Investor Group on Climate Change

Accela

IGCC Research Needs Analysis Report

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About the Investor Group on Climate Change

We are the leading network for Australian and New Zealand investors to understand and respond to the risks and opportunities of climate change.

Our members include our countries' largest superannuation and retail funds, specialist investors and advisory groups.

Their beneficiaries include more than 14.8 million Australians, and millions more in New Zealand.

IGCC members have more than $35 trillion in global AUM, and almost $5 trillion in local AUM.

This report supports our Corporate Engagement workstream as a component of our thematic focus on barriers to corporate decarbonisation.

It was developed referencing domestic and international industry papers and similar benchmarking reports, and in consultation with key stakeholders, including investors, industry experts and Australian corporates.

About This Report

Investor corporate engagement is evolving as the net zero transition progresses. This report identifies investor research needs to support effective corporate engagement and transition plan scrutiny. Granular, financially grounded, sector-relevant research is key to supporting impactful and additional engagement. Through this work, IGCC has identified the degree to which these needs are met and are hoping to catalyse new research that addresses current gaps.

Acknowledgments

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Contents

01: Executive Summary 4

02: Scope of this Report 6

03: Summary of Investor Perceptions of Research Needs 10

04: Gap #1: Capital Expenditure for Transition Strategies 13

05: Gap #2: Decarbonisation Technologies and Levers 16

06: Gap #3: Scope 3 Emissions 19

07: Gap #4: Climate Policy and Lobbying 22

08: Gap #5: Physical Risk 25

09: Gap #6: Just Transition, Nature and Biodiversity 28

10: Next Steps 31

11: Appendix 32

12: References 42

01: Executive Summary

This report identifies research needs to best support corporate engagement by institutional investors. It finds that investors are no longer satisfied with high-level targets or climate ambition statements. Instead, they want actionable, and financially grounded research that directly addresses the capital allocation risks and opportunities in the transition to a low-carbon economy. The purpose of the report is to catalyse new research to aid more effective dialogue and rigorous scrutiny of company transition plans.

Investors seek research that is:

- **Integrated** — capturing the interplay between climate, nature, and social risks.
- **Forward-looking** — anticipating regulatory shifts and technological inflection points.
- **Company-specific** — allowing for tailored, engagement-ready analysis.
- **Financially relevant** — bridging ESG insights with capex, cashflow, and valuation implications.

Research needed to support more rigorous corporate engagement

Research Needs

1. Capital Expenditure (Capex) for Transition Strategies

Investors report a gap between corporate climate pledges and their capex allocations. They seek clear, company-specific analysis of capex plans linked to decarbonisation strategies. Current research is often too generic or lacks financial metrics such as payback periods, cost per tonne abated, and internal rates of return.

2. Decarbonisation Technologies and Levers

Investors need more details on the decarbonisation technologies that are essential to transition plans. Research often lacks clarity on cost, feasibility, and deployment timelines. Investors want sector-specific analysis comparing options like CCS, hydrogen, and electrification based on financial realism, not just technical potential.

3. Improve Scope 3 Emissions Transparency

Investors require tools to assess materiality, benchmark best practices, and map company value chain dependencies. Investors indicated that Scope 3 emissions remain the least credible component of company transition plans. Case studies and verification frameworks are urgently needed to improve trust and comparability.

4. Understand Climate Policy and Lobbying

Investors want to understand the relationship between climate policy, corporate lobbying and alignment with global 1.5˚C pathways. There is appetite to build on existing tools (e.g. InfluenceMap) to inform company engagements on lobbying and help translate national policy shifts into company-level risks and opportunities.

5. Improve Physical Climate Risk Assessments

Despite increasing exposure to climate-related disasters, physical risk analysis is still underdeveloped. Investors want granular, asset-level risk assessments that link climate hazards to financial performance. Current models are often high-level, opaque, or not financially integrated.

6. Frameworks for Just Transition, Nature and Biodiversity

Cross-cutting themes like just transition and nature-related risks are gaining investor interest but lack usable frameworks. Investors want to understand workforce implications of decarbonisation, how companies assess community impact, and how nature-related dependencies could affect financial performance.

Next Steps

Investors have highlighted their need for new resources to support the evolution of corporate engagement. They require capacity-building resources such as practical templates, engagement primers, and peer-learning tools that can be deployed across both investment teams and ESG specialists. The report shows a way that IGCC, other industry initiatives, the broader investor community, research providers and academic institutions could collaborate on the delivery of research to meet those needs.

02: Scope of this Report

This report is based on analysis of research available to investors engaging on corporate climate transition and investor perceptions of their actual research needs. Its purpose is to identify where current research falls short in supporting actionable engagement with listed companies. It aims to help IGCC and others target future research efforts accordingly. The findings are grounded in direct feedback from 15 institutional investors and reflects their practical experience using research to inform engagement.

The research sources include:

- Investor input from 15 Australian institutional investors. All are members of IGCC and are involved in CA100+ engagements.
- A targeted review of the research that investors currently use to support engagement. This includes work by external research providers, sell-side, NGOs, consultants and investor groups.
- Insights from a short-form survey and follow-up interviews. These explored how investors view the availability, relevance, quality and usability of available research, and where they see persistent gaps.
- A gap analysis highlighting priority areas for improved and/or additional research to enhance corporate engagement.

The report is diagnostic in nature; a snapshot of current investor needs and the adequacy of existing research coverage, not a comprehensive map of every provider of products in the market.

Investor views on the current state of the research market

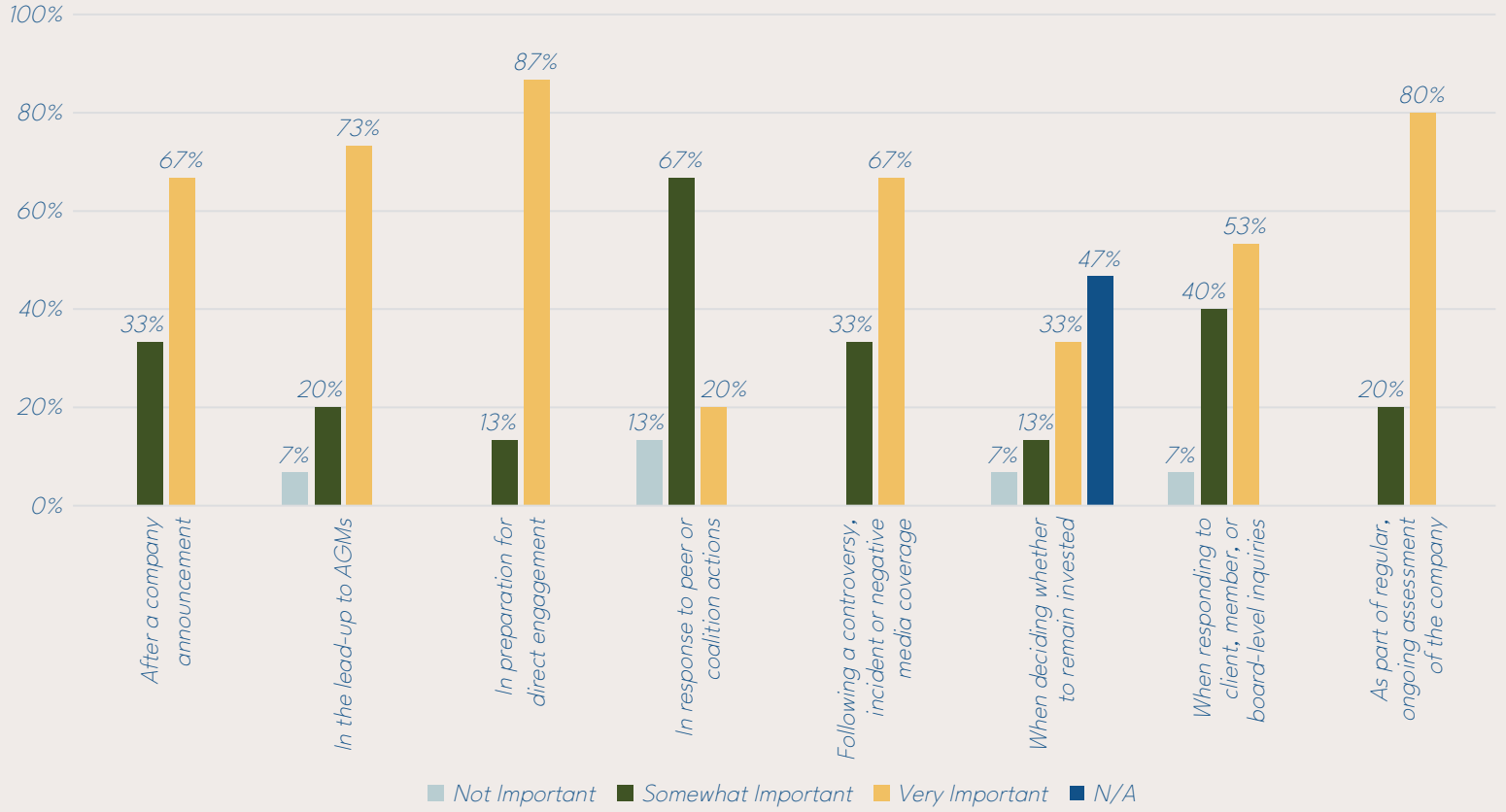
Investor Feedback

- *"We're satisfied with what we have, but it's often delayed, not company-specific, or too broad."*
- *"We want clear, actionable, and timely research that helps us ask better questions and make better investment calls."*
- *"We need research that translates into something our investment team can actually use."*
- *"There's great data out there, but it's hard to apply it to meaningful engagement."*

Timing Matters

Investors see research as critical to company engagement, particularly around AGMs, voting, prior to engagement and following a controversy.

Figure 1: How important has research been in informing your company engagement processes in the following situations? (Question 10, n = 15)



Research Providers

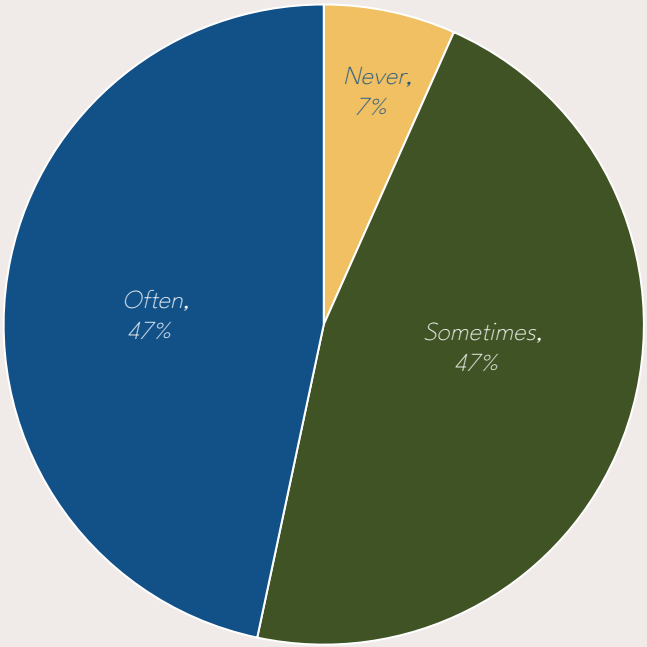
Collaborative or network-based research[1] is widely utilised, with **94% of investors relying on this research to some extent in their engagements** (Figure 2).

Collaborative networks (e.g., CA100+, IGCC, ACSI) are valued but sometimes lack depth or clarity in the research.

For most investors, developing an evidence base for their engagement with companies involves in-house analysis, informed by third-party research and data providers (e.g., Bloomberg, MSCI). Bespoke contracted research is uncommon, with two-thirds of investors not using it and nearly half valuing 'free to access' external research. Some prefer collaborative research models to share costs.

NGO and academic research are seen as informative but often not tailored specifically to investors.

Figure 2: How often do you use collaborative or network-based research to inform your company engagement processes? (Question 8, n = 15)

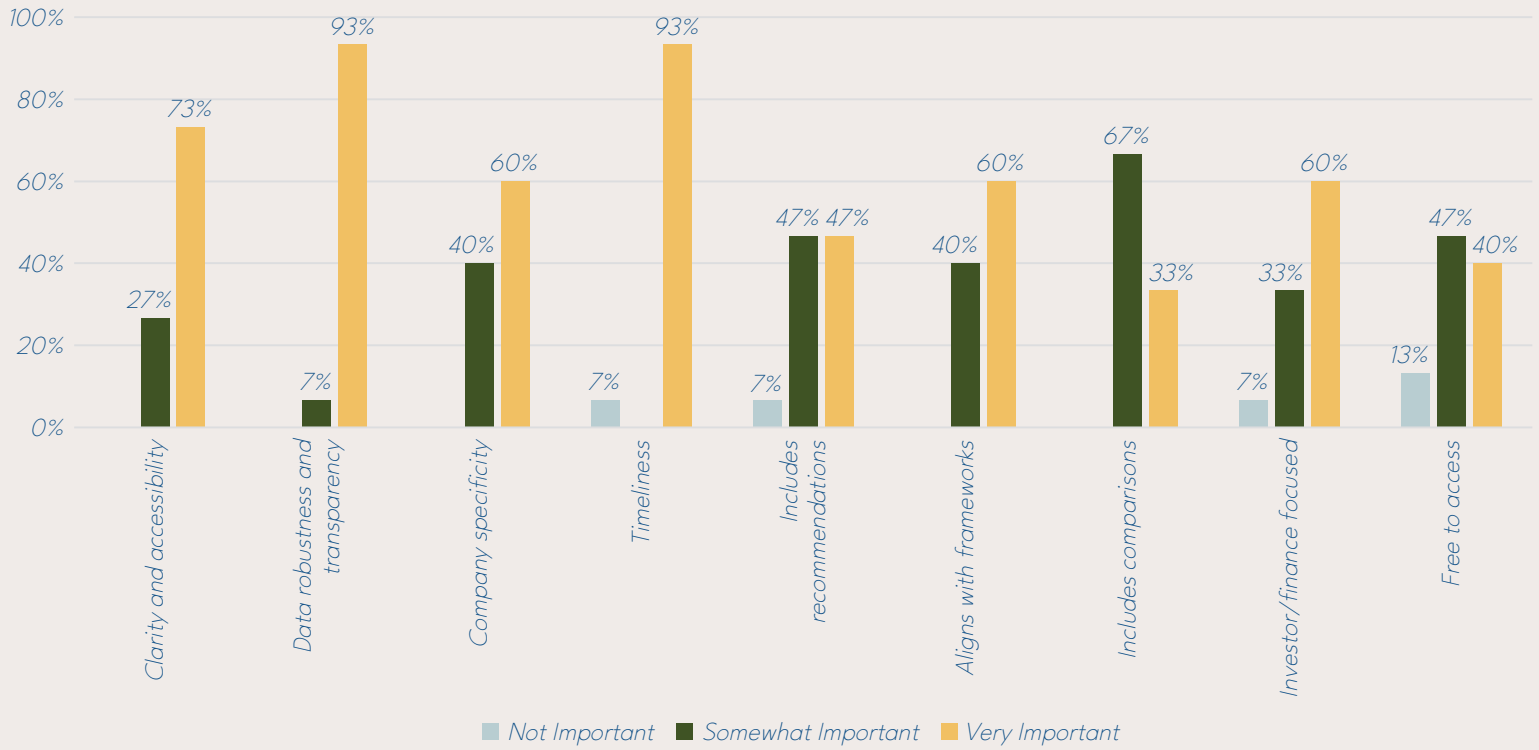


1 Collaborative or network-based research refers that originates from investor led initiatives such as the IGCC, ACSI and CA100+.

Data Robustness and Transparency are Critical

93% of investor respondents (Figure 3) said that alongside timeliness, this is very important. Other key priorities include clarity and accessibility (73%), company specificity (60%), and being investor/finance focused (60%). While attributes like alignment with frameworks, recommendations, and comparative analysis were also valued, they were prioritised to a lesser extent. Notably, free access was the least important attribute, with only 40% rating it *Very Important*. *Overall*, 53% said *Somewhat* or *Not Important*, indicating that quality and relevance of research outweigh cost considerations for most investors.

Figure 3: When considering research to use in your company engagement processes, how important are the following attributes of the research? (n = 15)



03: Summary of Investor Perceptions of Research Needs

Institutional investors require more actionable, and investment-integrated research.

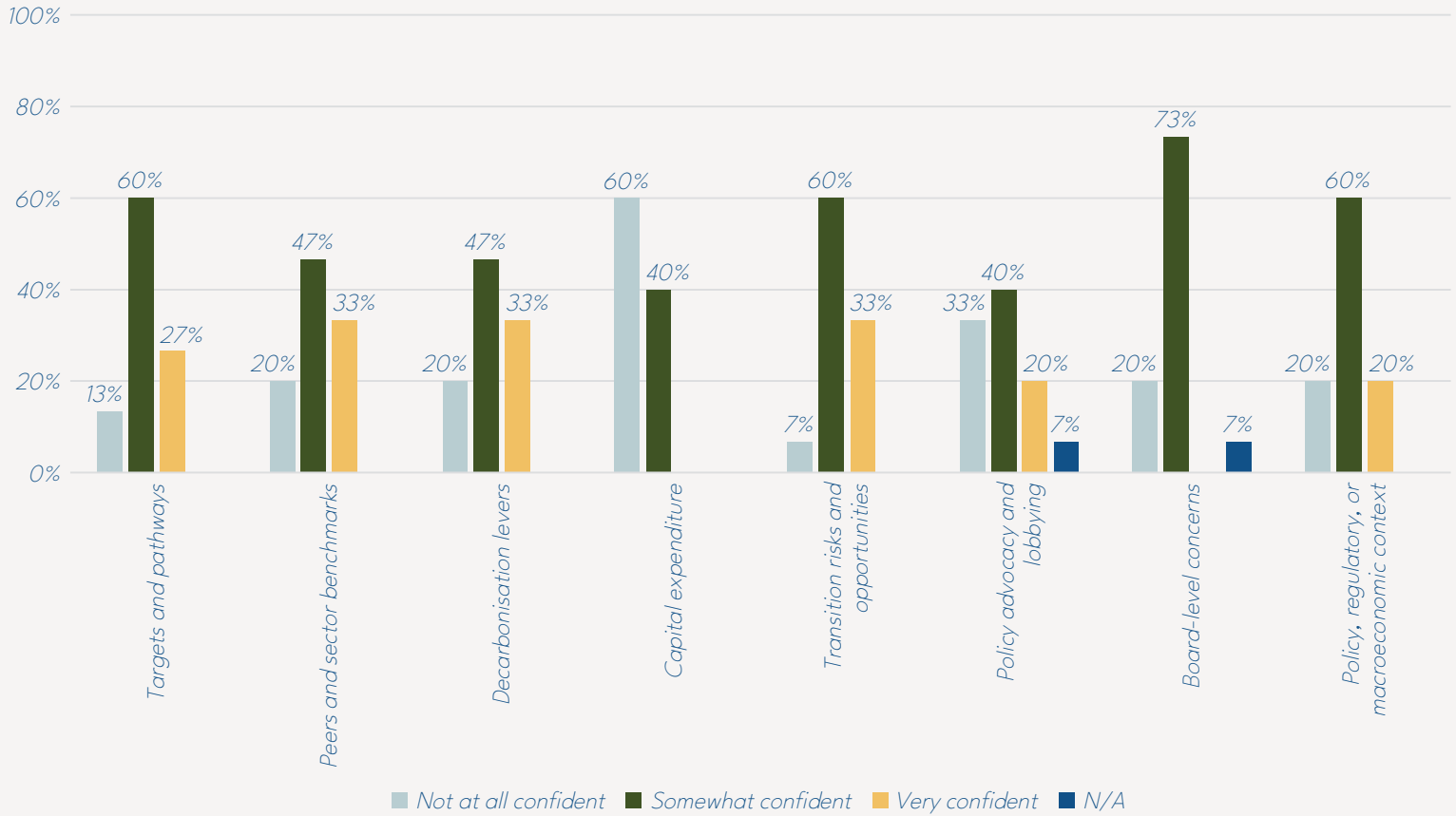
Key asks include:

- Clearer linkages between transition strategy and spend
- Research that bridges ESG and financial language
- Tools for credible, forward-looking engagement with companies

The absence of decision-useful research undermines stewardship efforts — investors can't ask the right questions for constructive engagement and risk making poor investment calls.

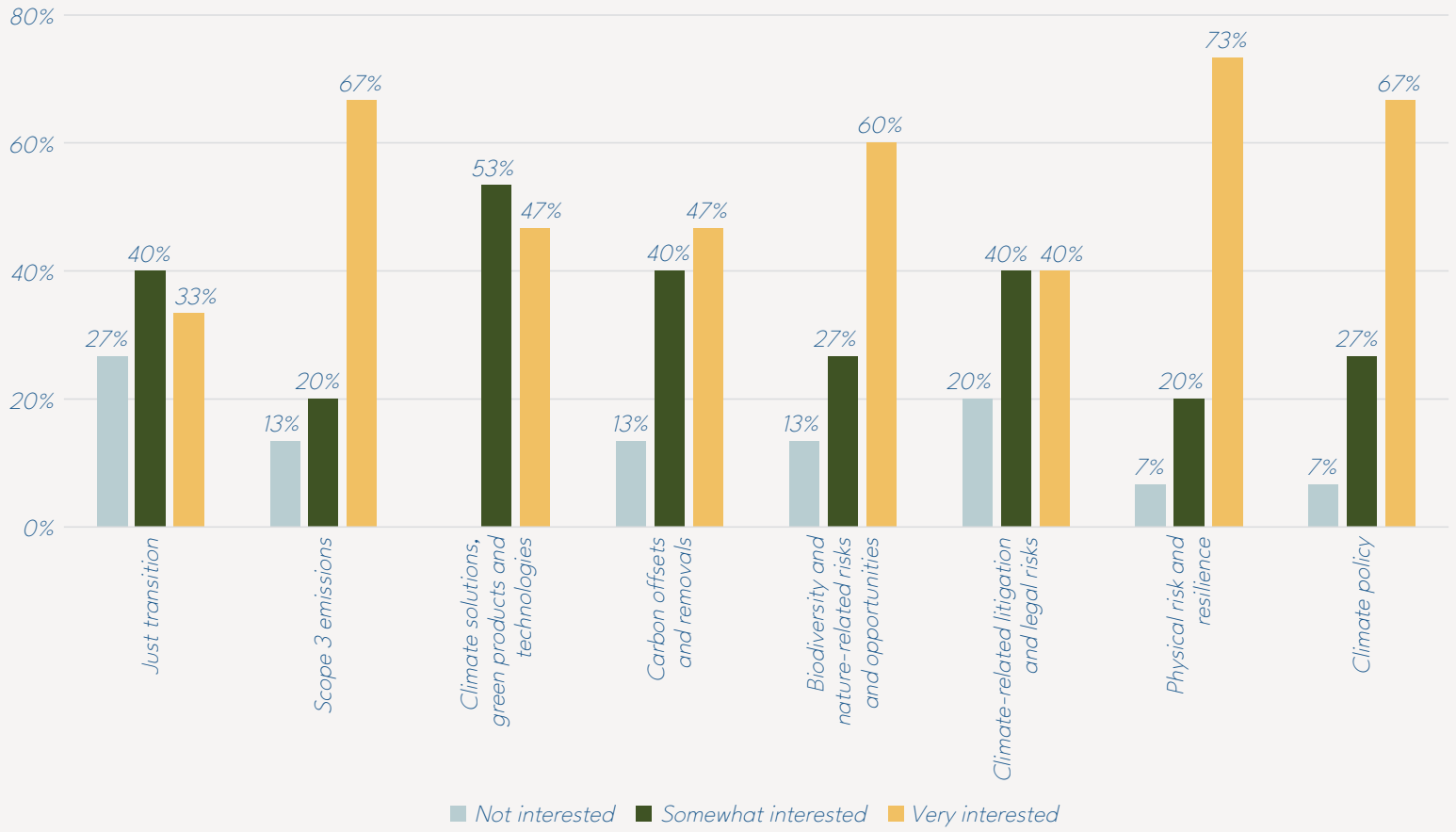
Figure 4 shows that for most topics, most respondents felt only *Somewhat Confident* in the availability of research, with very few being *Very Confident* in any category. Capital expenditure and policy advocacy and lobbying were areas of the highest levels of uncertainty, with most respondents *Not at all Confident* that adequate research would be available. In contrast, targets and pathways, transition risks, and the policy and regulatory context received relatively higher confidence, though still largely in the *Somewhat Confident* category.

Figure 4: How confident are you that sufficient research on the following topics will be available to inform your company engagement processes? (n = 15)



Investors are seeking additional research across a broad range of climate-related themes to inform their corporate engagement efforts (Figure 5). Physical risk and resilience topped the list, with the majority of respondents *Very Interested*, followed closely by climate policy and Scope 3 emissions. Other topics with notable interest include biodiversity and nature-related risks and climate solutions/green technologies. Interest in carbon offsets, climate-related legal risks, and the just transition was more mixed, with lower levels of interest.

Figure 5: How interested are you in additional research on the following themes? (n = 15)



04: Gap #1: Capital Expenditure for Transition Strategies

Background

Investors view capex plans as a key indicator of a company's commitment to its transition strategy. Disclosure of transition capex signals that a company understands the scale of investment required to meet its climate goals and has allocated funds accordingly. While some companies now report current and forward-looking decarbonisation capex, detailed breakdowns by project type and the associated emissions impacts remain limited. Independent verification of these plans is also scarce. Investors needed capital allocation guidance, so IGCC[2] delivered a report and principles-based framework. It can be used by investors and research providers to analyse how capital is sourced, managed, deployed and enabled.

Sell-side research offers useful insights into both the emission and financial implications of major projects, helping investors scrutinise company capex decisions, though such analysis is ad hoc. Initiatives like CA100+[3] and Transition Arc[4] assess company capex plans against climate benchmarks, but limited scoring transparency and weak links to financials reduce their usefulness for engagement. Broader sector studies (e.g. IEA[5], IRENA[6], McKinsey[7]) estimate overall investment needs for sector-wide transitions but rarely link these to market participants, limiting the ability of investors to assess how such estimates should translate to companies.

Investor Insights

Across multiple interviews, investors noted that companies often make climate commitments without showing how capital expenditure plans support them. There is sometimes a noticeable gap where stated goals (e.g., net zero by 2050) are not reflected in current investment allocations. Investors also noted that most existing research is considered too broad, uncosted, or lacking specificity. There's a desire for financially rigorous analysis on capital expenditure plans, both company-specific and at the sector level.

> *"Companies say the right thing but don't align capex. The say-do gap is big."*
>
> *"Current research on capex is too high-level and doesn't help start a constructive conversation."*
>
> *"We need to understand capex at the business-unit level to make it actionable."*

Investors said they frequently use research to answer questions about the capital expenditure required for a company to deliver on its climate strategy. Yet, the majority are not confident that sufficient research exists to inform their company engagement processes.

How confident are you that sufficient research on the capital expenditure required to deliver on climate strategy will be available to inform your company engagement processes? (Question 14, n = 15)

Investors also commented on the "*vagueness in company commitments*" and discussed the difficulty of interpreting "*capital allocation and how emissions reduction projects are prioritised within the allocation and the role of future carbon price or shadow carbon price in the decision.*"

2 Investor Group on Climate Change (IGCC), *Financing Australia's Corporate Climate Transition*, 2025.
3 Climate Action 100+ (CA100+). *Companies*. n.d.
4 Transition Arc. 2025.
5 International Energy Agency (IEA). *Financing Reductions in Oil and Gas Methane Emissions*. 2023. (p. 6).
6 International Renewable Energy Agency (IRENA). *World Energy Transitions Outlook 2025: 1.5C Pathway*. 2024. (p. 9).
7 McKinsey & Company. *The net-zero transition: What it would cost, what it could bring*. 2022. (p. 78).

Recommendation

Investors need research on companies' capital allocation towards stated climate goals. Identified areas are:

- Include payback periods, capex intensity, and expected returns metrics to support company engagement.
- Provide comparative cost-per-tonne abated analysis across technologies (e.g., CCS vs. electrification).
- Encourage or model capex breakdowns by business unit (e.g., upstream vs. downstream).
- Produce capex engagement templates (e.g. "How to assess/assessment templates).
- Highlight peer comparisons – best-practice disclosures and capital allocation frameworks.

05: Gap #2: Decarbonisation Technologies and Levers

Background

Decarbonisation technologies are central to company transition plans. While companies often disclose the types of technologies they intend to use in their climate transition plans, they provide limited quantitative detail on technology costs, timelines, and policy constraints. Investors need to assess their viability and set expectations on progress against stated decarbonisation technologies.

In the absence of company-level information, investors can draw on sectoral and national studies on technology feasibility and pathways. For example, research from IEEFA[8] and IEA[9] provides insight into global technology feasibility and outlooks, while ClimateWorks and CSIRO[10] detail Australian net zero pathways and the technology uptake assumptions required to achieve them. Work by the Climate Change Authority[11] provides complementary analysis focusing on technology viability for select sectors. However, as these studies are often at a national or global level, they may not capture company-specific realities with assumptions becoming quickly outdated as technologies, policies, and market conditions evolve.

Civil society groups like ACCR[12], Market Forces[13], and IEEFA[14] help fill this gap through more targeted analysis of company decarbonisation plans and levers. However, this work is often produced ad hoc and focuses mainly on a small number of companies in high-profile sectors like oil and gas and mining.

Investor Insights

Eleven of the 15 investors interviewed said they *Often* use research on decarbonisation technologies and levers to inform their company engagement, making it one of the most sought-after research areas.

However, many noted a gap in credible, engagement-useful research on decarbonisation technologies such as carbon capture, hydrogen, electrification, and methane mitigation. Investors described research as either insufficient, overly optimistic or lacking practical relevance.

Specifically, investors want research that clarifies:

- Which technologies are deployable this decade
- Which remain speculative or heavily policy-dependent,
- When approaches like CCS and offsets are appropriate.

Investors also noted that research often focuses on technical feasibility but overlooks core metrics like cost, scalability, and near-term returns.

None of the investors identified renewable electricity or energy efficiency as priorities for future research. These were considered mature levers, already well covered by existing analysis.

Finally, investors expressed interested in further research on the role of gas in the energy transition — domestically and globally — to inform engagement efforts with oil and gas companies and utilities. This interest is less about decarbonisation levers to reduce company operational emissions and more about informing engagement on underlying company business strategies, such as the expansion of gas production.

> *"Where we find actionable intelligence is at the business unit level—tech pathway detail matters."*
>
> *"Moomba CCS is technically feasible, but commercially? Not really in this decade."*
>
> *"We're asking companies to disclose what CCS infrastructure costs—right now, it's missing."*

Investor research needs differed by sector. The role of gas in the energy transition at the domestic and global level, and CCS for use in oil and gas as decarbonisation lever, were referenced by multiple participants as areas of interest for future research.

8 Institute for Energy Economics and Financial Analysis (IEEFA). *Carbon Capture for Steel?*. 2024.
9 International Energy Agency (IEA). *Global Hydrogen Review 2024*. 2024. (p. 21).
10 Climateworks Centre and CSIRO. *Pathways to industrial decarbonisation: Phase 3 Technical Report*. 2023.
11 Climate Change Authority. *Sector Pathways Review*. 2024.
12 Australian Centre for Corporate Responsibility (ACCR). *Analysis: BHP's 2024 Climate Transition Action Plan (CTAP)*. 2024. (p. 29–32).
13 Market Forces. *Investor update Santos Limited*. 2025.
14 IEEFA. *BHP is lagging its peers on Scope 3 and steel technology transition*. 2024.

Recommendation

Investors expressed strong demand for decarbonisation technology research that is grounded in economic reality, tailored to sector-specific contexts, and usable for company engagement.

Investors need:

- One-page technology summaries or fact sheets per sector with key cost, feasibility, and policy information
- Sample engagement questions and red-flag indicators to guide investor discussions with companies
- Investment horizon considerations, i.e., which technologies are likely to affect transition performance in 3, 5, or 10 years
- Clarification on the role and viability of key technologies (e.g. CCS, hydrogen, Gas phase-out)
- Connect technology pathways to company capex and operational plans

06: Gap #3: Scope 3 Emissions

Background

Value chain emissions (Scope 3) often make up the largest share of a company's total footprint but are inherently difficult to measure and reduce due to their indirect nature. Investors require a nuanced understanding of a company's product mix, value chain influence, and operating context. For some companies, progress depends on shifting away from high-emissions products; for others, it requires working with or changing suppliers and customers. This complexity makes it particularly challenging for companies to assess and deliver Scope 3 reductions, and for investors to set clear expectations on progress. The significance and challenges of scope 3 emissions are discussed by IGCC in Uses and Limitations of Investee Scope 3 Disclosures for Investors.[15]

Initiatives such as the Science-Based Targets initiative (SBTi)[16] have introduced expectations for Scope 3 targets, though these remain under consultation and subject to refinement. The Voluntary Carbon Markets Integrity Initiative[17] (VCMI) provides guidance on the use of offsets alongside direct emission reduction to define credible progress in Scope 3. Other groups, such as the New Climate Institute[18], have developed transition alignment targets to demonstrate efforts in Scope 3 in sectors such as automotive, technology, fashion, and agrifood. Complementing these, Accela Research[19] has developed a framework to help investors assess minimum Scope 3 ambition, while the Oxford Sustainable Institute[20] proposes a high-level approach for identifying and quantifying dependencies in corporate transition plans to assess the likelihood of achieving emission reductions. Civil society groups including ACCR[21], and IEEFA[22] have produced company-level research in high-emitting sectors like oil and gas and mining, where Scope 3 exposure is most material. However, equivalent assessments in other sectors remain limited, leaving investors with few benchmarks to guide robust engagement and expectation-setting on Scope 3 progress.

Investor Insights

Scope 3 emerged as a key area for investor interest in the survey. Two-thirds of investors surveyed expressed that they are *Very Interested* in additional research on Scope 3 emissions. There was consistent feedback that they wanted clearer breakdowns of emission types, as well as guidance on what is material, measurable, and manageable by companies.

Investors expressed the need for better information on best-practice actions and real-world case studies.

Scope 3 disclosure varies considerably in the level of detail, in the extent to which it is measured or modelled, and whether it has received external assurance. Investors are seeking greater clarity, trust and comparability across Scope 3 disclosures. Limited assurance and external validation of disclosures is one step, but another is a greater sense of best practice estimating of Scope 3 emissions.

> *"External validation [on Scope 3] would really helpful... right now we're flying blind."*
>
> *Importantly, some investors noted that the available research often fails to answer: "What should investors do with Scope 3 data?"*

15 Investor Group on Climate Change (IGCC). *New In-Depth Resource: Uses and Limitations of Investee Scope 3 Disclosures for Investors*. 2024.
16 Science Based Targets Initiative (SBTi). *SBTi Corporate Net-Zero Standard Version 2.0 - Initial Consultation Draft with Narrative*. 2025. (p. 49–51).
17 Voluntary Carbon Markets Integrity Initiative (VCMI). *Scope 3 Action Code of Practice*. 2025.
18 New Climate Institute. *Evolution of Corporate Climate Target*. 2025. (p. 13).
19 Accela Research. *Climate Value Chain Framework*. 2024. (p. 6).
20 Rose et al. *A framework for assessing and managing dependencies in corporate transition plans*. Oxford Sustainable Finance Programme. 2024. (p. 9–11).
21 ACCR. *Analysis: Rio Tinto's 2025 Climate Action Plan (CAP)*. 2025.
22 IEEFA. *BHP is lagging its peers on Scope 3 and steel technology transition*. 2024.

Recommendation

Investors need sector-specific research on material Scope 3 emissions that shows best-practice disclosures and actions. Required research includes:

- Develop a screening framework to improve consistency and help identify which categories and activities within Scope 3 emissions are most material to the company.
- Real-world case studies demonstrating how leading companies have approached value chain engagement, supplier switching, product redesign, or customer influence to reduce Scope 3 emissions.
- Summarise and compare current methodologies to outline principles for robust Scope 3 target-setting.
- Provide clear criteria and templates to help investors evaluate the credibility of company targets and implementation strategies.
- Summarise best practices in third-party auditing and verification for Scope 3 emissions.
- Bridge Scope 3 data with financial impact modelling (e.g. cost of inaction, stranded asset risk, value chain dependency).
- Develop tools that link Scope 3 data with upstream/downstream transition levers, such as supplier decarbonisation pathways or product substitution models.
- Build on existing approaches (e.g., Oxford Sustainable Institute) to create a dependency mapping framework, helping investors evaluate whether a company's Scope 3 strategy is viable based on internal and external factors.
- Produce investor-facing primers and explainers on Scope 3 emissions — tailored to investment teams, not just ESG analysts.

07: Gap #4: Climate Policy and Lobbying

Background

Policy is a critical lever for accelerating economy-wide decarbonisation. Investors increasingly scrutinise corporate lobbying practices to assess whether a company is constructively advocating for climate-positive policy or undermining it. Equally important, however, is understanding the policy environment itself and how it shapes the company's risk and opportunity profile.

While corporate disclosures may selectively highlight positive lobbying behaviour, independent assessments offer a more comprehensive view. InfluenceMap[23] provides one such resource, evaluating company lobbying activities for alignment with both its own criteria and those of Climate Action 100+ (CA100), with results published and also shared with IIGCC members through memo briefs[24]. Disclosure expectations on climate lobbying are also available, with guidance published from the UN PRI (2018)[25], Global Standard on Responsible Climate Lobbying (2022)[26], Global Reporting Initiative (2025)[27], and the Business Associations Climate Action Guide (2024)[28].

At a national policy level, investor networks such as IGCC and IIGCC provide policy briefs, consultation submissions, and access to other resources to both inform investors of regulatory developments and enable them to contribute to shaping policy. Research groups like Climateworks Centre[29] complement this by synthesising key national and sector-level policy trends and identifying areas where further ambition is needed.

However, practical resources for effective engagement on lobbying remain limited and the translation of policy changes into company-level impacts remains rare. Beyond isolated case studies, such as those published by CA100+(2024)[30], there is a lack of recent tools or structured approaches to drive meaningful progress in the area. Research conducted by the authors found only two current studies in the Australian market that meet this need, both of which are focused on the oil and gas sector (e.g., CEF[31], The Australian Institute[32]).

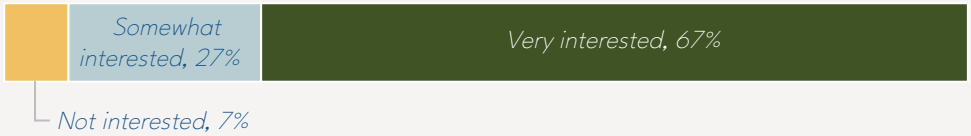
Investor Insights

Investors need research on the impact of climate policy on company strategy. They also require research on the impact of company actions on climate policy. Nine of the 15 respondents stated that they *Often* use research to answer questions about the *"policy, regulatory, and macroeconomic context"* in which companies operate. They raised concerns that companies may publicly support positive climate action while undermining it in private through lobbying activities, especially through industry associations. Investors want more systematic tracking of corporate lobbying, including whether it aligns with Paris-aligned pathways and stated company climate commitments.

"We need policy-linked scenarios to understand which pathways are viable for companies."

"There's a huge gap in how investors assess company policy advocacy."

How interested are you in additional research on climate policy? (Question 15, n = 15)



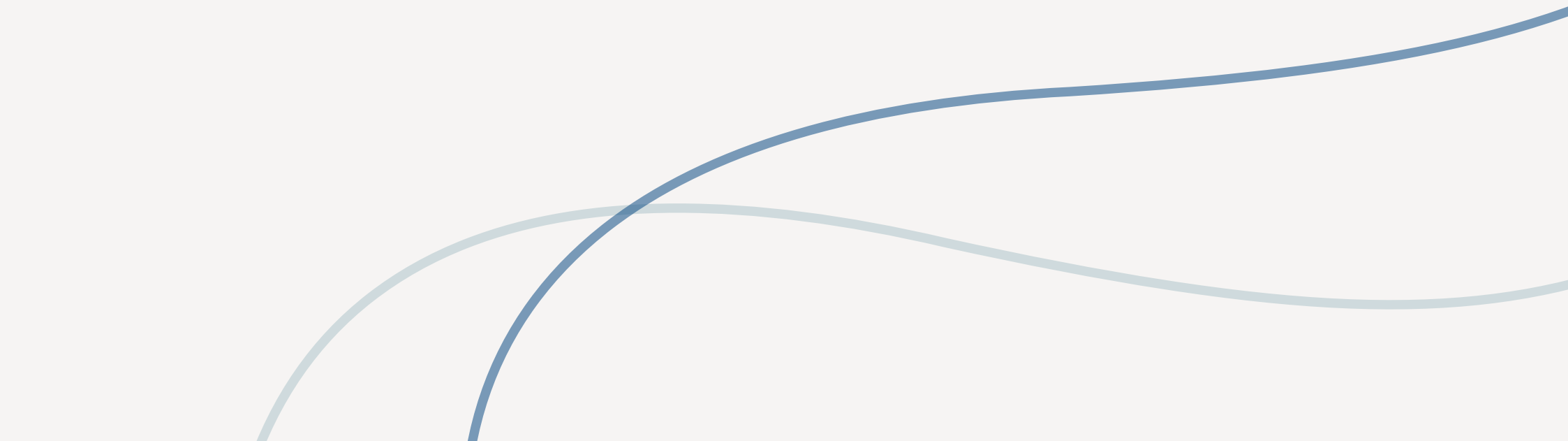
23 InfluenceMap. *Corporate Policy Engagement Disclosure Scorecards*. 2024.
24 Institutional Investors Group on Climate Change (IIGCC). *2025 proxy season*. 2025.
25 UN Principles for Responsible Investment (UN PRI). *Investor Expectations on Corporate Climate Lobbying*. 2018. (p. 1).
26 Responsible Climate Lobbying. *The Global Standard on Responsible Climate Lobbying*. 2022. (p. 6–11).
27 Global Reporting Initiative (GRI). *Corporate lobbying impacts: stakeholder demands for transparency*. 2025. (p. 15–16).
28 Exponential Roadmap Initiative. *Business Associations Climate Action Guide*. 2024.
29 Climateworks Centre. *Leading climate policies from Australia's states and territories*. 2024. (p. 10–11).
30 CA100+. *How corporate engagement improved climate lobbying disclosure at Danone*. 2024.
31 Climate Energy Finance (CEF). *The impact of the Safeguard Mechanism on Woodside's Burrup Hub group of projects*. 2023. (p. 3–6).
32 The Australia Institute. *The new Safeguard Mechanism and the Santos Barossa gas project*. 2023. (p. 6–7).

A few investors emphasised the need for research on the economic case for decarbonisation to encourage "policies that would be supportive/help transform the system (and worth asset owners advocating for)". Another spoke broadly about the need for a "more compelling and specific evidence base for why we'd support an x% reduction of Australian emissions by 2035, 2040, and for it to be a public source to help assist in more investors participating in policy advocacy and positive lobbying asks re 1.5 specifically".

Recommendation

Investors need research to strengthen investor engagement on climate policy and corporate lobbying including:

- Research showing how climate policy impacts company strategy.
- Build on existing tools (e.g. InfluenceMap) to create a more granular understanding of how to assess lobbying positions across key climate issues and apply existing tools in corporate engagement.
- Summarise emerging global standards (e.g. UN PRI, GRI 2025, Global Standard on Responsible Climate Lobbying) into a practical checklist that investors can use to assess disclosures.
- Minimum expectations for disclosure on lobbying activities, including scope (direct/indirect), alignment, oversight, and board accountability.
- Primers tailored for investment teams, outlining the mechanics and financial relevance of lobbying behaviour and policy trends.



08: Gap #5: Physical Risk

Background

Investors need confidence that companies can effectively manage future climate and weather extremes to maintain operational resilience and safeguard long-term value. IGCC[33] have developed a set of investor expectations for Companies' Physical Climate Risk Management and Resilience. These outline the information that investors need to understand whether companies are resilient to a range of climate scenarios.

To identify relevant physical risks, investors can draw on climate information from State and Federal governments, sector-level resources such as UNEP FI's briefings[34], which outline key risks by industry. Company-level disclosures can provide more insights which reflect asset location and characteristics, though information is often aggregated, limiting visibility of asset-specific risks.

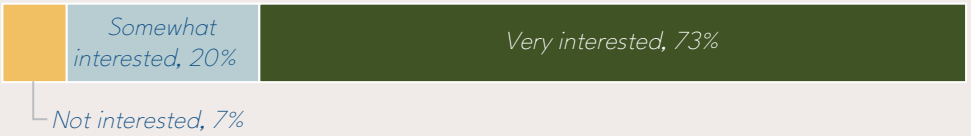
Third-party providers, such as Sustainalytics[35], MSCI and S&P, offer tools to assess company exposure to physical risks and estimate potential financial impacts. However, their assessments differ greatly. Investors require transparency on the way that asset-specific vulnerabilities or existing risk management are measured to understand true financial exposure.

To support investors in the management of physical risks, investors can refer to guidance from UNEP FI[36] and the UN PRI[37], which provide practical steps and case studies for integrating physical risk into investment processes. Investor groups, including IGCC (2024)[38] and IIGCC (2021)[39], have also produced targeted resources to guide investor expectations for company-level physical risk management and to identify opportunities to scale private investment in resilience.

Investor Insights

Investors view physical risk and resilience as a critical and under-addressed area of research.

How interested are you in additional research on physical risk and resilience? (Question 15, n = 15)



More than two-thirds of investors surveyed expressed that they are *Very Interested* in additional research on physical risk and resilience. This was the highest level of interest across all themes surveyed, including just transition, carbon offsets and removals and climate policy.

Investors expressed significant concern over the lack of usable, granular, and financially meaningful data. This includes quantifying the financial impact of physical climate hazards on revenues, costs, insurance premiums, and capital expenditure.

They commented that company climate adaptation strategies are nascent compared to company climate mitigation strategies.

"[Need a] better sense of exposure to physical/systemic climate risks — currently hugely underestimated."

"We need to know how exposed specific assets are—not just sector averages."

"...better sense of exposure to physical/systemic climate risks — currently hugely underestimated (and adequacy of company response to increase resilience)".

"Impact calculations and scenarios are frequently a black box and non-editable."

33 Investor Group on Climate Change (IGCC), *Investor expectations of companies' physical climate risk management and resilience (pilot version)*, 2024.
34 United Nations Environment Programme Finance Initiative (UNEP FI). *Climate Risks in the Transportation Sector*. 2024. (p. 5).
35 Sustainalytics. *Physical Climate Risk Metrics Methodology Abstract v1.0*. 2023.
36 UNEP FI. *Physical Climate Risk Assessment and Management: An investor playbook*. 2024. (p. 7).
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38 Investor Group on Climate Change (IGCC). *Activating Private Investment in Adaptation*. 2024. (p. 6–8).
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Recommendation

Research needs on physical climate risk and resilience and adaptation strategies to better support investor decision-making and engagement include:

- Transparency on asset-level physical risk maps that tie risks (e.g. flood, wildfire, drought) to specific geographies and facilities.
- Identify company-specific vulnerabilities, including infrastructure condition, historical exposure, and adaptive capacity. Also recommended by IGCC (2024)[40].
- Develop approaches to identify key interdependent physical risks, including in supply chains and operations.
- Evaluate the quality of corporate adaptation plans, including investment in physical infrastructure, business continuity planning, and insurance arrangements.
- Develop resilience benchmarks to help investors compare companies across sectors and geographies. These can build from IGCC's Physical Climate Risk Assessments of Infrastructure Assets[41].
- Highlight case studies where companies have proactively addressed physical risk, demonstrating strategic responses to climate adaptation.

40 IGCC. *Physical Climate Risk Assessments of Infrastructure Assets*. 2024.
41 IGCC Physical Climate Risk Assessments of Infrastructure Assets (2024).

09: Gap #6: Just Transition, Nature and Biodiversity

Background

A company's interaction with the physical environment extends beyond climate change. Nature, biodiversity, and society are increasingly recognised as interconnected with global decarbonisation efforts. However, investor expectations and available frameworks in these areas remain fragmented, with most guidance developed in isolation. This creates a risk that investors overlook cascading or compounding risks across climate, nature, and social factors.

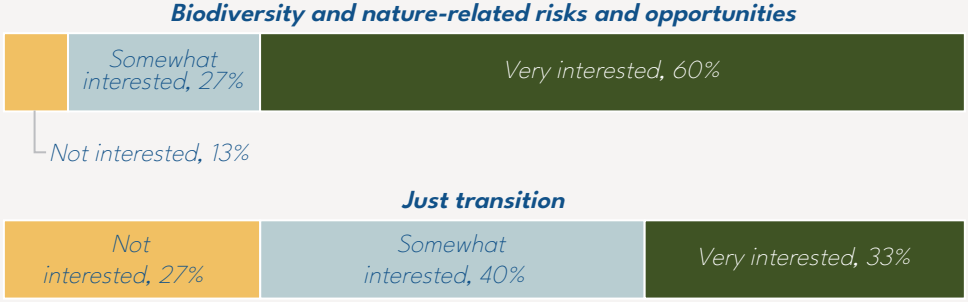
For nature-related risks and impacts, frameworks such as the Taskforce on Nature-related Financial Disclosures (TNFD)[42] and the Science Based Targets Network (SBTN)[43] are emerging and beginning to provide structure for companies and investors to assess and manage risks. The Nature Action 100 benchmark (NA100)[44] offers company-level assessments of nature-related risks.

Just transition, by contrast, is more directly integrated with climate action, given its focus on the social impacts of decarbonisation. The World Benchmarking Alliance[45] provides company-level assessments against both climate and just transition indicators for select sectors, allowing investors to compare performance across both topic areas. IGCC's most recent guidance[46] and masterclass[47] on just transition helps investors move beyond high-level principles and scoring to more targeted questions that can be asked on company just transition plans.

Investor Insights

Investors need research on areas in which climate goals interlink with broader social, economic and environmental concerns. Nine of 15 investors are *Very Interested* in biodiversity and nature-related risks and opportunities, and over two-thirds are either *Very Interested* or *Somewhat Interested* in further research on just transition. Investors commented it is hard to quantify or financially assess just transition risks in financial statements, capex allocation and asset valuation. Interviews with investors also revealed that some see just transition as a material risk, particularly those focused on mining, fossil fuels, and utilities. In contrast, others perceive it as less critical, especially in sectors with lower direct employment or localised impacts.

How confident are you that sufficient research on the following topics will be available to inform your company engagement processes? (Question 15, n = 15)



42 Taskforce on Nature Related Financial Disclosure (TNFD). *Recommendations of the Taskforce on Nature-related Financial Disclosures*. 2023.
43 Science Based Targets Network (SBTN). *Corporate Manual for setting science-based targets for nature*. 2024.
44 Nature Action 100. *Nature Action 100 Company Benchmark 2024: Company assessments*. 2024.
45 World Benchmarking Alliance. *Climate Benchmark*. 2024.
46 IGCC. *Investor Expectations for Corporate Just Transition Planning*. 2024.
47 IGCC. *IGCC 2025 Masterclass 2: Just Transition*. 2025.

"There could be a best practice framework…companies need examples to borrow from."

"We need to understand how companies are engaging their workforce in transition."

"It's early-stage fact-finding on biodiversity…companies and investors don't yet know what to do with the data."

Recommendation

Research to help investors understand how climate goals interlink with broader social, economic and environmental concerns could include:

- Integrated transition risk frameworks that capture compounding and cascading impacts (e.g. biodiversity degradation amplifying social unrest or climate risk).
- Illustrative case studies where social and nature-related risks intersect, such as deforestation affecting indigenous communities or energy transition plans impacting local employment.
- Sector-relevant checklists based on TNFD/SBTN.
- Guidance building on Nature Action 100 that links nature indicators with financial materiality.

10: Next Steps

Investors need research that is financially grounded, company-specific, and forward-looking. Providing them with the tools to rigorously evaluate corporate transition plans enables real-world implementation.

Six major research needs emerged from the investor feedback:

- capital expenditure alignment,
- decarbonisation technologies,
- Scope 3 emissions,
- climate policy and lobbying,
- physical risk, and
- cross-cutting issues like just transition and biodiversity.

This report maps the research needs to support corporate engagement by institutional investors. It sets the research agenda to meet these requirements and calls for collaboration, innovation, and capacity-building within the research community.

11: Appendix

Review of Recent Research by Topic Area

Gaps in research that investors can apply when seeking to deepen their company engagements remain. However, the tables below summarise a selection of recent or notable resources currently available by topic area. This is not intended to be a comprehensive review of available literature but rather a snapshot of materials that may be useful to investors. The majority of sources listed below are referenced in the background sections in the main report.

Table: Reports on capital allocation

Author	Report Name	Description	Date
IGCC	Financing Australia's Corporate Climate Transition	A principles-based framework to assist investors in evaluating whether companies are sourcing, managing, and deploying capital in ways that support their transition strategies, and engaging with stakeholders to stimulate and enable transition aligned allocation	July 2025
UBS	Example broker report: Rio Tinto: PacAl repowering takes another step forward	The note looks at how Rio's PPAs may influence future capex requirements for batteries, the potential impact of the Green Production Credit, projected weighted average cost of capital, and associated carbon emissions.	Mar 2025
CA100+	CA100 Benchmark Assessments	Scoring of company performance against pre-defined metrics which include historic and future capital allocation alongside decarbonisation levers.	2025
Climate Arc	Transition Arc	Company-level information on capital allocation, emissions, targets, governance and policy engagement alongside their alignment with 1.5˚C (not complete).	N/A
IEA	Example: Financing Reductions in Oil and Gas Methane Emissions Example: Net Zero Roadmap: A Global Pathways to Keep the 1.5 Goal in Reach	Investment required to reduce methane emissions aligned with 1.5˚C to 2030. Investment needed in clean energy to 2030 and 2050 and in oil and gas.	2023
IRENA	Example: World Energy Transitions Outlook 2024: 1.5˚C Pathway	Includes cumulative investments required in different decarbonisation measures to align with a 1.5˚C pathway.	Nov 24
McKinsey	Example: The net-zero transition	Assessment of the scale, timing and sectoral breakdown of capex needed for net-zero.	2022

Table: Reports on decarbonisation technologies and levers (examples only)

Note: The sources listed below are intended to illustrate the types of research available. They are not an exhaustive list of all research on decarbonisation levers.

Author	Report Name	Description	Date
Sector research — published ad hoc			
Climate Change Authority	Sector Pathways Review	Summary of technology and emission pathways by sector in Australia and the potential barriers.	Apr 25
Australian Industry Energy Transition Initiatives	Pathways to industrial decarbonisation: Positioning Australian industry to prosper in a net zero global economy	Strategies for Australian heavy industries such as iron and steel, aluminium, LNG, chemicals, and other metals to achieve net-zero emissions by 2050.	Feb 23
McKinsey	Decarbonizing the world's industries: A net-zero guide for nine key sectors	Summary of articles on decarbonisation strategies and challenges across nine sectors.	Multiple dates
Academic studies	Example: Technologies and gaps in deep decarbonization of hard-to-abate industrial sectors	Review of technology availability across hard-to-abate sectors.	June 2025
IEEFA	Example: Carbon Capture for Steel?	Discussion paper on the viability of CCUS in the steel industry, including a review of CCUS costs, technical limitations, and deployment status.	Apr 2024
	Example: Prioritising methane makes economic sense	Review of methane reduction technologies and their applicability, alongside abatement costs and required policies.	Dec 2024
Company research — published ad hoc			
ACCR	Example: Rio Tinto 2025 CAP analysis Example: Analysis: Glencore's 2024–2026 Climate Action Transition Plan	Review of Rio Tinto's and Glencore's climate action plan including information on emissions, capex, and climate policy advocacy and lobbying.	2024/25
IEEFA	Example: BHP is lagging its peers on Scope 3 and steel technology transition	Review of BHP's progress on Scope 3 and risks in its existing assumption on steelmaking decarbonisation.	Oct 24
Market forces	Example: Santos Limited, Out of line, out of time	Voting recommendations for Santos's upcoming AGM. Includes review of Santos' targets, production profile, Scope 3 strategy and capital allocation framework.	Mar 25

Author	Report Name	Description	Date
Company research — published ad hoc			
Carbon Tracker	Example: AGL Energy Company profiles	Review of AGL strategy to determine if its Paris-aligned, considers coal phase-out plan, emission targets and governance structure.	Nov 21
Accela Research	Example: Oil and Gas Majors' 2025 AGMs The Great Rebase	Peer comparison of decarbonisation strategy and ambition. Review of capex requirement for targets.	Apr 25
Sector research — published annually			
IEA	Global Hydrogen Review 2024 (available annually, other examples include Global EV Outlook 2025)	Overview of progress in hydrogen uptake globally, including costs, demand by sector, future outlooks, investment and available policies.	Oct 2024
Bloomberg NEF	Example: Electric Vehicle Outlook 2024 Transition Metals outlook 2024	Annual long-term outlooks for drivers of a low-carbon economy.	2024
AEMO	GenCost project data	Annually updated cost assumptions on technologies for electricity generation in Australia.	Dec 24
Company research — published annually or quarterly			
Accela Research	Example: Shell 1Q25 | Climate Transition Analysis	Quarterly analysis of company announcements on its decarbonisation strategy alongside engagement asks (oil and gas).	May 25
Transition Pathway Initiative	Net Zero Standards (NZS) assessments.	Assessments of company transition plans against the net-zero standard (oil and gas and mining).	Feb 25

Table: Reports on Scope 3

Author	Report Name	Description	Date
IGCC	Uses and Limitations of Investee Scope 3 Disclosures for Investors	Guidance and considerations on scope 3 data	Mar 24
SBTI	Corporate Net-Zero Standard V2 for consultation	Draft guidance on key changes to Scope 1,2 and 3 target setting.	Mar 25
VCMI	Scope 3 Action Code of Practice	Best practice for companies to work on direct emissions reductions and also use high-quality carbon credits to address unabated Scope 3 emission.	Apr 25
IGCC	Uses and Limitations of Investee Scope 3 Disclosures for Investors	Guidance on investor climate reporting and target setting for portfolios which incorporate investee Scope 3 emissions.	Mar 24
IIGCC	Investor approaches to Scope 3: its importance, challenges and implications for decarbonising portfolios	Discussion paper: Investor approaches to Scope 3: its importance, challenges and implications for decarbonisation portfolios (similar to above).	Jan 24
New Climate Institute	Evolution of Corporate Climate Targets	Guidance on transition-specific alignment targets to complement emission targets for the sectors of automobiles, fashion, tech, and agrifood.	Jan 25
OSFI	A framework for assessing and managing dependencies in corporate transition plans	Proposes an approach for identifying and quantifying dependencies in a company's transition plan.	Aug 24
Accela Research	Climate Chain Value Framework	Framework for assessing the decarbonisation opportunities within corporate value chains.	Oct 24
Grantham Institute	Addressing the Scope 3 Challenge - A workshop briefing from researchers working on corporate climate action and governance	Briefing of workshop outcomes with academics which discussed views on Scope 3 in the context of SBTis proposed changes to the Corporate Net-Zero standard.	Sept 24

Table: Reports on climate lobbying

Author	Report Name	Description	Date
GRI	Corporate lobbying impacts: stakeholder demands for transparency	Recommendations for enhancing company transparency on lobbying based on a review of stakeholder expectations.	Mar 25
InfluenceMap	Corporate Policy Engagement Disclosure Scorecards	Assessment of company disclosure on climate policy engagement.	Mar 25
IIGCC	Climate Policy Engagement assessment	2025 Proxy season memos which include an assessment of company lobbying activities against set indicators (provided by Influence Map).	Apr 25
Global Standard on Responsible Lobbying Project	Global Standard on Responsible Corporate Climate Lobbying	14 indicators to assess the alignment of company lobbying with the Paris Agreement.	Mar 22 (updated 2025)
Business Associations Climate Action Guide	How to align business association memberships with positive climate policy engagement	Framework to help companies assess and align business association memberships to ensure corporate advocacy efforts are1.5˚C-aligned.	Jun 24
CA100+	How corporate engagement improved climate lobbying disclosure at Danone	Case study on a company (Danone) improving its climate-related lobbying disclosure via investor engagement.	Apr 24
UN PRI	Investor Expectations on Corporate Climate Lobbying	Investor expectations for companies to ensure that their direct and indirect lobbying activities align with the goals of the Paris Agreement.	2018
UN PRI	Converging on Climate Lobbying: Aligning Corporate Practice with Investor Expectations	How to engage with companies on lobbying practices (includes questions for investors to consider).	2018

Table: Reports on climate policy (examples)

Author	Report Name	Description	Date
IGCC	Submission example: Improving productivity via meeting adaptation and mitigation objectives	Submissions in response to government consultations on proposed policies/guidance.	Jun 25
IGCC	Policy brief example: US election and net zero Asia re-shape the 2021 policy agenda	Policy briefing on the climate policy implications of the US election on Australia/NZ.	Nov 20
ClimateWorks	Leading climate policies from Australia's states and territories	Assessment of current state and territory climate policies and state and territory policies relevant to sectors.	Dec 24
ClimateWorks	Example: Making aluminium uses 10% of Australia's electricity. Will tax incentives help smelters go green?	Article summarising the likely effectiveness of newly announced policies.	Jan 25
Climate Change Authority	Climate Policy Tracker	Summary of climate related policies being delivered around Australia and their implementation.	Nov 24
Climate Energy Finance	The impact of the Safeguard Mechanism on Woodside's Burrup Hub gas project: invest in solutions or cop a multibillion-dollar liability	Implications of Safeguard policy on Woodside projects.	Apr 23
The Australian Institute	The new Safeguard Mechanism and the Santos Barossa gas project	Implications of Safeguard policy on Santos projects.	May 23

Table: Reports on physical risks

Author	Report Name	Description	Date
IGCC	Investor expectations of companies' physical climate risk management and resilience (pilot version)	Investor expectations for companies to improve their disclosure and resilience to physical climate risk and resilience.	October 2024
Sustainalytics	Physical Climate Risk Metrics	Data provision of physical climate risk exposure of companies and an assessment of unmanaged physical impacts of extremes in financial terms.	N/A
UNEP FI	Physical Climate Risk Assessment and Management: An investor playbook	Simplified step-by-step approach to integrating the identification, assessment and management of physical climate risks in the investment process.	Oct 24
UN PRI	Assessing Physical Climate Risk in Private Markets: A Technical Guide	Guide for private market investors to understand how to assess physical risks alongside baseline best practice for physical risk assessment and management (incl. case studies).	Mar 25
IIGCC	Physical Climate Risk Divergence: PCRAM for investors	Guide for investors on how to integrate the PCRAM approach into investment practices (PCRAM is a 4-step method to quantify the benefits of investing in resilience and how physical risks may impact future cashflows of an asset).	Nov 24
IIGCC	Investor Expectations of Companies on Physical Climate Risks and Opportunities	Investor expectations for companies to assess, manage, and disclose physical climate risks and opportunities in line with TCFD.	Sept 21
IGCC	Activating Private Capital for Climate Adaptation	Recommendations for government and investors to stimulate private investment in adaptation and resilience.	Nov 24
IGCC	Investor expectations of companies' physical climate risk management and resilience (pilot version)	Investor expectations of companies' physical risks management and resilience.	Oct 24
ESMA	Assessing portfolio exposures to climate physical risks	How two methodologies and data sources can yield some insights to assess EU fund portfolio exposures to climate physical risks.	Oct 24
First Sentier MUFG	Climate Risk & Adaptation in Global Food	Investor recommendations to manage physical risks in food supply chains.	Apr 25
UNEP FI	Example: Climate Risks in the Transportation	A series of briefings by sector which identify key physical and transition risks relevant by sector.	May 24

Table: Reports on nature related risks and just transition

Author	Report Name	Description	Date
Nature			
RIAA	Nature investor toolkit	Guidance to help investors identify nature-related risks and opportunities in sectors and engage on the area with stakeholders. Provides tools for investors to access.	Sept 24
Nature Action 100	Nature Action 100 Company benchmark	Company level assessment of performance against 6 indicators (Yes/No/Partial).	2024
Ceres	Exploring Nature Impacts and Dependencies A Field Guide to Eight Key Sectors	Framework for investors to understand sector impacts on nature with key engagement questions for investors.	Mar 24
UNEP FI	Accountability for Nature: Comparison of Nature-related Assessment and Disclosure Frameworks and Standards	Comparison of nature-related disclosure approaches.	Feb 25
First Sentier Investors	Investors Can Assess Nature Now	Investor guide to assess water and deforestation issues in investment portfolios.	Sept 23
UN PRI	Investing for nature: Guidance, standards and tools	Summary of resources available to support investor engagement on nature.	Mar 24
Just transition			
IKR School, Schroders	Engaging with companies on Just Resilience: An Investor Toolkit	Document to raise awareness with investors of the social implications of physical risks climate and adaptation.	Apr 25
IGCC	Investor Expectations for Corporate Just Transition Planning	Guidance for investors to understand, assess and engage on Just Transition. Includes engagement questions and areas for potential research.	Nov 24
Impact Investing Institute	Bridging divides: A guide on using catalytic capital for a global just transition	Guide to unlocking private capital investments for a just transition that combines climate action with social justice and local development needs.	Oct 23
ACTU	Securing a Just Transition	Guidance for investors and asset managers to embed Just Transition principles into their investment strategy.	2021

Author	Report Name	Description	Date
Just transition			
UN PRI	Why a just transition is crucial for effective climate action	For different policy levers related to climate, discusses the just transition considerations from a policy lens.	2019
Grantham Institute	Climate change and the just transition: A guide for investor action	Guidance on how investors can pursue a just transition as part of their core operating practices. Includes case studies.	2018
World Benchmarking Alliance	Assessing the 'just' in corporate transition plans: framework and guidance	Guidance for transition plan preparers and assessors to evaluate just transition plans.	Apr 25
World Benchmarking Alliance	Example: Automative and Transportation Manufacturers Benchmark	Assessment of 450 companies on just transition efforts.	2024
ACSI	A just transition to a clen energy economy: Investor expectations and policy recommendations	Investor expectations on company actions and reporting for a just transition.	2022
Amundi AM, Clifford Chance LLP	Just transition: A framework for Investor engagement	Framework to support investors in integrating just transition principles into their engagement activities.	2024

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