

Transition Planning 2026: Decarbonisation strategies in oil and gas, and diversified mining



The TPI Global Climate Transition Centre at LSE

The TPI Global Climate Transition Centre (TPI Centre) is an independent, authoritative source of research and data on the progress of corporate and sovereign entities in transitioning to a low-carbon economy. It is part of the Global School of Sustainability at the London School of Economics and Political Science (LSE). The TPI Centre is the academic partner of the Transition Pathway Initiative (TPI), a global initiative led by asset owners and supported by asset managers, aimed at helping investors and other stakeholders assess company, bank and sovereign progress on the transition to a low-carbon economy and supporting efforts to address climate change. More than 155 investors globally, representing approximately US\$90 trillion¹ combined Assets Under Management and Advice, have pledged support for TPI. The TPI Centre is also the academic research expert of Assessing Sovereign Climate-related Opportunities and Risks (ASCOR).

The TPI Centre provides data on listed equities, corporate bond issuers, banks and sovereign bond issuers. The TPI Centre's company data:

- Assess the quality of companies' governance and management of their carbon emissions and of risks and opportunities related to the low-carbon transition
- Evaluate if companies' current and planned future emissions align with international climate targets and national climate pledges, including those made as part of the Paris Agreement
- Form the basis of the Climate Action 100+ Net Zero Company Benchmark Disclosure Framework assessments
- Provide detailed assessments of companies' transition plans in high-emitting and hard-to-abate sectors
- Are published alongside the methods online. They are public and free to use for non-commercial purposes and available at www.transitionpathwayinitiative.org.

Report authors

This report was written by Seyed Alireza Modirzadeh, Ella Davies, Meghan Fitzpatrick, Maxim Sinclair, Valentin Jahn and Simon Dietz. All were staff at the TPI Centre at the time of writing.

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Summary: key findings

The TPI Centre Transition Planning 2026 report assesses the transition plans of 22 large publicly listed companies in the oil and gas and diversified mining sectors. The report applies the TPI Centre's Net Zero Strategies (NZS) assessment frameworks to evaluate how companies plan to deliver emissions reductions across their businesses. It conducts detailed assessments of companies' decarbonisation strategies, including by analysing decarbonisation levers (the key actions companies plan to take to decarbonise), evaluating the alignment of those actions with low-carbon scenarios, and examining capital expenditure and investment planning. In doing so, the report sheds light on the credibility, investability, external dependencies and transition readiness of corporate transition plans in these sectors.

[Click to explore NZS data](#)

Oil and gas

14%

Average planned increase in oil and gas production by 2030 based on disclosed plans

5%

Maximum calculated share of low-carbon energy in total energy production by 2030 based on disclosed plans

Diversified mining

Copper

The only key transition material with disclosed plans to increase production

Iron ore

The commodity with relatively advanced downstream decarbonisation strategies among assessed producers

Across both oil and gas and diversified mining, companies frequently disclose their climate ambitions and emissions targets. However, far less often do they disclose quantified, time-bound and sufficiently resourced plans showing how those ambitions will be delivered. In the oil and gas sector, there is little clear evidence that companies plan to transition away from fossil fuels towards climate solutions at the required pace. In the diversified mining sector, companies are more likely to quantify operational emissions abatement levers, although only a small number present plans to scale up key transition materials.

Oil and gas

Oil and gas companies are prioritising methane and operational emissions reductions, but they fail to provide detailed implementation plans. Twelve of the 16 assessed companies have committed to achieving Oil and Gas Methane Partnership 2.0 (OGMP 2.0) Gold Standard Reporting status, and 13 have set net zero Scope 1 and 2 emissions targets by 2050. However, detailed implementation plans are much less common: only half of the companies have quantified the contribution of operational decarbonisation levers to their medium-term

targets, and only one company, TotalEnergies, provides a detailed methane reduction plan covering emission sources, timelines and technologies.

The largest gap in oil and gas transition planning concerns the scale of business-model transition. Oil and gas production needs to begin falling, but among the 11 companies disclosing production guidance, planned oil and gas production is set to increase by 14% by 2030, from 22.90 million barrels of oil equivalent per day (mmboc/d) in 2024 to 26.16 mmboc/d in 2030. Low-carbon energy production needs to ramp up, but of the eight companies disclosing quantified targets to increase low-carbon energy production, none is planning a shift of sufficient scale to align with the benchmark scenarios assessed in this report. The maximum calculated share of low-carbon energy in total energy production reaches only 5% by 2030.

Capital allocation remains one of the weakest areas of transition planning in the oil and gas sector. Disclosure of forward-looking capital expenditure is limited even for core oil and gas activities and is scarcer still for low-carbon capital allocation. Only four companies, BP, Eni, Equinor and OMV, disclose both current and forward-

looking capital expenditure for climate solutions. Among the five companies disclosing against the EU Taxonomy for sustainable activities, the share of taxonomy-aligned capital expenditure in 2024 ranges from around 6% to 40%, with an average of 12%. Differences in reporting boundaries and accounting methodologies further limit comparability across companies.

Diversified mining sector

The diversified mining assessments reveal **substantial variation in relation to different commodities and across business models**. Among the assessed iron ore producers, downstream decarbonisation planning is relatively advanced: BHP, Rio Tinto and Vale all disclose projects and partnerships with customers to reduce steelmaking emissions. BHP and Rio Tinto also disclose time-bound strategies for implementation. In contrast, planning for coal-related transition risks remains limited among the two companies in the sample retaining coal assets. BHP plans to exit thermal

coal by 2030, while Glencore does not disclose future coal production guidance; neither company has set a medium-term methane reduction target. All six assessed companies have made public commitments to the principles of the just transition, but most have not translated these into formal, measurable and verifiable policies addressing mine closures, responsible mining certification or Indigenous Peoples' consent.

Mining companies also show limited disclosed planning to scale up production of key materials needed to support the transition. All six assessed companies produce at least one key transition material, but only two have disclosed plans to increase their production, and these relate only to copper. By 2035, Glencore plans to increase copper production by 68% and Vale by 114%, both compared with 2024 levels. In relation to other critical minerals, including lithium, there are no disclosed expansion plans among the companies producing them, despite the substantial increases in output needed under low-carbon scenarios.

Supporting investors

Investors can use the TPI Centre's Net Zero Strategies assessment data and methodologies to better understand companies' transition plans in hard-to-abate sectors. The frameworks help investors assess whether climate targets are supported by quantified and coherent delivery strategies, evaluate the credibility and investability of those strategies, identify key external dependencies and execution risks, and gauge companies' readiness to deliver on their transition ambitions. In doing so, they provide a richer picture of transition risk and opportunity than emissions targets alone.



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1. Introduction

This is the Transition Planning 2026 report from the TPI Global Climate Transition Centre (TPI Centre). It presents the results of the Net Zero Strategies (NZS) assessment frameworks for the oil and gas and diversified mining sectors, evaluating the transition plans of 22 of the world's largest companies by market capitalisation in these two hard-to-abate sectors.

Transition plans are moving into centre-stage in the discussion about corporate climate disclosures. The IFRS² [Transition Plan Taskforce \(TPT\)](#) defines a corporate transition plan as a detailed outline within a company's overall strategy that lays out its targets, actions and resource allocation to transition towards a lower-carbon economy, encompassing both internal decarbonisation efforts and engagement with the broader value chain. The growing recognition of the importance of transition plans is reflected in a rapidly evolving regulatory landscape, with [ISSB³ disclosure standards adopted in 37 jurisdictions globally](#), and the IFRS Foundation releasing guidance on transition plan disclosures in June 2025, effectively endorsing TPT-aligned disclosures.

Transition plans serve as a critical tool for communicating a company's climate strategy and building investor confidence in its ability to deliver. They provide evidence that corporate climate targets are supported by actionable delivery mechanisms, moving beyond ambition to demonstrate how a company intends to decarbonise. Detailed transition plans allow investors and other stakeholders to assess not only what a company has committed to, but also whether those commitments are backed up by specific actions, resources and timelines.

Assessing transition plans requires a structured and consistent approach that can distinguish robust plans from vague or unsubstantiated ones. It should recognise the specific decarbonisation journey a company is following, tailored to its business strategy and expertise, and acknowledging the distinct challenges of its sector, while enabling meaningful comparison across companies. Developing such an approach requires defining what a good transition plan looks like, identifying the key elements that make it coherent, and building a framework that can be applied consistently and transparently. This is what the TPI Centre's NZS assessment frameworks are designed to provide.

The NZS assessment frameworks are sector-specific frameworks developed and applied by the TPI Centre to evaluate companies' transition plans and decarbonisation strategies across their business segments. For each sector, the frameworks enable a systematic assessment of the decarbonisation levers and capital expenditure plans through which companies intend to reach their climate targets, providing a comprehensive and structured evaluation of the credibility of corporate transition planning.

² International Financial Reporting Standards

³ International Sustainability Standards Board

1.1. Net Zero Strategies (NZS) assessment frameworks

Structure of the frameworks

The NZS frameworks are structured around areas and indicators. Each area reflects a specific dimension of a company's transition strategy, such as how it plans to reduce methane emissions, or whether it is diversifying into low-carbon energy. Areas are sector-specific, reflecting each sector's distinct decarbonisation challenges, emission sources, climate solutions and transition pathways. The areas applicable to each sector are explored later in the report: see Section 2 for oil and gas and Section 3 for diversified mining.

Within each area, companies are assessed on a set of indicators that serve as the scoring units of the framework. Most indicators are assessed on a binary 'Yes' or 'No' basis. Some areas include an alignment indicator, scored through quantitative benchmarking of companies' performance against low-carbon scenarios. In line with the TPI Centre's Carbon Performance methodology, three benchmark scenarios are applied to assess the level of alignment with global temperature goals (e.g. a 'Below 2°C' scenario).

Each indicator is further categorised by type, enabling direct comparison of the quality of company disclosure between different areas. Indicator types reflect what each indicator is designed to capture, for instance, whether it assesses the quantification of a decarbonisation lever or the disclosure of capital expenditure plans. Table 1.1 presents the indicator types and their associated scoring metrics.

Table 1.1. NZS indicator types and their associated scoring metrics

Indicator type	Scoring metric
Climate-related disclosures	Yes/No
Decarbonisation levers	Yes/No
Capital expenditure and planning	Yes/No
Alignment	Low-carbon scenarios alignment scores (e.g. Below 2°C)

Design principles

Five principles have informed the design of the NZS frameworks. These are:

1. Assessments must be based solely on publicly available company disclosures.
2. Indicators are assessable objectively using a transparent methodology.
3. The assessment frameworks are relevant for all types of companies within a sector.
4. The assessment frameworks are designed to capture different decarbonisation strategies.
5. Indicators are clear, useful and accessible to users.

How the NZS assessment frameworks and Management Quality and Carbon Performance tools complement each other

In addition to the NZS assessment frameworks, the TPI Centre assesses companies' progress on the low-carbon transition through two complementary methodologies: Management Quality (MQ) and Carbon Performance (CP). MQ is a sector-agnostic framework assessing how effectively a company governs and manages climate-related risks and opportunities, including its climate policies, emissions reduction targets, strategic planning and integration of climate considerations into business decision-making. CP assesses a company's emissions pathway alignment with international climate goals by comparing its current and projected emissions intensity against sector-specific benchmarks consistent with the Paris Agreement goals.

The NZS frameworks deepen the analysis of transition planning and implementation that begins at MQ Level 5. Level 5 indicators assess whether companies have moved beyond target-setting into detailed, actionable transition planning, examining, for instance, whether a company has quantified the key elements of its decarbonisation strategy (MQ19) or whether it commits to aligning its future capital expenditure with its climate targets (MQ22). The NZS frameworks go further by examining the specific decarbonisation levers and capital expenditure plans with a sector-specific lens.

The NZS frameworks also complement the CP methodology by quantitatively examining the plans that underpin a company's emissions pathway. Whereas CP benchmarks a company's overall emissions trajectory against low-carbon scenarios, the NZS frameworks' alignment indicators break this down to assess whether the key elements of a company's transition plan are consistent with those scenarios. For example, for an oil and gas company, alignment indicators assess how the company's deployment of low-carbon technologies and planned oil and gas production pathways align with low-carbon scenarios. These indicators offer more granular assessments of the building blocks of a company's transition strategy, giving investors insight into whether emissions targets have been translated into quantified key decarbonisation levers.

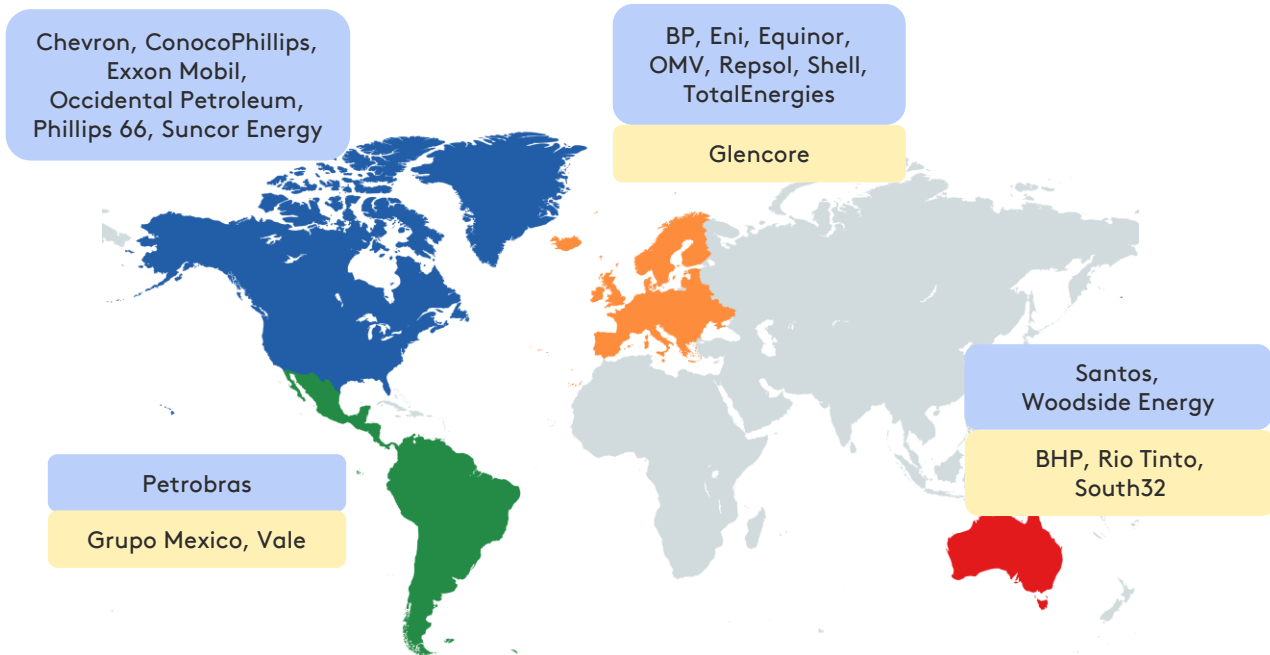
Links to other frameworks

The NZS frameworks are designed to complement key investor engagement initiatives. In 2025, the Institutional Investors Group on Climate Change (IIGCC) launched its [Engage series](#), followed by the publication of a set of primers and tools for investor engagement. The NZS frameworks are designed to align with the sector-specific requirements of the Engage series, providing investors with a comprehensive view of companies' decarbonisation plans to inform and support company dialogue. The frameworks also complement other investor engagement initiatives, including the [Climate Action 100+ \(CA100+\) Net Zero Company Benchmark](#) and the [Net Zero Investment Framework \(NZIF\)](#), by offering more granular analysis of decarbonisation plans, capital allocation and other key transition topics addressed by those initiatives.

1.2. NZS assessments: 2026 cycle

This report presents NZS assessments of 22 leading global companies in two sectors critical to the low-carbon transition: 16 in oil and gas and six in diversified mining. These companies have a combined market capitalisation of over US\$2.8 trillion as of March 2026 and represent some of the world's largest extractive companies. As part of the assessment process, companies were invited to review their scores and provide feedback. Where that feedback was found to have merit, scores were updated accordingly. The full list of companies assessed is provided in Figure 1.1.

Figure 1.1. Companies covered in the report, by sector and region



Sector	No. of companies	Market capitalisation	Company feedback rate
Oil and gas	16	US\$ 2,240 billion	10/16 (68%)
Diversified mining	6	US\$ 590 billion	5/6 (83%)

1.3. Structure of the report

Section 2 of this report presents NZS assessments for the oil and gas sector, starting with aggregated results at the area level, followed by dedicated subsections on the sector's decarbonisation levers and their alignment with global warming scenarios, and ending with a section focused on capital expenditure. Section 3 presents the equivalent analysis for the diversified mining sector, with sections focused on downstream emissions reduction strategies and the just transition. Section 4 provides insights for investors on how to use NZS data to interpret companies' transition plans, and

makes recommendations for engagement asks in investor-company dialogue.

This report extends the analysis of the TPI Centre's [State of Corporate Transition 2025](#) report, which forms part of the Centre's flagship trilogy of annual reports published in 2025:⁴

- I. [State of the Corporate Transition 2025](#)
- II. [State of the Banking Transition 2025](#)
- III. [State of the Sovereign Transition 2025](#)

⁴ Until 2023 we published a single 'TPI State of Transition' report.

2. Oil and gas sector

The TPI Centre's **NZS assessment framework for the oil and gas sector** evaluates companies across seven areas, reflecting the sector's key emissions sources and business segments, including methane emissions, upstream production and climate solutions. This report analyses the results of applying this framework to 16 oil and gas companies from different regions, spanning exploration and production, refining and integrated business models.⁵

2.1. Overview of the sector and key results

The NZS assessment framework for the oil and gas sector evaluates companies across seven areas.

These are: operational emissions (OE); methane (ME); upstream (UP); mid/downstream (MD); neutralisation measures (NM); climate solutions (CS); and advanced disclosures (AD). Figure 2.1 presents the distribution of company scores across each area, sorted from highest to lowest average area score. These are simple unweighted averages of the share of indicators satisfied by companies.

Overall, companies satisfy an average of 26% of indicators, with a range across companies of 0%–56%. TotalEnergies leads the sector by scoring on 56% of indicators,⁶ followed by a cluster of companies including Eni (41%), Shell, OMV and Repsol (all 38%), and Petrobras (35%). The remaining companies score 27% or less.

Oil and gas company disclosures place greater emphasis on reducing operational emissions, particularly methane, than on adapting their business models to a low-carbon transition.

Companies are most likely to satisfy indicators in the methane area, which assesses companies' plans and commitments to improve methane emissions monitoring and reduction. Companies are also comparatively likely to score on indicators in the operational emissions area, which assesses the management of Scope 1 and 2 emissions: ten of the 16 companies score on one of the three indicators in this area. By contrast, companies score less well in the upstream and mid/downstream areas, which examine the transparency of future production plans and the extent to which companies are

preparing for structural changes in demand arising from the low-carbon transition.

Disclosures relating to diversification into low-carbon products and services are relatively well developed. Companies score relatively well in the climate solutions area, which assesses whether companies have articulated a strategy for developing and scaling up activities such as renewable power generation and low-carbon fuels. However, this does not assess the scale of ambition of companies' climate solutions strategies. We analyse this further in Section 2.3.

Some companies also disclose information on their intended use of carbon credits and carbon dioxide removal technologies to meet emissions targets. The neutralisation measures area assesses whether this reliance is quantified, transparently disclosed, and supported by detailed implementation plans and resources. Performance in this area is mixed, with scores falling around the middle of the overall distribution.

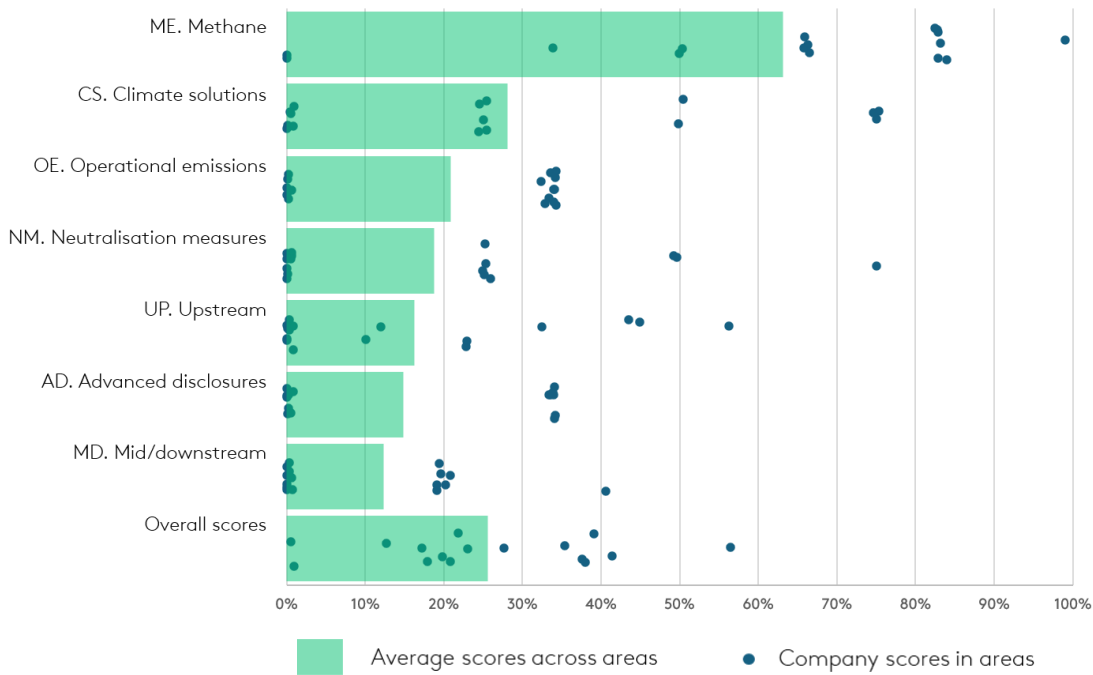
Emissions and activity data disclosures often lack the granularity required for robust analysis. The advanced disclosures area assesses whether companies provide sufficient granularity to enable robust and consistent calculation of emissions intensity. This includes disclosure of externally sold energy, assumptions underpinning emissions and energy data, and emissions across all scopes and greenhouse gases. While companies typically meet minimum reporting requirements, these disclosures often require adjustments to enable meaningful sector-wide comparison of emissions intensities.⁷

⁵ Based on disclosures available before January 2026.

⁶ Since the publication of the **NZS assessments in March 2026**, TotalEnergies has removed several long-term climate commitments. See the company's **Sustainability and Climate 2026 Progress Report** for further details.

⁷ See TPI Centre's **Carbon Performance methodology for oil and gas**.

Figure 2.1. Distribution of company scores and average area scores across NZS areas in the oil and gas sector



2.2. Decarbonisation levers in the oil and gas sector

In this section, we examine the decarbonisation levers in the oil and gas sector across four dimensions. These are: fossil fuels exposure reduction; operational emissions and process efficiency; scaling up climate solutions; and neutralising residual emissions.

Fossil fuels exposure reduction

Disclosure of fossil fuel production plans remains incomplete across the sector. In total, 11 of the 16 companies assessed report their fossil fuel production plans over the medium term,⁸ but only five disclose their plans for oil and gas separately (as captured in indicators UP.1-4 of the framework). These five are Eni, OMV, Shell, TotalEnergies and Petrobras. This is a significant gap, given that oil and gas carry different emissions intensities and are expected to follow differentiated reduction pathways under low-carbon scenarios.

Among the 11 companies disclosing production guidance, most are planning to increase their upstream oil and gas production, while two are

planning to switch from oil to gas. Based on disclosed guidance for 2030, of the five companies providing differentiated production figures, Eni, TotalEnergies and Petrobras plan to increase both oil and gas output, while OMV and Shell are shifting away from oil towards gas. Of the six companies disclosing aggregate upstream guidance, five are planning to grow their overall production, while BP is planning to maintain its current production level. Table 2.1 presents the full breakdown.

The disclosed oil and gas production plans of the assessed companies exceed even business-as-usual projections for the sector, let alone low-carbon scenarios. Total oil and gas production across the 11 companies disclosing production guidance is set to reach 26.16 mmb/d by 2030, representing a 14% increase from the 2024 level of 22.90 mmb/d.⁹ This planned growth significantly exceeds the 5.9% global oil and gas demand increase projected for 2024-2030 under the Current Policies Scenario modelled by the [IEA World Energy Outlook 2025](#). This implies that these companies are planning to grow their share of global oil and gas production.

⁸ The [NZS data published in March 2026](#) shows TotalEnergies as the only company disclosing long-term production plans. However, at the time of drafting this report, TotalEnergies had removed its Scope 3 target covering value chain emissions. We therefore excluded long-term production plans from this analysis.

⁹ These production plans were published prior to the current geopolitical shifts in West Asia and their potential impact on global oil and gas supply chains.

This may also reflect a strategic positioning to compete for remaining demand in the event of an accelerated low-carbon transition, for instance, by maintaining higher production volumes to keep prices competitive as demand shifts with the growth of electric vehicles and other low-carbon technologies.

Some companies have begun disclosing the implications of shifting demand in line with the low-carbon transition for their mid/downstream operations. Six of the 13 companies with refining

activities have disclosed plans to repurpose their existing refining capacity (MD.5), mainly to produce low-carbon fuels. However, only one company, Eni, has disclosed projects to repurpose its current pipeline infrastructure (MD.4). Twelve of the 16 companies have current or planned liquefied natural gas (LNG) facilities, but none has quantified the role of LNG in its emissions targets (MD.1-2). As a result, LNG's contribution to companies' decarbonisation pathways cannot be credibly assessed.

Table 2.1. Planned upstream production for companies with separate and aggregate oil and gas guidance by 2030

Companies with separate oil and gas production plans					
	Oil production Kboe/d (% change from 2024)		Gas production Kboe/d (% change from 2024)		Summary of the plan up to 2030
	2024	2030	2024	2030	
Eni	786	790 (+1% ↗)	930	1,185 (+27% ↗)	Planned increase in oil and gas production
OMV	180	160 (-11% ↘)	160	240 (+50% ↗)	Shifting from oil to gas production
Shell	1,503	1,400 (-7% ↘)	1,333	1,610 (+21% ↗)	Shifting from oil to gas production
TotalEnergies	1,314	1,450 (+10% ↗)	1,120	1,450 (+30% ↗)	Planned increase in oil and gas production
Petrobras	2,152	2,600 (+21% ↗)	512	600 (+17% ↗)	Planned increase in oil and gas production
Total	5,935	6,400 (+8% ↗)	4,055	5,085 (+25% ↗)	

Companies with aggregate oil and gas production plans			
	Aggregate oil and gas production Kboe/d (% change from 2024)		Summary of the plan up to 2030
	2024	2030	
BP	2,400	2,400 (0% →)	Maintaining current oil and gas production levels
Chevron	3,300	3,800 (+15% ↗)	Planned increase in oil and gas production
Exxon Mobil	4,333	5,400 (+25% ↗)	Planned increase in oil and gas production
Equinor	2,067	2,200 (+6% ↗)	Planned increase in oil and gas production
Repsol	571	575 (+1% ↗)	Planned increase in oil and gas production
Santos	239	300 (+26% ↗)	Planned increase in oil and gas production
Total	12,910	14,675 (+14% ↗)	

* In cases where the company provides oil and gas production guidance as a range, the midpoint of the range is used in this analysis.

** Other assessed companies did not disclose forward-looking upstream oil and gas production guidance for at least 2030. These are ConocoPhillips, Occidental Petroleum, Phillips 66, Suncor Energy and Woodside Energy.

Operational emissions and process efficiency

Operational emissions targets are widespread, but detailed decarbonisation plans are limited. All 16 companies have set targets for Scope 1 and 2 emissions, with all except three – Suncor, Chevron and Phillips 66 – committing to net zero operational emissions by 2050. However, only half have quantified the overall contribution of operational decarbonisation levers to their medium-term targets (OE.1), and only one, Woodside Energy, has done so to its long-term targets (OE.2). These levers include energy efficiency, flaring and venting reduction, procurement of renewable electricity and the use of low-carbon fuels.

Reducing operational methane emissions in the oil and gas sector is one of the most urgent and lowest-cost opportunities to limit global warming. To address this, several global initiatives have emerged to reduce methane emissions and routine flaring. The IEA urges a 75% reduction in methane emissions by 2030 compared to current levels, yet recent years have not seen significant progress at the global level. Following the global pledges made by governments at recent conference of the parties (COP) meetings, including the [Global Methane Pledge](#) launched at COP26 in 2021, methane abatement has become an increasingly important focus within energy sector decarbonisation efforts. This has led to the formation of frameworks, including the [Oil and Gas Methane Partnership 2.0 \(OGMP 2.0\)](#) and the [Zero Routine Flaring by 2030 \(ZRF\) initiative](#). OGMP 2.0 promotes improved methane measurement and reporting, while ZRF targets the elimination of routine flaring by 2030 through gas capture and utilisation.

Companies in this sample score relatively well on methane indicators, driven by strong uptake of OGMP 2.0 membership, commitments to zero routine flaring and the setting of methane reduction targets. Twelve of the 16 companies are members of OGMP 2.0 and are publicly committed to achieving the Gold Standard for methane emissions measurement and reporting (ME.1), and seven have already achieved high levels of OGMP 2.0 reporting on Levels 4 and 5 (ME.2).¹⁰ Only one company, Suncor Energy, has not committed to

achieving zero routine flaring by 2030 (ME.5). However, when it comes to disclosing detailed plans, including actions for each methane emission source, with specified timelines and technologies, only TotalEnergies has scored 'Yes' (ME.6).

Scaling up climate solutions

Oil and gas companies might choose to diversify into low-carbon business models as part of their decarbonisation strategies. The climate solutions area within the NZS framework assesses whether companies have defined a strategy for the development and scaling up of low-carbon products and services. The framework defines five routes to accommodate companies pursuing different strategies to grow their climate solutions capacity: renewable electricity generation, low-carbon fuels production, other climate solutions (e.g. nuclear power), distribution of low-carbon energy, and provision of carbon capture, utilisation and storage (CCUS) as a service to third parties. Companies are required to have a quantified target to increase the provision of at least one of these solutions to score on the relevant indicator (CS.1).

Nine of the 16 companies score positively on at least one of the defined climate solutions routes. Table 2.2 presents these companies alongside their quantified plans for each climate solutions route. Of these companies, only four, Equinor, OMV, Repsol and TotalEnergies, have quantified the contribution of climate solutions to their emissions reduction targets (CS.2 and/or CS.3). Many of the remaining companies state an intention to provide climate solutions, but none have set quantified forward-looking targets.

Among the disclosed climate solutions strategies, low-carbon fuels production and renewable electricity generation are the most commonly pursued routes. Seven companies report targets to increase low-carbon fuels production (Chevron, Eni, Exxon Mobil, OMV, Petrobras, Repsol and TotalEnergies), covering a wide variety of fuels including sustainable aviation fuel, renewable diesel, biodiesel, ethanol and biomethane.¹¹ Six companies also disclose targets to increase their renewable electricity generation capacity (Eni,

¹⁰ In [version 1.0 of the NZS framework for oil and gas](#), we define a high level of compliance with OGMP 2.0 as 50% of operated assets at Level 5 and 75% of operated assets at Levels 4 and 5.

¹¹ All company plans to produce biofuels and hydrogen are treated equally, as current disclosures do not provide sufficient detail to distinguish conventional from advanced biofuels, or to establish the emissions intensity of planned low-carbon hydrogen production. For further information, see the disclaimer on page 22 of the [NZS assessment framework for oil and gas](#).

Equinor, OMV, Petrobras, Repsol and TotalEnergies). Four companies disclose targets to provide CCUS as a service to third parties (Eni, Equinor, Santos and TotalEnergies). Three companies disclose targets to distribute low-carbon energy through developing EV charging stations (Eni, OMV and TotalEnergies). Two companies disclose targets to increase other low-carbon technologies, namely geothermal energy (OMV) and battery-based electricity storage capacity (TotalEnergies).

Regional patterns reveal significant divergence in climate solutions ambition and strategy. Of the seven European companies assessed, five have climate solutions targets: Eni, Equinor, OMV, Repsol and TotalEnergies. Among the six North American companies, only two score: Chevron and Exxon Mobil. The diversity of routes pursued also diverges sharply: European companies are represented across all five decarbonisation routes, implying a broader and more diversified approach to climate solutions, while North American companies only disclose quantified targets for biofuels.

Neutralising residual emissions

Transition plans that rely heavily on neutralisation measures to meet emissions targets carry greater delivery risk. Neutralisation measures address emissions after they have been released, rather than avoiding them at source. These include carbon credits and carbon dioxide removal, through either technology-based or nature-based solutions. While they can play a role in addressing residual emissions, they are generally considered more uncertain than direct emissions reductions due to concerns around permanence, additionality, scalability and the potential to delay real economy decarbonisation.¹²

Seven companies quantify the contribution of neutralisation measures to their medium-term emissions reduction targets (NM.1 and NM.2). The contribution varies considerably. Expressed as a share of each company's targeted reduction in operational emissions by 2030 relative to 2019, the contributions fall within these ranges: Occidental (0%), Repsol and OMV (0–5%), Shell (5–10%), TotalEnergies (10–15%), Eni (35–40%) and Santos (nearly 50%).

¹² See IPCC, AR6 Working Group III (2022), Chapter 12, Section 12.3.

Table 2.2. Planned climate solutions targets across NZS routes for oil and gas companies

NZS climate solutions routes	CS.1.i target for renewable electricity generation/capacity	CS.1.ii target for low-carbon fuels production capacity	CS.1.iii target for the production of other climate solutions	CS.1.iv target for low-carbon energy distribution	CS.1.v target to provide CCUS as a service to third parties
Chevron [North America]		100,000 barrels per day of biofuels capacity by 2030 (0.21 terajoules per year [TJ/yr]) ¹³			
Eni [Europe]	15 gigawatt (GW) by 2030 (capacity)	5 megatonnes per year (Mt/yr) biofuel capacity by 2030 (0.11 TJ/yr)		40,000 electric vehicle (EV) charging points by 2030, and 160,000 by 2050	15 Mt/yr transport and storage capacity by 2030 and 60 Mt/yr by 2050
Equinor [Europe]	10-12 GW by 2030 (capacity)				30-50 Mt/yr transport and storage capacity by 2035
Exxon Mobil [North America]		200,000 barrels per day of lower-emission fuel (biofuel) capacity by 2030 (0.42 TJ/yr)			
OMV [Europe]	3-4 terawatt per hour (TWh) by 2030 (generation)	1.5 Mt/yr renewable fuels and sustainable chemical feedstocks capacity by 2030 (0.05 TJ/yr)	4 TWh of geothermal energy by 2030	5,000 EV charging points by 2030	
Petrobras [Latin America]	1.7 GW by 2030 (capacity)	44 million barrels per day (Mbpd) of sustainable aviation fuel (SAF), synthetic blending component (SBC) and hydrotreated vegetable oil (HVO) by 2030 (0.10 TJ/yr)			
Repsol [Europe]	15-20 GW by 2030 (capacity)	2.2-2.4 Mt/yr renewable fuels capacity, 2.1-2.3 TWh biomethane capacity, and 1.6-2.2 gigawatt equivalent (GWe) green hydrogen capacity by 2030 (0.08 TJ/yr)			
Santos [Australia]					14 Mt/yr storage capacity by 2040
TotalEnergies [Europe]	100 GW by 2030, and 400 GW by 2050 (capacity)	1.5 Mt/yr SAF production by 2030 (0.04 TJ/yr); 50 Mt/yr of biogas, hydrogen and synthetic liquids production by 2050 (1.35 TJ/yr)	5-7 GW battery-based electricity storage capacity by 2030	200,000 EV charging points by 2030	10 Mt/yr gross storage capacity by 2030

* Other assessed companies did not disclose quantified targets to provide climate solutions, for at least 2030. These are BP, ConocoPhillips, Occidental Petroleum, Phillips 66, Shell, Suncor Energy and Woodside Energy.

¹³ Figures in brackets represent the authors' conversion of the disclosed capacity figures to TJ/yr.

2.3. Alignment of decarbonisation levers with low-carbon scenarios

Assessing the alignment of decarbonisation levers is a test of whether ambitious emissions targets have been translated into credible transition plans.

Companies set overall emissions reduction targets that can be benchmarked against low-carbon pathways. Some also set out decarbonisation plans using a range of levers, such as reducing fossil fuel production and expanding into low-carbon business models, as discussed in Section 2.2. If those plans are credible, all or a meaningful subset of these levers should themselves be consistent with the same low-carbon scenarios.

For the oil and gas sector, we assess the alignment of decarbonisation levers through three metrics: oil production plans, gas production plans and low-carbon energy production. These metrics cover two main dimensions of companies' business strategy: the transition out of fossil fuels and the transition into low-carbon energy. We benchmark them against IEA low-carbon scenarios using the same three benchmarks applied in the [TPI Centre's Carbon Performance](#) assessments: 'National Pledges', 'Below 2°C' and '1.5°C'.

Alignment of oil and gas production plans is assessed by comparing planned production rates against low-carbon benchmark pathways (UP.a and UP.b). Both company and global oil and gas production must be indexed to a base year to be meaningfully compared. The choice of baseline year is important. Using the current year as the base year would ignore whether a company has historically produced above or below the benchmark pathways. But historical production is relevant, because low-carbon production pathways are intended to represent trajectories consistent with particular climate outcomes, and these climate outcomes depend on *cumulative* production/emissions. An earlier baseline therefore provides a more complete measure of alignment by incorporating both historical and planned production relative to the benchmark trajectory. We use the average production level over 2019–2021 as the baseline. This period captures production trends during the first half of the current decade

while smoothing short-term fluctuations associated with individual years.¹⁴ Figure 2.2 shows the oil and gas production pathways of the five companies with disaggregated oil and gas plans (Table 2.1).

Among the five out of 16 companies with disaggregated production plans, oil is more likely to be aligned with low-carbon scenarios than gas in 2030.¹⁵ For oil, Shell and OMV are aligned with the '1.5°C' scenario, and Eni with 'Below 2°C'. For gas, no company is aligned with the '1.5°C' scenario: OMV is aligned with 'Below 2°C', while TotalEnergies and Shell are aligned with 'National Pledges'. OMV is the only company to be aligned with the Paris Agreement's targets for both oil and gas production in the medium term, while Petrobras is not aligned with any benchmark scenario for either oil or gas production.

Some companies appear to be aligned with low-carbon scenarios despite planning to increase their production, due to the historical decline in oil and gas output. This decline was partly driven by the Russia-EU gas dispute and the write-off of Russian assets.¹⁶ Since both company and global production are indexed to the 2019–2021 average, planned increases from a lower 2024 base can still fall within certain benchmark pathways.

Companies are further assessed on how closely their planned ratio of oil and gas to low-carbon energy production compares to that from low-carbon scenarios. Specifically, we use the share of planned low-carbon energy production, including renewable electricity and low-carbon fuels, over total energy production, including planned fossil fuel production, as the basis for comparison against low-carbon benchmark scenarios (CS.a).¹⁷

The low-carbon energy production plans of the assessed oil and gas companies remain limited in scale and do not indicate a fundamental shift towards low-carbon business models. Of the eight companies disclosing quantified targets to increase low-carbon energy production (Table 2.2, routes CS.1.i-iii), none is planning a significant enough shift towards low-carbon energy to align with any

¹⁴ A three-year average is used to reduce the influence of year-on-year volatility.

¹⁵ See footnote 8.

¹⁶ For example, TotalEnergies wrote off its equity production from its 19.4% interest in Russian gas producer Novatek, and OMV began excluding production volumes from Russian assets from its reported group figures in 2022.

¹⁷ For companies without disclosed oil and/or gas production plans, we assume growth rates in line with the IEA [Stated Policies Scenario](#), assuming that the company's market share remains constant over the projection period.

of the benchmark scenarios. The highest share of low-carbon energy in total energy supply among the assessed companies is 4–5% by 2030, targeted by OMV, TotalEnergies and Repsol. These results show that companies are not planning to meaningfully diversify towards low-carbon energy

in the short to medium term. Combined with evidence that most companies plan to increase their fossil fuel production (Figure 2.3), this suggests that emissions reduction targets are not being backed by credible transition plans.

Figure 2.2. Alignment of companies' upstream production plans with low-carbon scenarios for oil (left) and gas (right)

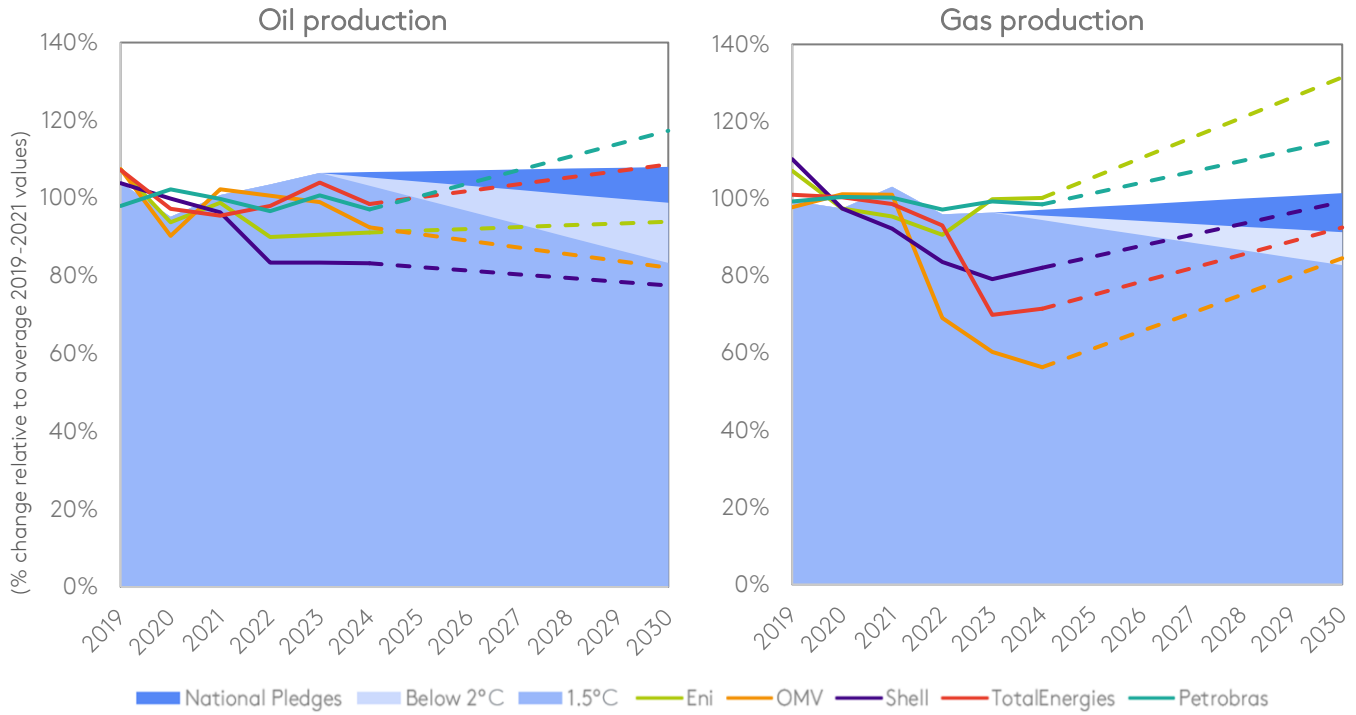
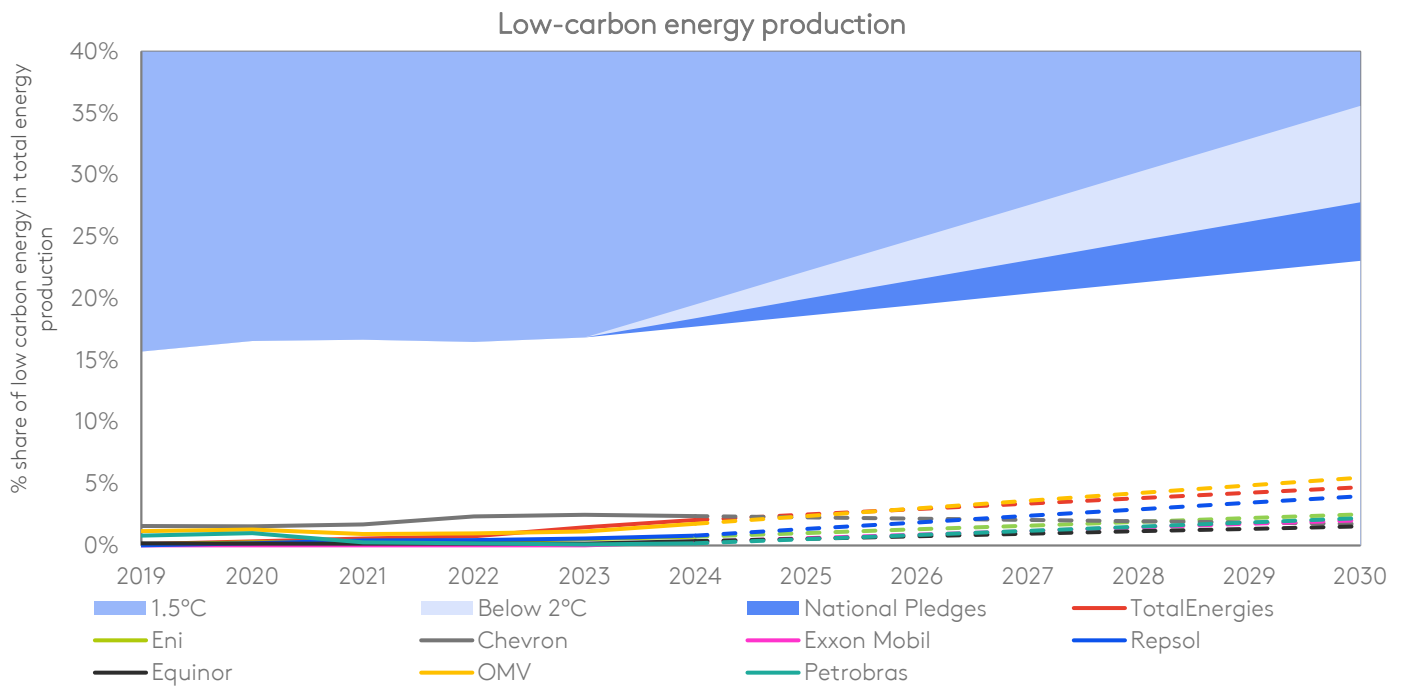


Figure 2.3. Alignment of companies' low-carbon production plans with low-carbon scenarios



2.4. Capital expenditure and investment planning

Capital expenditure (capex) plans give useful insight into how companies plan to resource their decarbonisation plans. Assessing where companies direct their investment, towards fossil fuel expansion or the low-carbon transition, enables investors to identify gaps between stated climate ambitions and financial commitments, and to judge whether a company's transition plan is backed by the resources needed to deliver it.

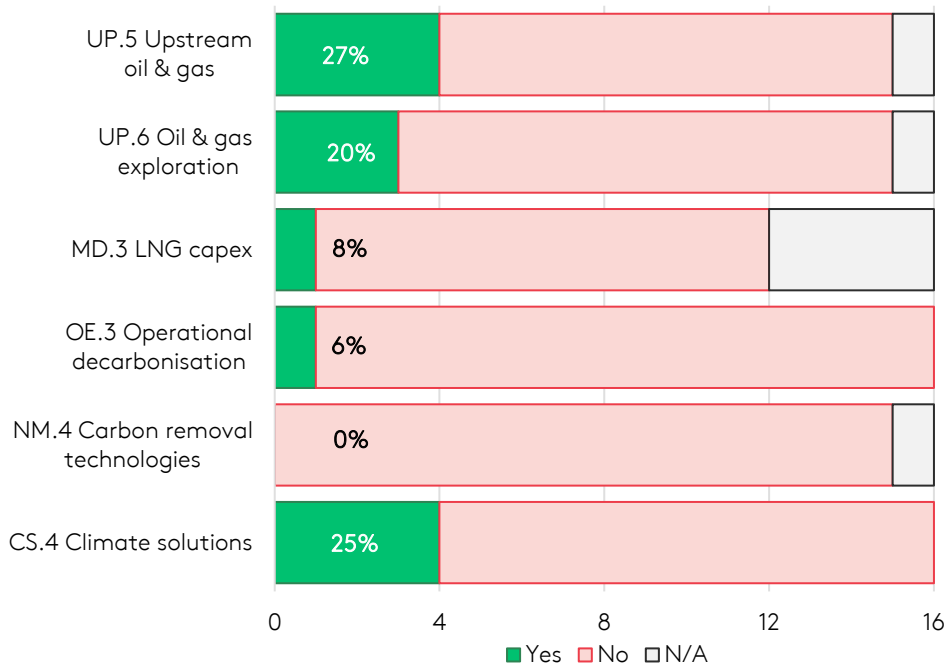
For the oil and gas sector, we assess capex on six indicators across five relevant areas. These are upstream capex (UP.5), exploration capex (UP.6), LNG capex (MD.3), operational decarbonisation levers capex (OE.3), climate solutions capex (CS.4) and technology-based carbon removal solutions capex (NM.4). For each indicator, we assess both current capex and forward-looking capex plans over a three-year horizon. A company is assessed only on indicators relevant to its business activities and decarbonisation strategy. For example, a company without LNG operations is not assessed on MD.3 (LNG capex). Full disclosure, therefore, refers to providing both current and forward-looking capex across all indicators applicable to its business model and transition strategy.

Forward-looking capex disclosure remains limited, even for the core oil and gas business. Twelve out of

15 upstream oil and gas companies report capex into their core upstream business for 2024; however, disclosure of forward-looking capex is rare among companies. Only BP, Petrobras, Repsol and Shell disclose both current and forward-looking capex for upstream oil and gas (UP.5), and only OMV, Petrobras and Repsol specify their capex plans for exploration activities (UP.6). Among the 12 companies with LNG businesses, Woodside Energy is the only company that discloses LNG capex plans (MD.3).

With such limited capex disclosure on core oil and gas activities, it is unsurprising that disclosure on low-carbon capital allocation is even scarcer. Eni is the only company that discloses capex plans for operational decarbonisation levers (OE.3). For climate solutions (CS.4), of the eight companies disclosing current capex, only four, BP, Equinor, Eni and OMV, disclose both current and forward-looking capex on climate solutions. No company discloses capex for technology-based carbon removal solutions (NM.4). Figure 2.4 presents scores across all capex indicators. Even where capex is disclosed, the figures are not always directly comparable across companies due to differences in reporting boundaries and accounting methodologies. See the discussion in Box 2.1.

Figure 2.4. Number of companies disclosing current and forward-looking capex by indicator



Box 2.1. Challenges of comparing capex disclosures across companies

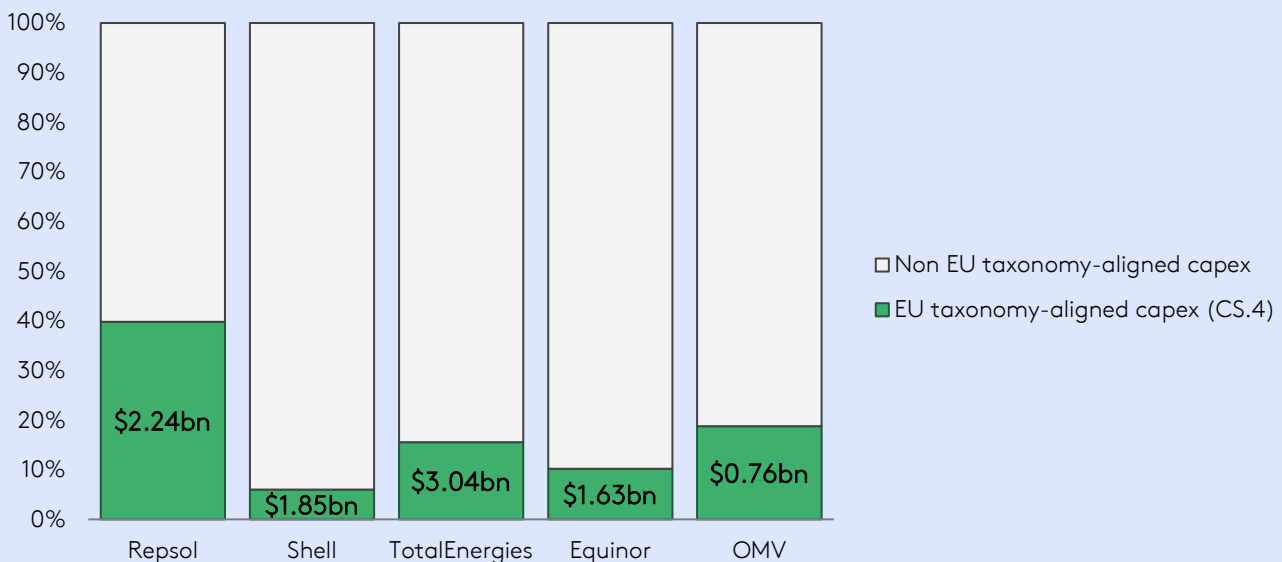
Companies do not disclose capex uniformly. Capex disclosures vary between reporting organic capex only, organic plus inorganic, and total investments including research, development and innovation (RD&I), with some companies including property, plant and equipment (PP&E) and others reporting it separately. In some cases, companies report total capex in multiple ways, but do not disaggregate the proportion allocated to climate solutions or oil and gas activities across each accounting method.

This inconsistency limits the extent to which meaningful comparisons can be made between companies. For companies diversifying via acquisition, climate solutions investment would appear in inorganic capex. Comparing the share of inorganic capex classified as climate solutions for one company against the share of organic capex for another may suggest that the former is investing more heavily in climate solutions, when this may simply reflect a difference in reporting boundaries.

The use of common green taxonomies provides a useful basis for comparing capital allocated to climate solutions. Examples include the [EU Taxonomy](#) and the [ASEAN Taxonomy for Sustainable Finance](#). However, taxonomies vary in their scope of activities, screening mechanisms, structure and stringency, so the same activity may be classified differently across frameworks. Most do not define capex boundaries, which limits comparability both between companies and across taxonomies. The EU Taxonomy stands apart by setting a standardised scope for capex boundaries, making capital allocation more consistently comparable across companies.

In our sample of 16 companies, five disclose against the EU Taxonomy. Figure 2.5 compares the share of capex classified as taxonomy-aligned in 2024 for these five companies. Repsol reports the highest share at around 40%, with US\$2.24 billion of taxonomy-aligned capex. OMV and TotalEnergies follow at approximately 19% and 16%, with US\$0.76 billion and \$3.04 billion of taxonomy-aligned capex, respectively. Equinor and Shell report the lowest shares at around 10% and 6%, with US\$1.63 billion and US\$1.85 billion, respectively. Of the combined total capex of US\$76.2 billion across these five companies, US\$9.52 billion, or 12%, is EU Taxonomy-aligned.

Figure 2.5. EU taxonomy-aligned capex as a share of total capex in 2024



3. Diversified mining sector

The TPI Centre's **NZS assessment framework for the diversified mining sector** evaluates companies across nine areas, reflecting the sector's key emissions sources and activities with higher transition risks and opportunities, including operational emissions, coal production and production of key transition materials. This report analyses the results of applying this framework to six mining companies from different regions with different portfolios of mined products.¹⁸

3.1. Overview of the sector and key results

The NZS assessment framework for the diversified mining sector evaluates companies across nine areas. These are: operational emissions (OE); methane (ME); thermal coal (TC); metallurgical coal (MC); iron ore (IO); bauxite and alumina (BA); key transition materials (KT); shipping of products (SH); and just transition (JT).

The companies within the diversified mining sector have varied portfolios of mined products. While some companies continue to operate coal mines, others have divested or are planning to exit. Some are seeking opportunities in the production of minerals critical to the low-carbon transition, known as key transition materials (KTMs), while others continue to focus on traditional bulk commodities such as iron ore and bauxite. As Table 3.1 shows, two of the six assessed companies, BHP and Glencore, still operate coal mines, and all six produce at least one KTM. Among these, all six produce copper, three produce nickel, two produce cobalt and one produces lithium.

The diversity of business models across the assessed companies means that comparisons across areas and between companies need to be made with care. With only six companies assessed, the sample size is small, and the set of companies assessed

varies across areas, as not all companies operate in all segments. For instance, the iron ore, and bauxite and alumina areas are assessed for different subsets of companies, meaning that average scores across areas are not directly comparable. Similarly, the thermal coal, metallurgical coal and methane areas are only applicable to the two coal miners in the sample.

Despite the limitations of cross-area comparisons, Figure 3.1 reveals some broad patterns in the distribution of scores. To aid interpretation, company scores were grouped into three performance bands: low (below 30%), medium (30–70%) and high (above 70%), using k-means clustering. Among the assessed areas, iron ore shows the strongest performance, with two of the three assessed producers scoring in the high band. Operational emissions, key transition materials and shipping display a more moderate pattern, with most assessed companies scoring in the medium band. By contrast, scores are concentrated in the low band for bauxite and alumina and just transition. In the latter area, four of the six assessed companies score zero, indicating that formal commitments are rarely translated into measurable policies and implementation plans.

¹⁸ Based on disclosures available before February 2026.

Table 3.1. Production volumes of assessed mining companies, 2024 (thousand tonnes)

	Coal ¹	Iron ore	Bauxite	Copper	Lithium	Nickel	Cobalt	Graphite	Rare earths
BHP	51,056	289,988		2,017		30	0.5		
Rio Tinto		287,676	58,653	793	N/A ²				
Glencore	119,500		N/A ³	952		82	38		
Vale		260,314		327		155			
Grupo Mexico				1,050					
South32			4,782 ⁴	90					

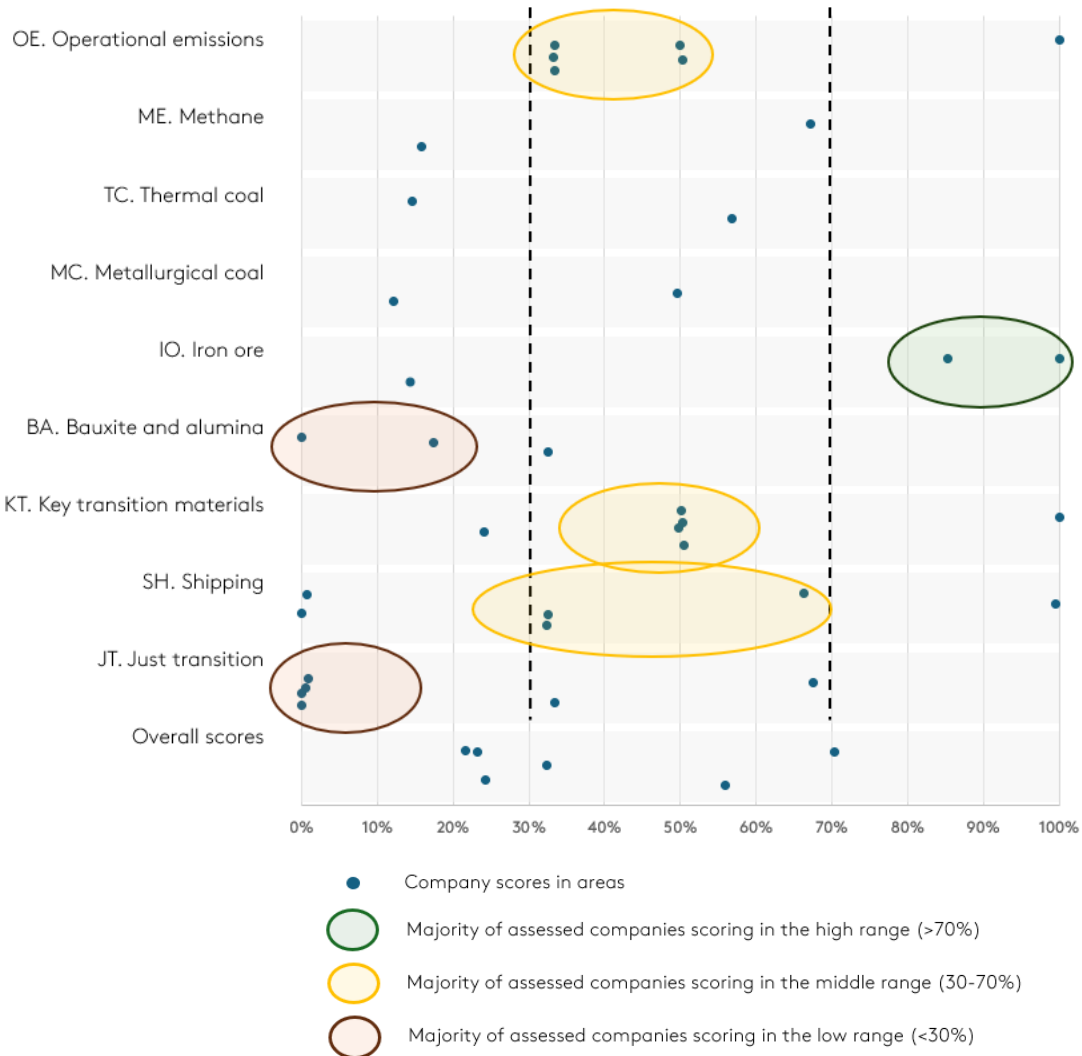
¹ Thermal and metallurgical

² Rio Tinto completed the acquisition of Arcadium Lithium in March 2025.

³ Glencore holds minority stakes in MRN (bauxite) and Alunorte (alumina) but is not the operator of either asset and does not report production volumes.

⁴ Alumina production. Bauxite is consumed internally within South32's integrated Worsley Alumina operation and is not reported separately.

Figure 3.1. Distribution of company scores across NZS areas in the diversified mining sector



3.2. Decarbonisation levers in the diversified mining sector

In this section, we examine decarbonisation levers in the diversified mining sector across four dimensions that map on to key mining businesses.

These are: fossil fuels exposure reduction (coal mining); operational emissions and process efficiency; downstream emissions reduction measures (iron ore and bauxite mining); and scaling up climate enablers (KTM mining).

Fossil fuels exposure reduction: coal mining

Among the companies assessed, only BHP and Glencore retain coal assets. BHP has committed to exiting thermal coal by June 2030 through the closure of its [Mt Arthur mine](#), its last remaining thermal coal asset (TC.3-4). However, the company continues to operate metallurgical coal assets and has not disclosed plans to reduce production over the medium or long-term (MC.3-4), despite its ambition to achieve net zero value chain emissions by 2050. Glencore, meanwhile, does not provide forward-looking guidance on coal production and does not include downstream emissions from the sale of coal within its emissions reduction targets.

Operational emissions and process efficiency

Most of the assessed companies have quantified the role of operational decarbonisation levers in their emissions targets, at least in the medium term. Of the six assessed companies, all except South32 have done so in the medium term (OE.4). Three companies, BHP, Glencore and Rio Tinto, have done so in the long term (OE.5). This is directly comparable to the equivalent oil and gas indicators, showing that the diversified mining companies are scoring better on these indicators.

Despite the immediate need for action, methane emissions from coal mining are only partially addressed in BHP and Glencore's transition plans, partly due to the technical complexity and cost of abatement. Coal mining was responsible for more than 10% of total anthropogenic methane emissions in 2025, yet these emissions need to decline by around 75% by 2030 according to the [IEA Net Zero Emissions scenario](#). However, methane emissions from coal operations are generally more difficult to abate than those from oil and gas, particularly in underground mines where methane

streams are diffuse and technically challenging to capture.¹⁹ Both BHP and Glencore have included methane emissions within their 2050 net zero targets (ME.5), but neither has set a medium-term methane reduction target (ME.4) or disclosed a comprehensive methane mitigation strategy covering all phases of mine operations (ME.6). For BHP, methane accounted for 12% of total Scope 1 emissions in 2024 according to its disclosures, illustrating the materiality of this gap.

Downstream emissions reduction measures: iron ore and bauxite mining

For companies that mine iron ore or bauxite, downstream emissions from processing of their products account for a significant proportion of their total value chain emissions. For example, Rio Tinto's Scope 3 Category 10 emissions from the processing of sold iron ore, bauxite and alumina accounted for over 85% of the company's total emissions last year.

Among the assessed iron ore mining companies, decarbonisation planning for downstream emissions is relatively advanced. All three iron ore mining companies, BHP, Rio Tinto and Vale, have disclosed a list of projects and partnerships they intend to pursue with customers to reduce downstream processing emissions (IO.4, see Section 3.4). BHP and Rio Tinto have gone further, disclosing comprehensive plans detailing the measures and technologies they are deploying to reduce these emissions, along with planned implementation timelines (IO.3). Additionally, BHP's long-term net zero target covers these emissions (IO.2).

On the other hand, decarbonisation planning for downstream processing emissions from bauxite and alumina is limited among the assessed bauxite producers. None of the assessed bauxite miners has disclosed projects, plans or targets for downstream decarbonisation (BA.2-4), leaving a material source of emissions largely unaddressed.

Scaling up climate enablers: KTM mining

The production of KTMs represents both a transition opportunity for companies and a critical need for the global economy. KTMs are raw materials essential for the technologies enabling the

¹⁹ See International Energy Agency (IEA), [Global Methane Tracker 2026](#).

transition to a low-carbon economy. These include copper, lithium, nickel, cobalt, graphite and rare earth elements.²⁰ For companies specialised in the mining of these materials, or those planning to expand into them, this creates an opportunity to play a crucial enabling role in the low-carbon transition and access new markets. However, this opportunity should not come at the cost of communities, workers and the environment, and should be pursued in line with the principles of a just transition (Section 3.5).

3.3. Alignment of decarbonisation levers with low-carbon scenarios

Assessing the alignment of decarbonisation levers in the diversified mining sector is a way to break down company-wide carbon emissions pathways into product-specific trajectories. The [TPI Centre's Carbon Performance methodology for the diversified mining sector](#) compares the emissions intensity of a company's diversified mined products with global benchmark pathways that capture the most material emissions within the sector. The NZS alignment indicators are designed to complement the CP assessment by shedding light on companies' transition plans for different mined products, as well as the extent to which companies' production of KTM supports low-carbon scenarios. In this section, we assess the alignment of companies' coal reduction targets and KTM production plans with low-carbon scenarios.

Alignment of coal production plans is assessed by comparing planned rates of decline against benchmark pathways. We index both company and global coal production to the 2019–2021 average, separately for thermal coal and metallurgical coal, and compare the planned rate of change against those benchmarks.²² For instance, the 1.5°C-aligned pathway implies a global reduction in thermal coal production of 42% and metallurgical coal production of 25% by 2030 relative to the baseline. Figure 3.2 shows the coal production pathways of BHP, the only company among the two coal miners

Two companies have explicitly disclosed plans to increase KTM production, but only for copper.

Glencore plans to increase copper production by 68% to 1.6 Mt by 2035, and Vale by 114% to 0.7 Mt compared to 2024 levels (KT.3). However, companies have not disclosed plans to increase production of other KTMs that are critical to the low-carbon transition. For instance, lithium production needs to increase four to six times between 2024 and 2035 under low-carbon scenarios consistent with the Paris Agreement objectives.²¹

assessed to disclose coal targets (Section 3.2). BHP is aligned with the 1.5°C benchmark by 2030 for thermal coal, due to its planned exit, and metallurgical coal, due to its historical decline.

Alignment of KTM production plans is assessed by comparing planned rates of increase against benchmark pathways for each KTM. Applying the same baseline and indexing approach, the benchmarks capture how rapidly companies are planning to increase production of each KTM relative to what low-carbon scenarios need. For copper, for example, the 1.5°C pathway implies a global production increase of 45% by 2030 and 55% by 2035, suggesting that the bulk of the expansion needs to happen in the coming years to support deployment of low-carbon technologies.

Companies that have already ramped up copper production compared to the baseline are better positioned to align with benchmark pathways than those that have not. Despite a decline between 2020 and 2022, Vale's copper production reached around 106% of its baseline (average 2019–2021) in 2024, with its 2030 and 2035 targets reaching 110% and 227% respectively, consistent with 'Below 2°C' and '1.5°C' scenarios. By contrast, Glencore's copper production in 2024 stands at 75% of its 2019–2021 average, and its 2035 target only brings production back to 125% of the baseline,

²⁰ Also referred to by the International Energy Agency (IEA) as [global critical minerals](#).

²¹ By and large, there is no reason the diversified mining companies could not enter KTMs; deposits for most are globally available. Yet, as the assessment shows, the major diversified mining companies have not, so far, expanded meaningfully beyond copper. The explanation is likely to be commodity-specific, rather than any fundamental barrier: the size and volatility of markets, evolving battery chemistries, China's dominance in refining and processing, or by-product geology, and the long lead times that encourage counter-cyclical investments.

²² Where a company phrases its target in terms of downstream emissions, we apply the [TPI Centre's Carbon Performance methodology for coal mining](#). The underlying benchmarks for the two approaches are equivalent.

insufficient to align with any of the benchmark scenarios (Figure 3.3).

Figure 3.2. Alignment of coal production plans with low-carbon scenarios for thermal coal (left) and metallurgical coal (right)

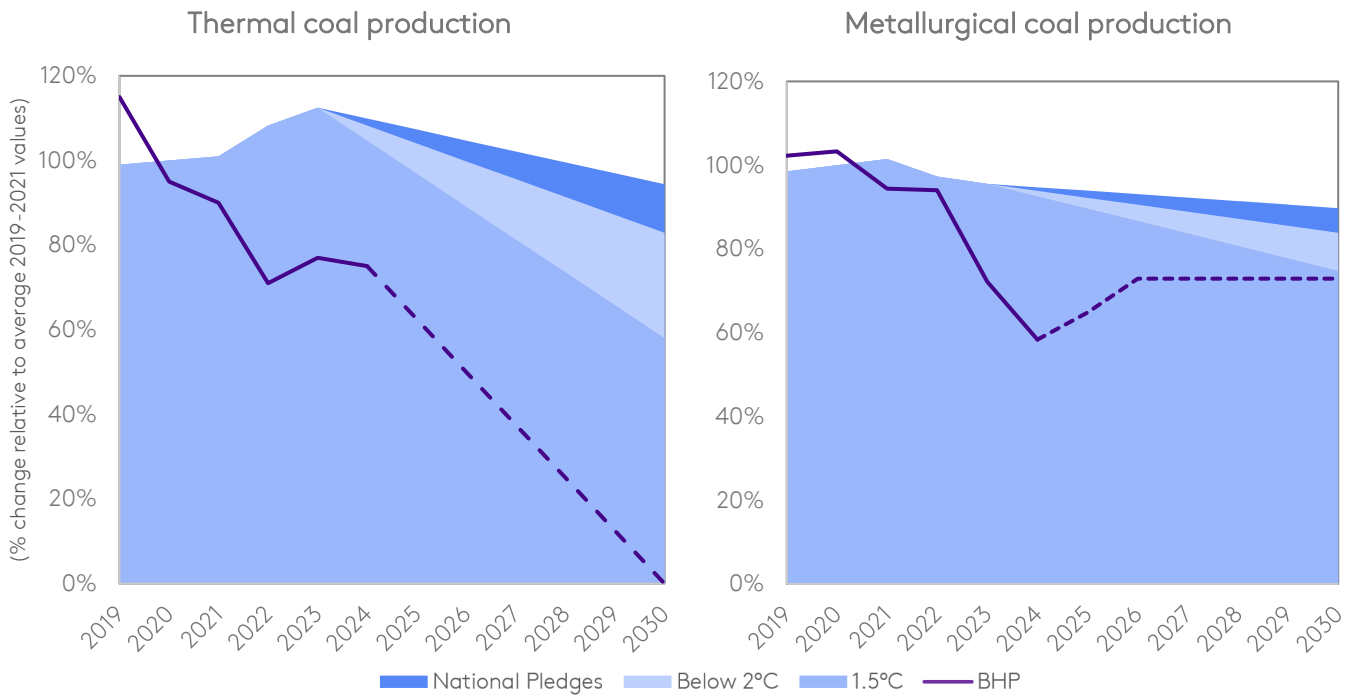
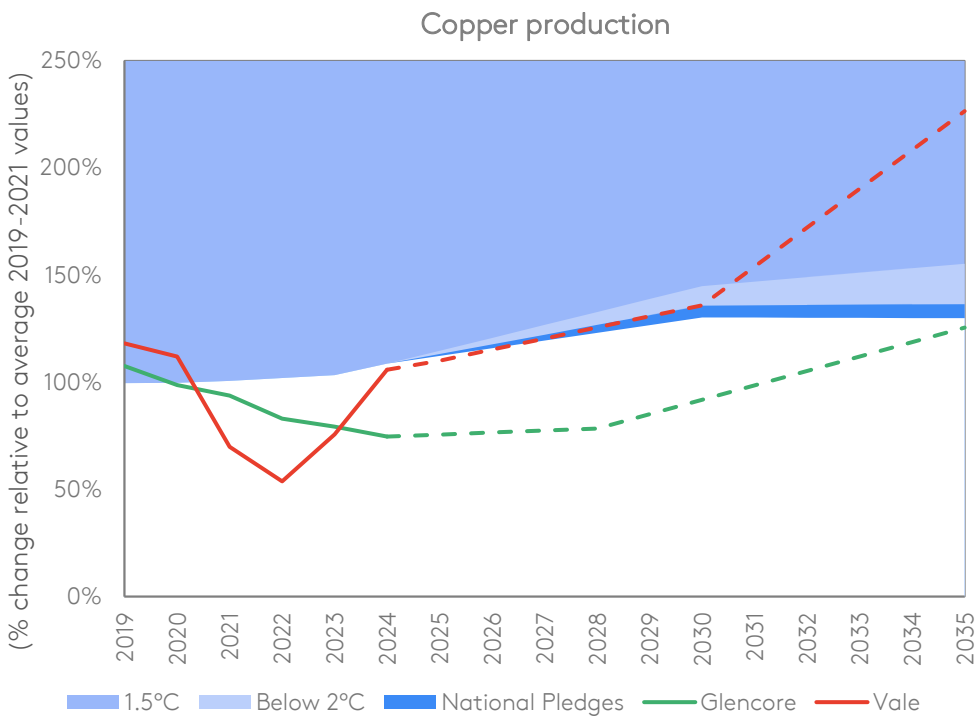


Figure 3.3. Alignment of copper production plans with low-carbon scenarios



3.4. Strategies for downstream emissions: processing of sold products

The NZS framework assesses downstream processing emissions reductions in three layers: targets, decarbonisation levers and action plans. Transition planning for Scope 3 Category 10 emissions from the processing of sold iron ore starts with setting ambitious targets to cover these emissions, then defining a roadmap, including the levers and measures to be used with quantified decarbonisation potential, before translating these into specific actions. In the case of downstream emissions, these actions involve engaging with stakeholders, principally customers who use the purchased mined products to make metals. As discussed in Section 3.2, the three companies with iron ore production have disclosed their action

plans to reduce these emissions; we examine these plans in this section.

The three iron ore producers in our sample are pursuing markedly different strategies to decarbonise downstream iron ore processing. Strategies vary from improvements to conventional blast furnace ironmaking and developing less carbon-intensive direct reduction and electric arc furnace routes, to cutting-edge technologies such as biomass and microwave-based ironmaking. Table 3.2 presents the state of downstream emissions target-setting, decarbonisation strategies, and projects and partnerships as disclosed in the transition plans of BHP, Rio Tinto and Vale.

Table 3.2. Decarbonisation strategies of the assessed iron ore mining companies for downstream steelmaking emissions

Company	Target for downstream steelmaking emissions (IO.2)	Strategy for decarbonisation of downstream steelmaking emissions (IO.3)	Projects and partnerships with customers to reduce downstream steelmaking emissions (IO.4)
BHP	<ul style="list-style-type: none"> Net zero Scope 3 by 2050 Medium-term goal to support 30% lower greenhouse gas emissions intensity in steelmaking by 2030 	<ul style="list-style-type: none"> Modified blast furnace improvements Direct reduced iron (DRI)-electric smelting furnace Electrochemical reduction Improving iron ore and steelmaking coal quality 	<ul style="list-style-type: none"> NeoSmelt ESF pilot (with Rio Tinto, BlueScope, Mitsui, Woodside Energy) Asia CCUS hub consortium (ArcelorMittal, Nippon Steel, JSW, Hyundai Steel) Boston Metal electrolysis trials Carbon capture trials with HBIS and Zenith Steel
Rio Tinto	No company-wide target covering downstream steelmaking emissions	<ul style="list-style-type: none"> Biolron™ technology (raw biomass and microwave energy replacing coking coal) Electric smelting furnace development Direct reduction technology 	<ul style="list-style-type: none"> NeoSmelt ESF pilot (with BHP, BlueScope, Mitsui, Woodside Energy) \$200–350m committed to steel decarbonisation 2025–2027
Vale	No company-wide target covering downstream steelmaking emissions	No specified measures to decarbonise downstream steelmaking emissions	<ul style="list-style-type: none"> Partnership with Hydnum Steel for iron ore briquette plant in Spain New Carajás Project investing \$13bn by 2030

3.5. Just transition

Just transition is particularly relevant for the diversified mining sector, as the low-carbon transition is driving both the phase-out of coal and increased demand for transition minerals. These shifts create significant risks and opportunities for companies, workers, communities and regions, requiring careful and proactive transition planning.

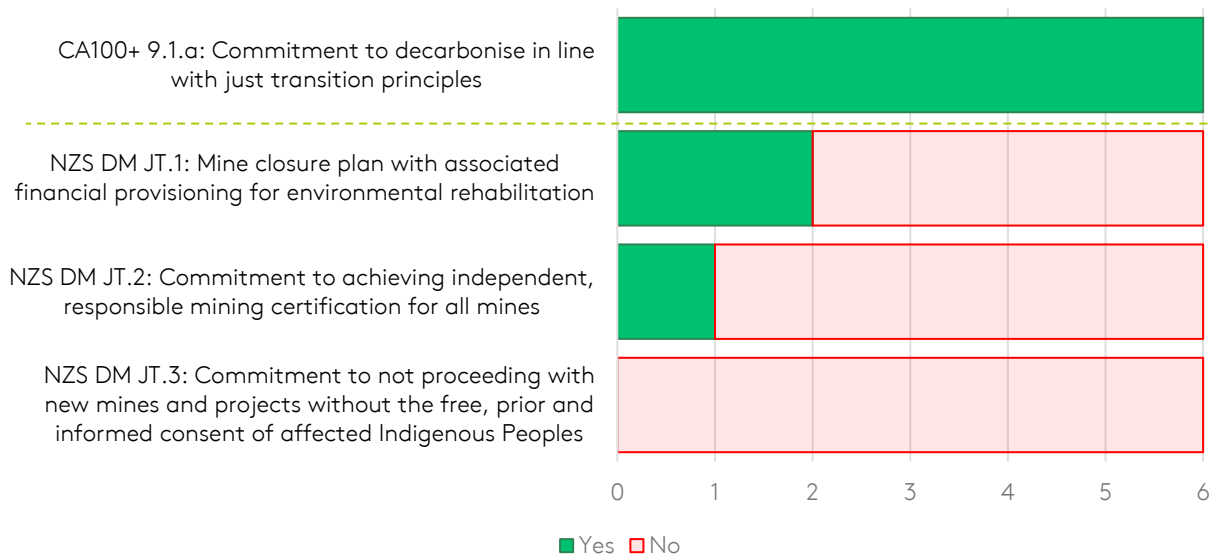
The sector faces two distinct but related challenges. Coal mine closures can lead to job losses, economic disruption and environmental liabilities if rehabilitation is poorly managed. At the same time, expanding production of transition minerals can generate environmental impacts and affect the rights, livelihoods and cultural heritage of Indigenous and other local communities. Without effective planning and community engagement, companies may face opposition, legal challenges and project delays that hinder both responsible mine closure and the expansion of mineral supply needed for the transition.

The NZS assessment framework for the diversified mining sector assesses just transition through three indicators on mine closures, responsible mining certification and Indigenous Peoples' consent, respectively. These assess whether the company

has a mine closure plan with disclosed financial provisioning for environmental rehabilitation, covering both existing and new mines (JT.1); whether the company has committed to achieving independent, responsible mining certification for all mines with an associated timeline (JT.2); and whether the company has committed that new mines or other projects will not proceed without the free, prior and informed consent of affected Indigenous Peoples (JT.3).

Most of the assessed mining companies fail to score on these just transition indicators, reflecting the fact that commitments to just transition have not yet translated into formal, verifiable policies and disclosures. All six companies have committed to the principles of just transition according to the CA100+ company assessments, but only a few have backed up these commitments with sector-specific policies related to closures and mine certifications. BHP scores positively on both mine closure planning (JT.1) and responsible mining certification (JT.2), while South32 also scores on the latter. However, no company has committed to obtaining the free, prior and informed consent of affected Indigenous Peoples before proceeding with new mines (JT.3). The results are shown in Figure 3.4.

Figure 3.4. Just transition indicator scores for the assessed diversified mining (DM) companies



4. Implications for investors

This section reflects on what the findings of this report mean for investors, how they can use the NZS assessment data to evaluate companies' transition plans and how they can structure investor-company dialogues on transition planning.

In the [State of the Corporate Transition 2025](#), we explored for the first time the disclosure of decarbonisation levers across sectors as a way of deepening our understanding of the credibility and feasibility of companies' transition plans beyond target-setting alone. In this report dedicated to transition planning, we extend this analysis by presenting the results of the NZS assessment frameworks for the oil and gas and diversified mining sectors, two hard-to-abate sectors with distinct decarbonisation challenges, yet with viable transition strategies. The results reveal the strengths and gaps in transition planning across these sectors, highlighting where companies are making credible progress and where gaps remain.

Transition planning is gaining momentum, but significant gaps remain in how companies translate ambition into concrete, actionable roadmaps.

Among the 22 companies assessed for this report, we find that they often fail to disclose quantified decarbonisation levers and capital expenditure plans across business segments. Where they are disclosed, these plans do not always align with their stated climate ambitions or low-carbon scenarios. These findings are consistent with the broader TPI Centre [Management Quality](#) dataset covering 113 oil and gas and diversified mining companies, which shows that only 25% of companies have quantified the key elements of their decarbonisation strategy (MQ19), and/or clarified the role of offsets and other negative emissions technologies in their transition plans (MQ20). On the other hand, only 12% of companies have committed to phase out capex on carbon-intensive assets (MQ21) and/or aligning it with their decarbonisation goals (MQ22).

In hard-to-abate sectors characterised by complex decarbonisation levers, technology readiness challenges and evolving regional policy environments, investors need to understand how companies are approaching the transition to assess the associated risks and opportunities. Sector-specific assessment tools can therefore help evaluate whether climate commitments are supported by comprehensive transition plans that

elaborate on the company's elements of its decarbonisation pathway. The NZS assessment frameworks are designed to meet this need.

From an investor perspective, assessing transition plans through a sector-specific lens is important for four reasons:

First, it allows investors to evaluate the **credibility** of a company's transition plan; going beyond the target itself to ask whether the company is likely to reach it, given the specificity, resourcing and coherence of its underlying strategy.

Second, it informs **investability**; whether the company's transition strategy aligns with an investor's own investment thesis and risk appetite, particularly as the low-carbon transition reshapes competitive dynamics within sectors.

Third, it reveals **dependencies**; identifying whether key elements of the transition strategy rely on external actors, such as governments, consumers or value chain partners, and therefore carry execution risks beyond the company's control.

Fourth, it provides a measure of transition **readiness**; whether the company has the plans, capabilities and capital allocation in place to execute its strategy when the moment demands it.

Our analysis leads to five important recommendations for investors seeking to assess whether companies are effectively managing their climate change-related risks, opportunities and impacts through investor-company dialogue.

- 1. Assess the key decarbonisation levers identified in the company's transition plan.** Investors should move beyond asking whether a company has set an emissions reduction target and focus on the specific levers through which the company plans to achieve it. This includes examining which levers are prioritised, the scale at which they are deployed, and the timeline for implementation. Our analysis of a sample of leading oil and gas companies shows that companies place a greater emphasis on

operational emissions reductions, particularly methane abatement, while comparatively less attention is given to addressing underlying fossil fuels exposure and transitioning out of carbon-intensive assets and business models. Our analysis further shows that most of these companies are planning to increase upstream production at an average rate of 14% compared with 5% under global business as usual trends. This increases investors' exposure to transition risks, signalling potential stranded assets arising from the continued expansion of carbon-intensive activities.

2. **Test whether transition plans match climate ambitions.** Investors should examine whether a company's decarbonisation levers, including production plans and low-carbon diversification strategies, are moving in the same direction and at the same pace as the company's overall emissions targets. A target aligned with 1.5°C carries limited credibility if the underlying business plans point in the opposite direction. As shown in Section 2, nine of the 16 oil and gas companies assessed have plans to diversify into climate solutions and low-carbon business models, though none at a substantial pace, with a maximum of 5% low-carbon energy production by 2030 among the sample. Combined with evidence that most companies plan to increase fossil fuel production, this suggests that emissions reduction targets lack credible transition planning, reinforcing uncertainty for investors around future portfolio transition risks.
3. **Consider company-specific production portfolios and dependencies on external factors.** Investors should consider company-specific production portfolios within heterogeneous sectors, as variations in asset mix and production profiles can result in significantly different transition exposures and decarbonisation pathways across companies. As shown in the diversified mining sector, companies involved in coal mining face differentiated transition exposures compared with those without coal operations, and

companies producing KTMs may benefit from transition-related opportunities. The feasibility of transition plans is also shaped by external enabling conditions, including policy frameworks, infrastructure availability and technological readiness. These conditions vary considerably across regions and sectors, influencing the pace and viability of decarbonisation pathways. This is reflected in our regional analysis of climate solutions routes among assessed oil and gas companies, where European companies tend to diversify into a broader range of climate solutions, including renewable electricity generation, compared with North American companies, which focus solely on low-carbon fuels.

4. **Scrutinise capital expenditure and investment strategies.** Investors should assess whether a company's capital allocation is consistent with its stated transition strategy, asking not only how much is being invested in low-carbon activities, but whether fossil fuel capital expenditure is being reduced in line with the company's decarbonisation commitments. However, limited disclosure of forward-looking capital expenditure plans constrains the analysis. In our analysis of oil and gas companies, only a small number disclose how planned expenditure over the next few years is split between core oil and gas activities and decarbonisation levers.
5. **Integrate just transition considerations into engagement.** Investors should ensure that just transition is treated as an integral part of transition plan assessment, not an afterthought. This includes engaging mining companies on mine closure plans, community engagement processes, Indigenous Peoples' consent and responsible mining certification, particularly as the pace of coal phase-out and transition minerals expansion accelerates. In our assessment of six mining companies, despite their stated commitments to just transition principles, implementation remains limited and widely neglected in practice.

Looking ahead, the TPI Centre intends to expand the NZS assessment frameworks to additional hard-to-abate sectors, developing new sector-specific methodologies to assess transition plans. In doing so, we will continue to consult with institutional investors and other investor networks to ensure the frameworks remain useful and responsive to investor needs.

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TPI Centre research team



TPI Global Climate Transition Centre
London School of Economics and Political
Science
Houghton Street
London WC2A 2AE, UK

T +44 (0)20 7107 5027
E tpi@lse.ac.uk

www.transitionpathwayinitiative.org