities are not required by law or regulation to use these markets, but do so voluntarily, for example, to be able to state to their clients that they are carbon neutral.

Some entities' involvement in voluntary carbon markets may still be limited. However, entities that chose to participate in these markets need to understand the features of any credits and consider the appropriate accounting treatment.

Pricing in such markets is dependent on the specific features of the credits, such as: who verified the credit; the type of reduction or removal project that generated the credit; when and where the emissions were reduced or removed; whether they are tradeable (i.e., can they be sold) and, if so, whether any restrictions apply to either the buyer or seller. Therefore, while voluntary carbon credits from the same types of projects might be similar, they are not fungible. This is an important consideration if measuring fair value. For example, if inputs to fair value measurement are used from the sale of similar voluntary carbon credits, it is likely adjustments to the selling prices of those similar products will be needed to ensure the fair value is appropriate. Furthermore, voluntary carbon markets are still developing and, as such, many inputs are still unobservable. See section 5 above for further discussion about fair value measurement.

The ability to sell credits (regardless of an entity's intention) is an important factor for entities determining whether it can recognise a voluntary carbon credit as an asset.

Ex-post credits

Ex-post credits are carbon credits issued after the emissions reduction or removal has taken place. These credits should be certified by a recognised standards body.

The accounting considerations for ex-post credits differ depending on whether an entity is a project developer (i.e., the one generating the carbon credit) or a buyer of a credit, a seller or a user of the credits.

A key question is whether an entity, particularly project developers, can recognise voluntary carbon credits as assets. Whether there is an asset will depend on whether it will generate future economic benefits for the entity. In compliance markets, mandatory carbon credits can be used to reduce or settle an emissions liability with the government (or its agency). This is unlikely in a voluntary market, so the ability to sell credits (regardless of an entity's intention) is an important factor for entities determining whether they can recognise a voluntary carbon credit as an asset.

As with mandatory carbon credits, voluntary carbon credits might be inventory or intangible assets for the entity, depending on whether the credits are held for sale in the ordinary course of business, or the entity intends to use the credit itself. That is, either IAS 2 or IAS 38 might apply.

How an entity obtains the credit will be important in determining when to recognise an asset and at what value:

Project developers

Determining when to recognise voluntary carbon credits is likely to require judgement for project developers. Generally, they will be able to recognise voluntary carbon credits when they have been verified. However, if the cost method is used (see below), they may be able to commence capitalisation earlier of costs related to the generation of carbon credits. Factors to consider in determining the timing of recognition include:

- The quality of the verification project – if the verification process is simple or administrative, it might be easier to determine an asset exists. However, the cost to verify the voluntary carbon credits may be minimal as there may not be many activities required before obtaining verification. If the verification process is robust, an entity might not know the feasibility until later in the project
- How well-established projects or approaches are at reducing of removing carbon – newer approaches might be more challenging to verify in the early stages

The above factors will also affect the initial measurement of the voluntary carbon credits. Depending on which standard applies, entities will need to apply the cost requirements in IAS 2 or in IAS 38, with capitalisation ceasing at the point of verification. However, If the generating assets are subject to biological transformation (e.g., trees),[36] we believe entities can choose instead, as a policy choice, to analogise to the requirements in IAS 41 Agriculture for agricultural produce at the point of harvest. This analogy would apply only to initial measurement, which would be fair value less costs to sell at the point of verification, and that value would then be cost for purposes of apply IAS 2 or IAS 38 thereafter.

IAS 2 requires an entity to include all costs of conversion and costs to bring the inventories to final condition. Similarly, IAS 38 requires that the cost of internally generated intangible assets comprises all of the directly attributable

[36] "Biological transformation comprises the processes of growth, degeneration, production, and procreation that cause qualitative or quantitative changes in a biological asset", IAS 41.5.

costs necessary to create, produce and prepare asset to be capable of operating in the manner intended by management and provide the examples of such costs. Judgement will be needed to determine the appropriate costs to include.

If voluntary carbon credits are a by-product of a production process (for example credits generated at the same time of production of green energy), judgement will also be needed to appropriately allocate costs between main product(s) and the voluntary carbon credits (by-products).

Buyers of voluntary carbon credits

Buyers will generally recognise voluntary carbon credits upon purchase, applying the cost requirements for initial recognition in IAS 2 or IAS 38, as appropriate (see below for considerations for broker-dealers).

In some cases, an entity might obtain voluntary carbon credits in exchange for the provision of goods or services. Standards such as IFRS 15, IFRS 16 *Leases* or IFRS 9 might be relevant, depending on the specific contractual arrangement. Assume, for example, the entity obtained the credits in exchange for providing a service and that the contract is in the scope of IFRS 15. In that situation, the credits represent non-cash consideration and they need to be measured a fair value and recognised when the entity obtains control of them in accordance with IFRS 15.

What an entity does with the credit will be important in determining when to derecognise the asset and what to recognise:

Sales of voluntary carbon credits

If an entity applies IAS 2 to the credits, it will generally apply IFRS 15 to account for the sales of such credits and recognise the revenue, unless IFRS 9 applies (see below for considerations for broker-dealers). If an entity applies IAS 38 to its voluntary carbon credits, that standard has its own disposal requirements, which require recognition of a gain or loss on disposal (i.e., a net amount, which does not constitute revenue).

Regardless of the standard that applies, entities need to carefully analyse transactions to sell voluntary carbon credits:

- Will control of the voluntary carbon credit be transferred?
- Is any other party involved in the transaction (e.g., agent, broker)?
- Is the entity retiring a credit on behalf of a customer?
- Is the entity promising to offset emissions as part of creating a good or providing a service? If so, entities need to carefully analyse whether that is a promise to the customer (i.e., actually transferring a good or service to the customer) or an additional cost of doing business. For example, consider an airline that commits to offsetting all emissions from flights. If a customer pays extra to offset emissions, does that transfer control of something to the customer or is the airline receiving more consideration to cover the higher cost of doing business? See below for further discussion under 'users of voluntary carbon credits'.

This analysis will assist in determining substance of the transaction, and help to determine the appropriate timing of derecognition, and recognition in profit or loss.

Using voluntary carbon credits

Typically, references to 'using' voluntary carbon credits refer to reducing a notional register of emissions (i.e., outside the financial statements). Voluntary carbon credits should be derecognised when they are used, which will generally coincide with officially retiring the credit. In some instances, this will result in immediate recognition of an expense. In most instances, derecognition of carbon credits will lead to recognition of marketing costs.

If voluntary credits will be used to reduce the notional register of emissions, this might occur immediately after verification or purchase. In such a situation, entities can, therefore, make a policy choice either to: recognise an asset and immediately derecognise it; or recognise it as a marketing cost immediately (and not recognise an asset). Either approach would result in the same impact on profit or loss. However, the disclosures would differ (e.g., classification in the statement of cash flows, note disclosures, etc.). Entities should state their policy and provide adequate disclosure in the notes, so that users of financial statement understand the impact on financial statements.

References to the use of voluntary carbon credits might also be intended to describe the use of credits to offset emissions as part of the creation of goods or services. As discussed above, in 'Sales of voluntary carbon credits', entities need to carefully analyse whether this will transfer a good or service to a customer or is simply an additional cost of doing business. This is important to understand whether the related costs are part of cost of sales or costs to fulfil a performance obligation, or they are marketing costs.

If entities are able to use voluntary carbon credits to (partially) settle a liability with a third party or government, they should be derecognised when the credit is transferred, and the liability can be (partially) derecognised.

Broker-dealers

Consistent with considerations in a compliance market (as discussed above):

- Properly distinguishing certificates held for own use from certificates held for trading is important
- Voluntary carbon credits held by broker-dealers for trading are within the scope of IAS 2 and broker-dealers have a choice to measure such inventories at fair value less costs to sell, with changes in fair value less costs to sell recognised in profit or loss

Entities need to disclose sufficient information to help users understand the features of any credits or certificates and the impact on their financial statements.

Measuring fair value for voluntary carbon credits may be more challenging than for credits or certificates in compliance markets. As discussed above, voluntary carbon credits are not fungible, and many valuation inputs are still unobservable. In light of this, some broker-dealers might choose to measure their voluntary carbon credits at the lower of cost and net realisable value instead of at fair value less costs to sell.

Disclosures

While there is no one standard that applies to carbon credits or renewable energy certificates, as noted above, there are several standards that apply. Therefore, entities will need to ensure sufficient information is disclosed in accordance with standards such as IAS 2, IAS 20, IAS 38, IFRS 15 or IFRS 9. For mandatory emissions trading schemes, entities will also need to provide sufficient information about their accounting policy developed in accordance with requirements in IAS 8. The classification of carbon credits or renewable energy certificates as either intangible assets or inventory would impact the classification in the statement of cash flows as they would be presented under investing or operating activities respectively.

Regardless of the standards that apply, the different markets, credits and certificates, mean that users of financial statements will need additional information to understand the related risks and opportunities. At a minimum, it will be helpful to for entities to disclose whether they are subject to any mandatory emissions trading schemes and, if so, which ones.

It will be important for entities to provide adequate disclosure about carbon credits and renewable energy certificates, including their accounting policies, and information about the carbon credits or certificates (including whether in compliance or voluntary markets, ex-ante or ex-post, etc.), the emissions liability, and the effect on profit or loss. Entities might also need to distinguish between assets and liabilities arising from compliance markets and assets arising in voluntary markets.

How we see it

With the need to reduce emissions, it is likely that the use of carbon credit and renewable energy certificates will continue to be used by governments and voluntary carbon markets will continue to grow. New types of projects to reduce or remove emissions will also emerge, and entities will seek new ways to monetise those projects.

Until the IASB provides explicit requirements, entities will need to carefully assess the features of mandatory schemes and credits in voluntary markets before determining the appropriate accounting. Adequate disclosure will be key to ensuring users of financial statements understand the effect on financial statements as well as the risks and opportunities that entities will face.

8. Nature-dependent Electricity Contracts

8.1 What is the issue?

Determining the applicable accounting for power purchase agreements relating to contracts referencing nature-dependent electricity will require significant judgement and depend on the terms of the agreement and the structure of the electricity market.

Entities are increasingly entering into long-term renewable electricity contracts to secure the supply of green electricity, to obtain renewable energy certificates, and to manage the price risk of renewable energy. This has led to increased demand for power purchase agreements, which is expected to escalate in line with entities' commitments to becoming carbon neutral.[37] A power purchase agreement is an agreement between a supplier (e.g., a power generator) and a purchaser for the sale and supply of electricity.

Determining the appropriate accounting for power purchase agreements can require significant judgement for purchasers. That determination is dependent on the specific facts and circumstances, including the structure of the relevant electricity market, the terms of the power purchase agreement and the applicable accounting standard(s). While much of the discussion by IASB has focused on whether IFRS 9 applies (discussed below), purchasers first need to consider whether other relevant standards apply, and those assessments can be complex.

Electricity markets – gross pool and net pool

Electricity markets are set up differently in different jurisdictions, and grid operators may, or may not, consider the terms of the power purchase agreements when allocating electricity to customers. However, all electricity markets must continuously be balanced between supply and demand to ensure system security and stability. However, any imbalances represent real power flows which are converted into financial payments.

Given that there will always be a compulsory financial settlement system for imbalances in the power grid, the wholesale electricity market design can be broadly categorised into two major categories – 'gross pool' and 'net pool' electricity markets:

- In a gross pool electricity market, all purchases and sales of electricity are cleared through a market operator on a gross basis, without the market operator taking delivery or on-selling electricity. All transactions are settled at spot prices via a market operator that acts as a clearing house for energy transactions
- In a net pool electricity market, the supplier contracts directly with purchasers for the volume of electricity to be delivered and the contracts are physically deliverable

In practice, many electricity markets have features that are consistent with those in both gross pool and net pool markets. Therefore, judgement will often be needed to determine the type of market. The key difference between a gross pool and a net pool electricity market is that, in a gross pool electricity market the electricity contracted under a power purchase agreement is never considered to be physically delivered to the purchaser. "This is because the

[37] Project: *Application of the 'own use' exception in the light of current market and geopolitical questions (IFRS 9)*, Agenda paper 12A: *Exploring possible narrow scope amendments to IFRS 9*, IASB Meeting, November 2023. para. 38. Available on the IFRS Foundation's website.

difference between the fixed price and the spot price determined in a gross pool is always settled net" between the supplier and the purchaser, "whereas in a net pool electricity market, the settlement mechanism allows for what is contractually considered physical delivery of electricity" to the electricity purchaser.[38]

Physical and virtual power purchase agreements

It is important to understand the nature of the power purchase agreement that has been transacted in order to determine the correct accounting treatment. Whilst power purchase agreements come in multiple forms, most can be categorised as either physical or virtual:

- A physical power purchase agreement involves the direct transfer of power from a supplier to a purchaser, either directly through a power line or via an intermediary (e.g., a grid operator). Physical power purchase agreements result in the direct physical delivery of power.
- A virtual power purchase agreement is a financial contract for the purchase of electricity, in which transactions for the sale and purchase of electricity are settled at spot prices via a grid operator that acts as a clearing house for electricity transactions. Since there is no physical delivery of electricity by the supplier to the purchaser per the terms of the power purchase agreement, the settlement of the contract between the supplier and purchaser is done via a net cash settlement separately from the electricity sold in the wholesale market or purchased from the grid operator.

8.2 What is the impact?

Scope considerations for purchasers

For the purchaser in a physical power purchase agreement, the first step in establishing the appropriate accounting is to determine which IFRS accounting standard(s) applies, such as IFRS 10 *Consolidated Financial Statements*, IFRS 11 *Joint Arrangements*, IFRS 16, IFRS 9, IAS 37, IAS 16 or IAS 20. The accounting treatment can differ significantly depending on the determination and, as such, purchasers need to consider all facts and circumstances and may need to apply judgement.

The structure of electricity markets and characteristics of power purchase agreements make determining the applicable standard(s) challenging for purchasers. This determination can be made more challenging if group structures are involved, for example, with one group entity entering into power purchase agreements on behalf of others in the group.

[38] Agenda paper 2: *Initial consideration*, IFRS Interpretations Committee Meeting, June 2023. para. 54. Available on the IFRS Foundation's website.

Figure 8-1: Determining the applicable standard(s) for a power purchase agreement

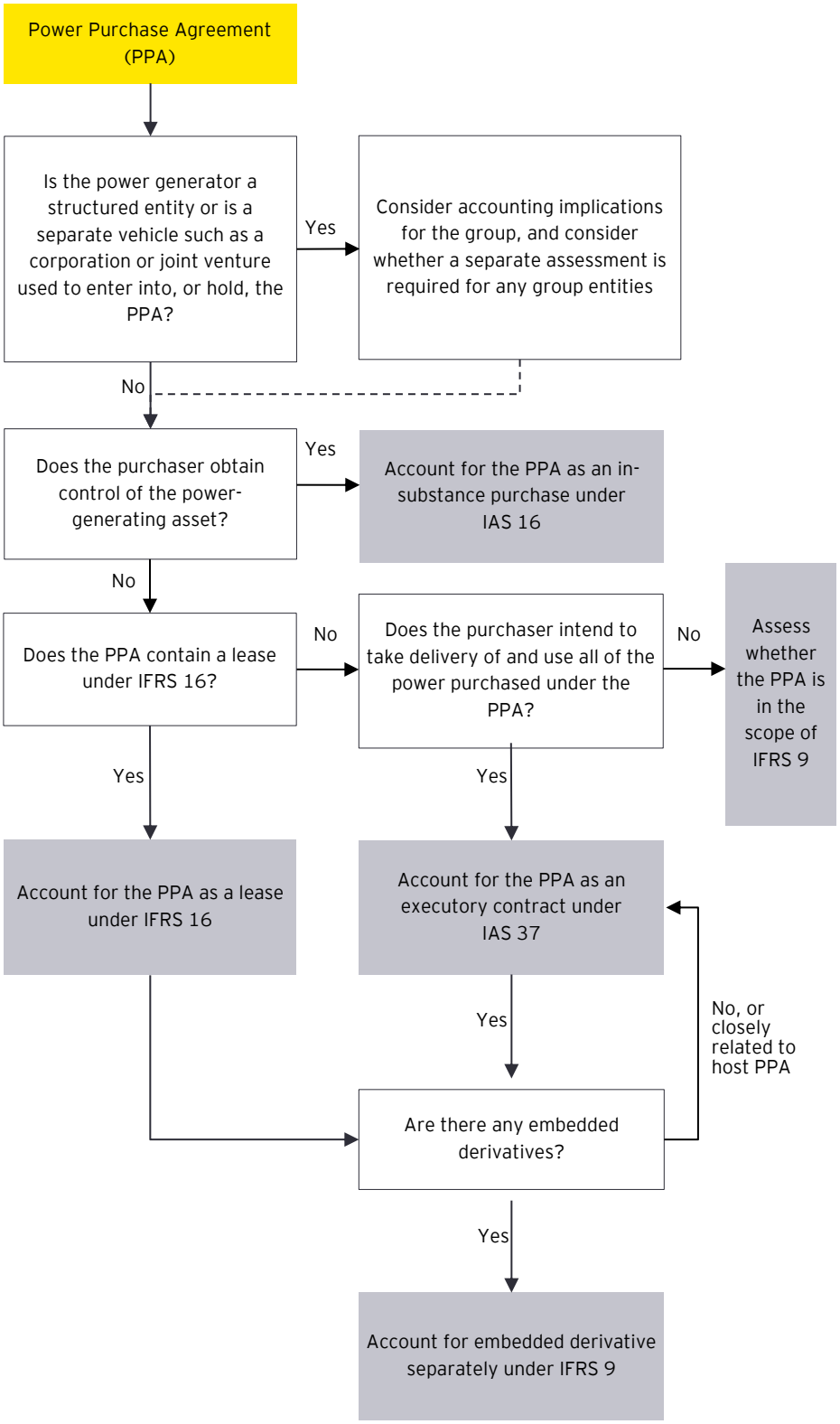


Figure 8-1 above provides a simplified decision-making process for determining which accounting standard applies to power purchase agreements from the perspective of a purchaser. Below we outline some non-exhaustive factors purchasers can consider when determining which standard(s) to apply.

Does the purchaser need to account for an investment in the supplier?

The purchaser may have an investment in the supplier or may have significant funding arrangements that could mean the purchaser actually controls, jointly controls, or has significant influence over the supplier.[39] That is, the purchaser may need to apply IFRS 10, IFRS 11 or IAS 28 *Investments in Associates and Joint Ventures*. An assessment of all facts and circumstances will be needed to determine the appropriate accounting.

When considering whether the purchaser controls, jointly controls or has significant influence over the supplier, the following questions could be relevant:

- Is the supplier a structured entity or another type of separate vehicle that is used to enter into, or hold, the power purchase agreement?[40]
- Are there equity investments, funding arrangements, credit guarantees, operating and maintenance contracts (with the supplier or its owner), or other contractual rights that may affect the accounting for the power purchase agreement?

These arrangements will need to be carefully considered to determine whether they give the purchaser the ability to make (jointly make), or influence, decisions about the relevant activities that significantly affect the returns of the supplier in a power purchase agreement. Decisions about relevant activities that significantly affect the returns of a supplier might include, for example, making decisions about the following:

- Design, development and construction of the power-producing facility
- Operations and maintenance of the facility
- Sale of power and entry into new agreements after inception
- End-of-life of the facility (e.g., decommissioning solar panels, burying wind turbines)

If an entity concludes it needs to apply IFRS 10, IFRS 11 or IAS 28, it might need more than one assessment of the power purchase agreement at the group, parent and/or subsidiary level, depending on the group structure, to appropriately account for it. Furthermore, once the assessment under IFRS 10, IFRS 11 or IAS 28 has been done, an entity still assesses the impact of the other accounting standards highlighted in Figure 8-1, as applicable.

[39] "An investor controls an investee when the investor is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee", IFRS 10, Appendix A. Joint control is defined as "the contractually agreed sharing of control of an arrangement, which exists only when decisions about the relevant activities require the unanimous consent of the parties sharing control." IFRS 11, Appendix A. "*Significant influence* is the power to participate in the financial and operating policy decisions of the investee but is not control or joint control of those policies." IAS 28.3.

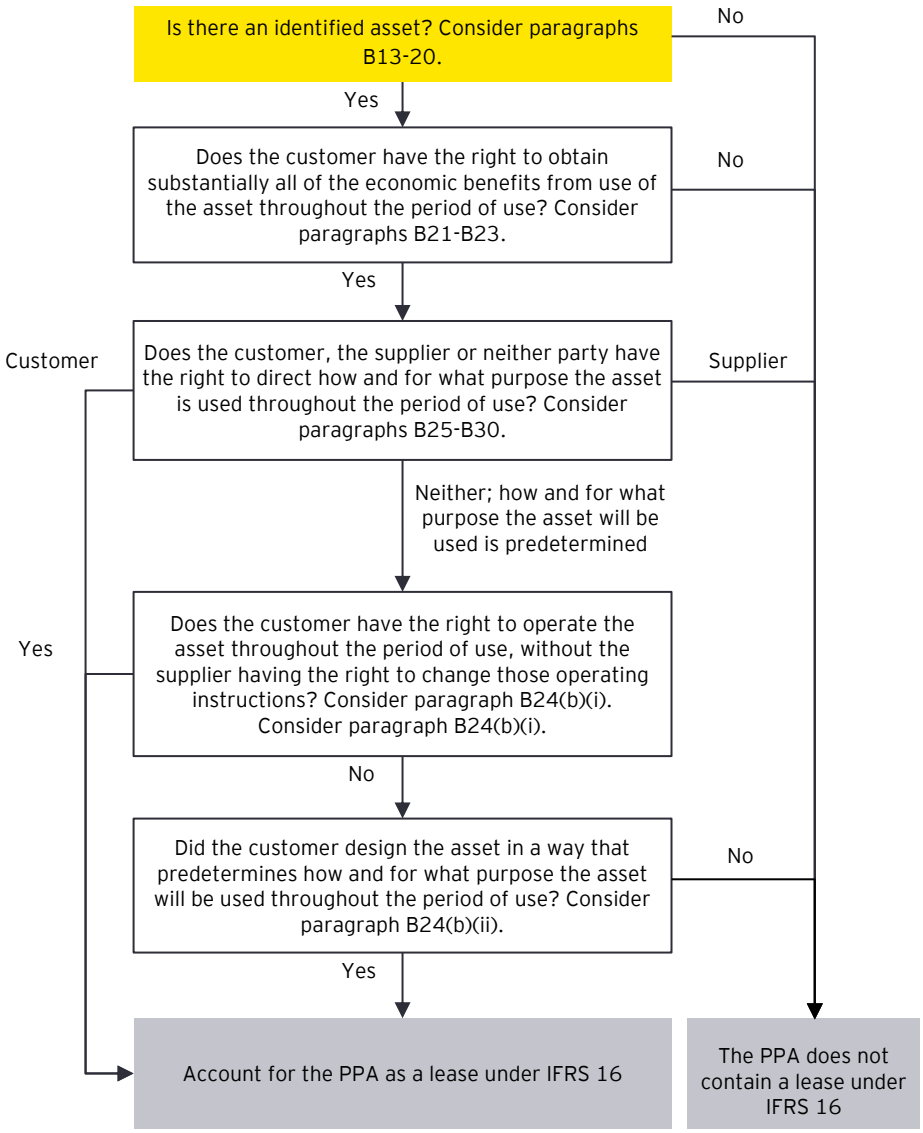
[40] A structured entity is defined as "an entity that has been designed so that voting or similar rights are not the dominant factor in determining who controls the entity, such as when any voting rights relate to administrative tasks only and the relevant activities are directed by means of contractual arrangements." IFRS 12 *Disclosures of Interests in Other Entities*, Appendix A.

Does the power purchase agreement contain a lease?

Arrangements that convey the right to control the use of an identified asset for a period of time in exchange for consideration meet the definition of a lease, even if the arrangement does not take the legal form of a lease. Therefore, contracts that involve renewable solar or wind equipment (e.g., physical power purchase agreements where the purchaser is taking substantially all of the economic benefits of the facility) could be lease contracts.

Figure 8-2 below summarises the accounting considerations in determining whether a power purchase agreement contains a lease under IFRS 16.

Figure 8-2 Determining whether a power purchase agreement contains a lease



Typically, the customer in a renewable wind or solar power purchase agreement does not have the right to control the use of the underlying equipment and, therefore, such an arrangement does not contain a lease. In some cases, the determination of whether a power purchase agreement represents a lease will require detailed analysis and, potentially, the involvement of several different business functions. However, even when the underlying wind and solar energy

generation equipment does not meet the definition of a lease, other assets associated with a power purchase agreement may meet the definition of a lease (e.g., underlying land, battery storage facilities).

When considering whether (a part of) the power purchase agreement represents a lease, the following questions could be relevant:

- Is there an identified asset either implicitly (for example, the supplier has no other facility that could be used to fulfil the power purchase agreement obligations) or explicitly specified in a contract (for example, the power purchase agreement specifies a particular wind or solar farm that will be used to satisfy the obligations)? If it is a capacity portion of an asset, is it physically distinct (for example, where a power purchase agreement specifies particular wind turbines within a wind farm)?
- Does the supplier have the substantive right to substitute the asset throughout the period of use?
- Does the purchaser have the right to obtain substantially all of the economic benefits from use of the identified asset throughout the period of use, either directly or indirectly? Economic benefits include the asset's primary outputs (e.g., power) and any by-products (e.g., renewable energy certificates (RECs) that are generated through the use of the asset), including potential cash flows.
- Does the purchaser have the right to direct how and for what purpose the asset is used throughout the period of use (e.g., the right to change the type of output produced by the asset, when or where it produces those outputs, whether it produces outputs or the quantity)?
- Are decisions related to how and for what purpose the asset is used through the period of use predetermined? If yes, to what extent does the customer have the right to (direct others to) operate the asset and/or have significant expertise in the design and construction of the asset?

Further guidance is provided in our publication, *Applying IFRS: Energy Transition: lease considerations in respect of power purchase agreements (August 2021)*.[41]

If a power purchase agreement is determined to be a lease, entities will still need to assess whether the power purchase agreement contains any embedded derivatives that are not clearly and closely related to the host contract (i.e., the contract to purchase power). Embedded derivatives arise where terms in the power purchase agreement reference risks that are unrelated to the purchase of power, such as foreign currency features. If they are not closely related to the host contract, they must be separated from the host contract and accounted for as derivatives under IFRS 9. The host contract would retain its treatment as a lease.

[41] Available on www.ey.com/IFRS.

Does the power purchase agreement need to be accounted for as a derivative?

IFRS 9 must be applied to contracts to buy or sell non-financial items that can be settled net in cash or another financial instrument, or by exchanging financial instruments, as if the contracts were financial instruments, with the exception of contracts that were entered into and continue to be held for the purpose of the receipt or delivery of a non-financial item in accordance with the entity's expected purchase, sale or usage requirements (the 'own use exception'). Further guidance on the decision process for contracts to buy or sell non-financial items can be found in International GAAP® 2025, Chapter 41, at section 3.1.[42]

IFRS 9 considerations

The first assessment under the currently effective guidance in IFRS 9 is to understand whether the contract is capable of being net settled. IFRS 9 provides four examples of factors that must be considered in determining whether the contract can be net settled.[43] All of the examples, and any other indicators of net settlement, need to be considered. If the contract cannot be net settled, the contract is not in the scope of IFRS 9 and is accounted for as an executory contract. The following questions may be helpful for entities to consider:

(a) Do the terms of the contract permit either party to settle it net rather than taking delivery of the energy?

(b) Does the purchaser have a past practice of settling similar contracts net (whether with the counterparty, by entering into offsetting contracts or by selling the contract before its exercise or lapse)?

(c) Does the purchaser on-sell the power purchased (even if physically delivered) in the spot market for the purpose of generating a profit from short-term price fluctuations or dealer's margin?

(d) Is the purchased power readily convertible to cash?

If the answer to question (b) or (c) is yes, the power purchase agreements must be accounted for under IFRS 9 as if they were derivatives.[44] In all other cases where the contract is capable of being net settled, further assessment is required to determine whether the contract is held for the purpose of the receipt or delivery of the non-financial item in accordance with the entity's expected purchase, sale or usage requirements. If it is not held for 'own use' purposes, the contract is accounted for under IFRS 9 as if it were a derivative. If it is held for 'own use', the contract is not in the scope of IFRS 9 and is accounted for as an executory contract. This is commonly referred to as the 'own use' exemption. However, the entity may still choose to designate it as measured at fair value through profit or loss.[45]

There are specific challenges that arise when applying the 'own use' exemption for physical power purchase agreements when the purchaser cannot store the

[42] Available on www.ey.com/IFRS.
[43] IFRS 9.2.6.
[44] IFRS 9.2.4, IFRS 9.2.6.
[45] IFRS 9.2.5.

excess electricity and it has to either be consumed or sold within a short time.[46] Judgement must, therefore, be applied in determining whether such a physical power purchase agreement is held for 'own use'.

If a power purchase agreement qualifies for the 'own use' exemption, entities will still need to assess whether the power purchase agreement contains any embedded derivatives that are not clearly and closely related to the host contract (i.e., the contract to purchase power). If they are not closely related to the host contract, they must be separated from the host contract and accounted for as derivatives under IFRS 9. The host contract would retain its treatment as an executory contract.

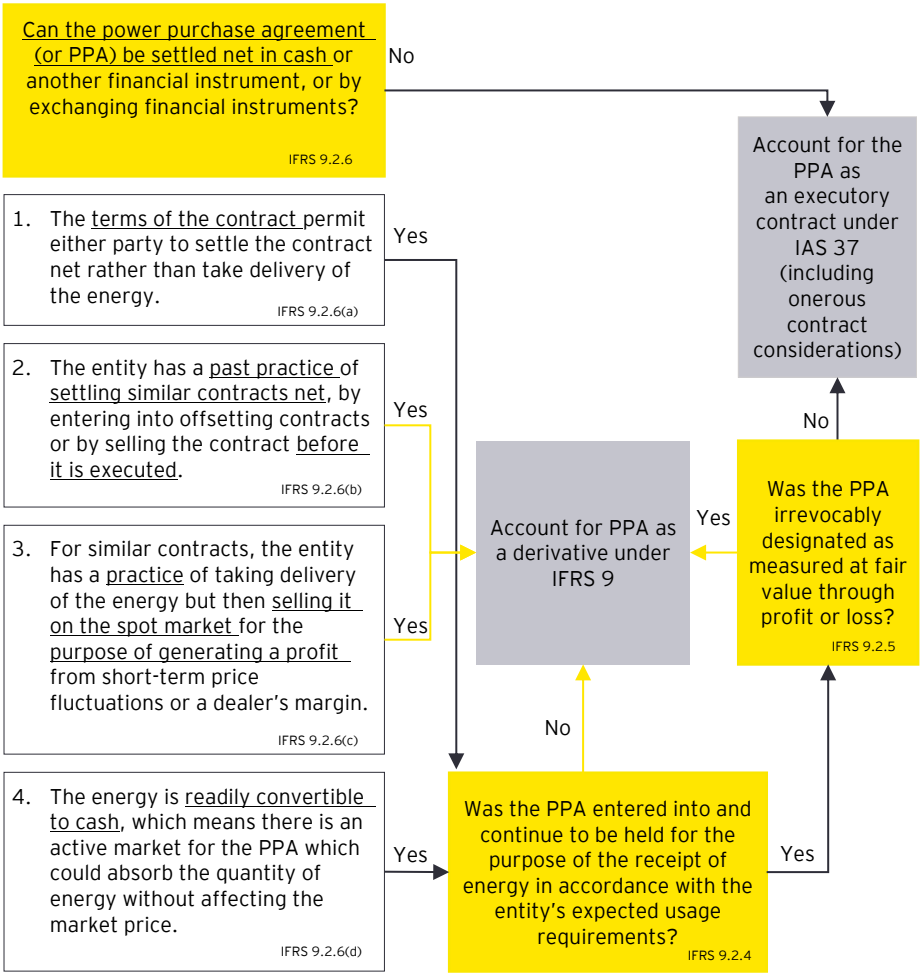


Figure 8-3 Determining whether a power purchase agreement *needs to be accounted for as a derivative*

The determination of how to account for the contract is made at the inception of the contract, e.g., when it is entered into. The accounting, therefore, reflects the entity's expectation and intention for entering into the power purchase agreement and the reason for which it continues to be held. If, having applied the 'own use' exemption, the reason for holding the power purchase agreement changes (e.g., the entity decides to sell the energy that it had previously planned to use), the power purchase agreement must be reclassified and

[46] IASB Staff paper 12, Project: *Application of the 'own use' exception in the light of current market and geopolitical questions (IFRS 9)*, Paper topic: *Exploring possible narrow scope amendments to IFRS 9*, IFRS Interpretations Committee Meeting, July 2023. para. 2. Available on the IFRS Foundation's website.

accounted for as a derivative. However, if an entity decides, after entering into a power purchase agreement, that it will not sell the power but, instead, use it to meet its own use requirements, it cannot reclassify the power purchase agreement from being accounted for as a derivative. Based on the facts and circumstances of the power purchase agreement, there are a number of considerations and judgements that will need to be made in order to demonstrate that the power purchase agreement was entered into, and continues to be held, for the purpose of 'own use'.

Does the purchaser have an executory contract?

If another standard does not apply, it is likely that the power purchase agreement will be an executory contract. IAS 37 defines an executory contract as "a contract under which neither party has performed any of its obligations or both parties have partially performed their obligations to an equal extent".[47] Unless an executory contract is onerous, the costs associated with executory contracts are normally expensed as incurred using accrual accounting, rather than requiring recognition of any liabilities or assets.

Disclosures

It is important that an entity makes appropriate disclosures where it has entered into power purchase agreements.

IAS 1 requires that entities provide additional disclosures when compliance with the specific requirements in IFRS accounting standards is insufficient to enable users to understand the impact of particular transactions, other events and conditions on the entity's financial position and financial performance.[48] Furthermore, entities must provide information in the notes that is not presented elsewhere in the financial statements but is relevant to an understanding of the financial statements.[49]

In determining the nature and extent of disclosures necessary to allow users to understand the impact of power purchase agreements, information that could be relevant includes:

- The objective critical terms, including duration and contractual pricing of the agreement (or the total expected monetary amounts of purchases under the contract)
- The volume of electricity contracted for, and the expected usage requirements
- The mechanisms in place for the sale of excess volumes, and the pricing attached to such sales (e.g., whether sales of excess volumes will be automatically executed at market prices or at prices that are more punitive than market prices)

[47] IAS 37.3.
[48] IAS 1.17(c), IAS 1.31.
[49] IAS 1.112(c).

- An outline of the accounting treatment adopted (e.g., if the entity applies the own use exemption under IFRS 9, and the underlying judgements (e.g., the period over which excess sales are assessed))
- The impact of excess sales on the entity's profit and loss in all the periods presented

It is critical that preparers disclose any judgements, apart from those involving estimations, that can significantly affect the amounts recognised in the financial statements.[50] Disclosures must also include information relating to power purchase agreements regarding assumptions made about the future, and other major sources of estimation uncertainty, that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the next financial year.[51] Consideration should also be given to potential liquidity risk resulting from these contracts, and the information provided internally to key management. Disclosures will also required by the standard(s) that apply to the power purchase agreement and, if measured at fair value, by IFRS 13.

Amendments to IFRS 9 and IFRS 7 - Contracts Referencing Nature-dependent Electricity

As a result of the complexities in applying the own use exception to nature-dependent electricity (NDE) contracts outlined above, on 18 December 2024, the IASB published *Amendments to IFRS 9 and IFRS 7 - Contracts Referencing Nature-dependent Electricity* ('the amendments'). The amendments only apply to contracts that reference nature-dependent electricity. These are contracts that expose an entity to variability in an underlying amount of electricity because the source of electricity generation depends on uncontrollable natural conditions, typically associated with renewable electricity sources such as sun and wind ('in-scope contracts'). Contracts referencing nature-dependent electricity include contracts to buy or sell nature-dependent electricity, as well as financial instruments that reference such electricity.

When evaluating such contracts for the own-use exception, the amendments require an entity to assess if it has been, and expects to be, a 'net purchaser' of electricity over the contract period. An entity will be a net purchaser of electricity if it buys sufficient electricity to offset the sales of any unused electricity in the same market in which it sold the electricity. An entity must make this net purchaser assessment based on reasonable and supportable information about its past, current and expected future electricity transactions over "a reasonable amount of time". When identifying "a reasonable amount of time" an entity must consider the variability of the amount of electricity generated due to the seasonal cycle of the natural conditions, and the variability in the entity's demand for electricity due to its operating cycle. However, a reasonable amount of time must not exceed 12 months.

Entities are increasingly using contracts for nature-dependent electricity to fix the price at which such electricity will be sold or purchased. However, IFRS 9 historically required the hedged item to be designated as a specified nominal

[50] IAS 1.122.
[51] IAS 1.125.

amount or volume. Any changes to the nominal amount or volume of the hedged item would result in increased ineffectiveness, and possibly the discontinuation of the hedging relationship. To overcome this, the amendments will now allow an entity designating a contract referencing nature-dependent electricity as the hedging instrument in a hedge of forecast electricity transactions, to designate a variable nominal amount of forecast electricity transactions as the hedged item. This designated variable nominal amount must be aligned with the variable amount of nature-dependent electricity expected to be delivered by the generation facility, as referenced in the hedging instrument.

IFRS 7 has been amended to require disclosures relating to contracts that have been excluded from the scope of IFRS 9 as a result of the amendments. In such cases, an entity must disclose in a single note:

Information about the contractual features that expose the entity to:

- Variability in an underlying amount of electricity
- The risk that the entity would be required to buy electricity during a delivery interval where it cannot use it

Information about unrecognised contractual commitments arising from such contracts, including:

- The estimated future cash flows from buying electricity under these contracts, disclosed in appropriate time bands
- Qualitative information about how the entity assesses whether a contract might become onerous

Qualitative and quantitative information about the effects on the entity's financial performance for the reporting period, based on the information that the entity used to assess whether it was a net purchaser of electricity. This includes:

- The costs arising from purchases of electricity made under the contracts, disclosing separately how much of the purchased electricity was unused at the time of delivery
- The proceeds arising from sales of unused electricity
- The costs arising from purchases of electricity made to offset sales of unused electricity

The amendments are effective for annual reporting periods beginning on or after 1 January 2026. Early adoption is permitted, but this will need to be disclosed, and may be subject to local endorsement. Furthermore, the date of initial application must be the beginning of a reporting period, but might be a reporting period other than an annual reporting period. The amendments relating to the own-use exception must be applied retrospectively. An entity is not required to restate prior periods, and it is only permitted to do so if this can be done without using hindsight. The hedge accounting amendments must be applied prospectively to new hedging relationships designated on or after the date of initial application. The IFRS 7 disclosure amendments must be applied when the IFRS 9 amendments are applied. If an entity does not restate

comparative information, then the entity must not present comparative disclosures.

Further information on the amendments can be found in the *IFRS Developments*, Issue 234: *Nature-dependent Electricity - IFRS 9 and IFRS 7 amendments*.[52]

How we see it

Power purchase agreements are increasingly common. Purchasers need to carefully analyse their contractual arrangements to determine the applicable standard(s) and appropriate accounting treatment; this determination could require significant judgement.

Regardless of which standard(s) applies, entities will need to provide adequate and transparent disclosures to inform users of financial statements about their power purchase agreements and their current and anticipated effects. Entities may also need to consider the expectations of regulators in preparing their disclosures.[53]

In addition, preparers will need to determine the impact of the amendments to IFRS 9 and IFRS 7 with regard to contracts referencing nature-dependent electricity.

[52] Available on www.ey.com/IFRS.

[53] As an example, see ESMA, *European common enforcement priorities for 2023 annual financial reports*; available on ESMA's website.

Appendix 1: Other climate-related accounting considerations

Below we set out other potential climate-related accounting considerations that could have an impact on entities. As practice develops and as more information becomes available, we will update the publication and address some of these issues separately.

Standard	Potential accounting considerations
IAS 2 *Inventories*	Have the costs of inventories changed (due to carbon offsetting charges, additional import duties, product conversion/redesign costs) or net realisable value (due to changes in customer demand or regulatory restrictions)? Should levies on emissions during production be included in the cost of the produced inventories?
IAS 10 *Events after the Reporting Date*	Do specific regulatory or market developments that occur after the reporting date represent adjusting or non-adjusting events?
IAS 19 *Employee Benefits*	Do any of the entity's employee benefits depend on the achievement of specific targets related to climate (e.g., emission reductions or recycling targets) or social objectives (e.g., reduction in lost-time accident frequency or diversity and gender equality goals)?
IAS 20 *Accounting for Government Grants and Disclosure of Government Assistance*	Have government incentives or assistance been introduced or revised in response to specific climate-related initiatives? Are conditions attached to any government grants linked to climate-related targets or initiatives? Have circumstances changed that would affect the entity's ability to meet those conditions or could require repayment of a grant?
IAS 41 *Agriculture*	Have there been any events related to climatic, disease and other natural risks that have given rise to a material item of income or expense for which the nature and amount needs to be disclosed in the financial statements? Have entities that hold, or are planting, trees as carbon sinks or to produce carbon offsets considered which standard applies to those assets?[54]
IFRS 2 *Share-based Payments*	Do any of the entity's share-based payment plans depend on the achievement of specific climate-related targets, for example, targets to reduce Scope 1, Scope 2 or Scope 3 greenhouse gas emissions? Has the entity appropriately considered if the climate-related targets are vesting conditions or non-vesting conditions, which impacts the recognition and measurement of the share-based payment transaction?
IFRS 8 *Segment Reporting*	Is the information presented in the segment reporting consistent with the information disclosed in other parts of annual report/other communication to investors (e.g., when information for commodity / non-commodity businesses are reviewed by the chief operating decision maker)?

[54] Refer to our publication, IFRS Developments, Issue 199: *Accounting for trees held to generate carbon offsets for use or sale* for further details.

Standard	Potential accounting considerations
	Does the entity adjust the IFRS information for internal management reporting purposes to fully reflect any climate-related impact of its activities?
IFRS 10 *Consolidated Financial Statements*	Do new climate-related regulatory developments result in the loss of control over a particular business or activity (for example, due to the inability to continue to operate certain activities or influence the key decisions)?
IFRS 15 *Revenue from Contracts with Customers*	Is the entity facing increased uncertainties related to revenues recognised over time due to climate-related developments? Are climate-related developments affecting the extent to which the entity expects to be entitled to variable consideration (including its assessment of the constraint on variable consideration)? Are customers charged an optional or required fee to offset emissions with their purchase? If so, has the entity assessed the impact on its accounting (e.g., whether there is a promised good or service, whether it is agent or principal)? Have any climate-related developments led to modifications of contracts with customers (e.g., switching to goods or services with a smaller carbon footprint)? Have any climate-related developments affected anticipated revenue contracts (e.g., renewals), such that recognised contract cost assets need to be assessed for impairment or the amortisation period revised? Does the entity offer goods or services that are branded as 'carbon neutral'? If so, is this achieved by transferring carbon credits to the customer, by the entity surrendering carbon credits directly to the authorities, or another method? Depending on the delivery model and specific promises made to the customer, it could affect the performance obligations identified in the contract and may require judgement to assess.
IFRS 16 *Leases*	Have there been changes (e.g., changes in business models or restructuring plans) that require a reassessment of the lease term and lease liability? Are lease agreements modified due to climate-related changes in the market or legal environment (e.g., the inability to operate certain asset or activities)? Have leases been identified in new contracts or arrangements entered into in response to climate-related risks and opportunities (e.g., in relation to renewable electricity)?
IFRS 17 *Insurance Contracts*	Entities that issue insurance contracts in the scope of IFRS 17 will need to increase their focus on identifying, modelling, and managing climate-related risks and estimation uncertainty. This will apply both to insurance contract liabilities under IFRS 17 and to the financial instrument assets held by insurers to back those liabilities. Key considerations related to IFRS 17 include: ▪ Do the entity's risk assumptions used within the IFRS 17 measurement models appropriately reflect climate-related developments (e.g., increased frequency or magnitude of insured events such as business interruption, property damage or death)?

Standard	Potential accounting considerations
	▪ Could reflecting such climate-related developments in the measurement of insurance liabilities result in an increased risk of losses from onerous contracts? ▪ Could climate-related risks affect the grouping of contracts under IFRS 17? ▪ Does the entity provide adequate disclosure over significant judgments and changes in judgment related to climate-change in applying IFRS 17? ▪ Does the entity provide the relevant disclosures of: ▪ Climate-related risk concentrations arising from contracts within the scope of IFRS 17, including a description of how the entity determines the concentrations and a description of shared characteristics that identify each concentration (for example, the type of insured event, industry, or geographical area)? ▪ Its exposure to changes in risk variables through sensitivities, include a description of the methods and assumptions used in preparing the sensitivity analysis? ▪ Does the entity adequately disclose its related risk management procedures for users to understand the effects, and is this disclosure consistent with other disclosures provided in the financial statements or elsewhere? ▪ Where relevant, does the entity disclose information about the effect of any climate-related regulatory frameworks in the areas in which it operates?

Appendix 2: Summary of important changes to this publication

The key changes to this publication since the May 2024 edition include updates to the illustrations where possible and adding new illustrations. Additional discussion has been added throughout on consistency considerations between sustainability reporting outside the financial statements and financial reporting within the financial statement.

The other changes made to this May 2025 update are summarised below.

3. Impairment of assets

Example 3-1 with several scenarios on the determination of future cash flows for value in use has been added.

6. Financial instruments

Updated to discuss the amendments to *Classification and Measurement of Financial Instruments, Amendments to IFRS 9 and IFRS 7*, which was issued in May 2024.

8. Power purchase agreements

Updated to discuss *Contracts Referencing Nature-dependent Electricity, Amendments to IFRS 9 and IFRS 7*, which was issued in December 2024.

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