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Original research article

## Climate action or distraction? Exploring investor initiatives and implications for unextractable fossil fuels

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## ABSTRACT

Limiting global warming to 1.5 °C requires drastically reducing fossil fuel production and use. Institutional investors who invest in fossil fuels can potentially influence the energy transition. However, few papers investigate how investors can leverage their *collective* resources to accelerate a transition away from fossil fuels. Hence, this paper asks: How do investor initiatives inform or shape efforts of institutional investors to align with the Paris Agreement and what are the implications of these for a goal of leaving fossil fuels underground? We identify 41 investor initiatives through a document analysis and use a sectoral governance perspective to analyse initiative strategies and policies. We then examine in depth one of the largest initiatives, Climate Action 100+, supported by analysis of 55 newspaper articles. Findings indicate that while initiatives are active in providing resources to investors to assist with aligning their investments with the Paris Agreement, coordinating investor engagement, and have been successful in uniting a critical mass of investors behind climate goals (\$500 billion - \$106 trillion), there exist many gaps in their capacity to achieve ambitious action on climate from companies or their investor members. A lack of internal accountability, minimal transparency into their goals and timelines, and limited ambition threaten to undermine the potential for investor initiatives to be agents of climate action. Furthermore, loopholes in the net zero policies promoted by initiatives risk diluting their effectiveness in limiting fossil fuel extraction.

## 1. Introduction

Extreme weather events in recent years underscore the urgency of taking action to limit global warming to 1.5 °C above pre-industrial levels [1]. Sufficiently reducing anthropogenic emissions to yield a 50 % chance of reaching this target requires leaving 90 % of known coal reserves and 60 % of oil and gas reserves untouched [2]. The 2015 Paris Agreement [3], although it does not explicitly mention fossil fuels, through its commitment to limiting the global average temperature increase to 1.5–2 °C (Article 2.1a), *implicitly* requires leaving fossil fuels unextracted and in the ground. It also commits to “making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development” (Article 2.1c). Compliance with the Paris Agreement will require, among other actions, addressing the financial flows of investors in fossil fuel (FF) exploration and use.

Key financial actors include institutional investors and the seldom-

discussed *investor initiatives* in which they partake and through which institutional investors ostensibly take climate action. Institutional investors from OECD member states alone manage nearly \$100 trillion in assets [4], rendering them key financial players, and highly relevant for a FF phaseout. OECD pension funds, for instance, managed between \$200–800 billion in common shares and convertible bonds pertaining to FF exploration and production firms in 2019 [5]. Significant portions of investors' portfolios could suffer losses when these fossil-intensive assets become stranded (see e.g. [6–9]), especially in a disruptive or disorderly transition [10].

The threat of long-term climate risk has motivated many institutional investors to incorporate climate action in their decision making, although ambitious action has been limited by ongoing prioritisation of short-term returns, lack of institutional expertise on climate issues, and general scepticism of the urgency of climate action [11,12]. There have been debates on whether investors should divest their FF assets or

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‘engage with’ those companies (leverage shareholder power to govern and transform dirty firms into greener versions of themselves). Scholars conclude that while divestment has limited potential to financially impact FF producers, it can serve instead to stigmatise FF companies and remove their social license to operate [13,14]. The divestment campaign has gained significant traction in recent years, with various high-profile investors, such as BlackRock, the Norwegian Sovereign Wealth Fund, or Dutch pension fund ABP, committing to divest, fully or selectively (e.g. just from coal) from FFs [15]. Divestment has also been critiqued for its de facto reallocation of the burden of meaningful climate action and governing inevitable stranded fossil assets, potentially inequitably absolving the investors who have profited from FF production of any responsibility or accountability [5,16,17].

Conversely, engagement—often touted by many institutional investors themselves [18]—has been slow and yielded underwhelming achievements for climate action, indicating the limited potential for any individual investor engagement to achieve the scale of results needed [11,19]. There are increasing calls for moving from individual investor engagement to mobilising coalitions of investors for collective engagement. Various studies suggest that shareholder engagement could achieve amplified results by uniting shareholders behind a common cause [5,11]. While FF exploration and production firms have hundreds of thousands of shareholders, the number of significant shareholders is much smaller, as “less than ten individual shareholders often control a disproportionate amount of oil and gas companies—over twenty percent” [20]. Nevertheless, scholarship focuses predominantly on the divest vs. engage debate, with little attention to these collective efforts and their potential for climate mitigation.

While most climate-related investor initiatives emerged recently (nearly half of the initiatives in this study were founded in or after 2015—see Section 3.1), institutional investors, especially those that consider themselves ‘socially responsible’, do have a history of working collaboratively. Since the early 1970s, investor collectives have targeted environmental, social, and governance (ESG) issues within corporations [21]. Certain papers have examined individual climate-related initiatives (e.g. the Carbon Disclosure Project (CDP) [22], the Principles for Responsible Investment (PRI) [23], or the Task Force for Climate-Related Financial Disclosures (TCFD) [24]). However, few papers conceptualise investor collectives or initiatives as agents in addressing the climate crisis (e.g. [21,25]). MacLeod [21] argues that collective investor initiatives function as ‘governance networks’ over corporations and “purposely steer (i.e. govern) the behaviour of market actors (i.e. corporations and investors) through the broad range of tools at their disposal.” On climate change, MacLeod and Park [25] understand investor initiatives as a private actor in the “emerging fragmented architecture of global environmental governance.”

Despite the relatively limited attention to existing investor initiatives, the existing scholarship alludes to their theoretical potential for meaningful climate action. Henderson [26] notes the vast capital backing recent investor initiatives, and indicates that as the “public sector is failing to confront [climate change],” the private sector, guided by initiatives like Climate Action 100+ (CA100+), who are now backed by investors managing \$68 trillion in assets under management (AUM),<sup>1</sup> may emerge as the ‘unlikely environmentalists’ capable of taking climate action. However, meaningful collective climate action in the political realm frequently risks being undermined by collective action problems such as free-riding or the prisoner’s dilemma [20]. Although collective investor action could face similar issues, Gond & Piani [23] argue that investor initiatives can serve as ‘enabling organisations’ which overcome such problems by “providing an infrastructure for investors to work with one another and maintaining time-continuity of investors’ engagement, thus resulting in continued pressure on targeted firms.” The collective potential of investor coalitions can increase the

“salience of the ESG issues they promote” by building power, legitimacy, and urgency as a collective, to influence companies and their management [27].

Against this background, this paper tackles the question: How do investor initiatives inform or shape efforts of institutional investors to align with the Paris Agreement and what are the implications of these for a goal of leaving fossil fuels underground?

The paper first outlines the analytical and empirical methodology (see Section 2), inventories relevant initiatives and examines these through a sectoral governance lens (see Section 3), and conducts a case study of one prominent and influential initiative, CA100+ (see Section 4), before presenting conclusions (see Section 5).

## 2. Methods

This research first made an inventory of the most influential investor initiatives working on climate. Given that investor influence is shaped by their portfolio size [28], we focused on the world’s largest investors as a starting point for identifying influential initiatives. A sample of 70 of the largest institutional investors, across six types of institutional investor (pension funds, mutual funds, hedge funds, insurance companies, investment banks, and endowment funds), was compiled, using lists published by popular financial information websites.<sup>2</sup> Since different investor types have differing mandates, priorities, or tendencies for engagement [29], we expected that there might be differences in the types of initiatives they join. To identify a wide range of initiatives, we thus included a range of investor types in our sample. Annual reports and sustainability reports from these 70 investors were examined (see Appendix A) to identify the climate-related initiatives in which these investors participate and disclose on. The long list was narrowed down to 37 initiatives for this study (see Appendix B) based on whether: a) they focus on investors or investment activity, and b) have an environmental or ESG dimension. A further 4 initiatives were added to the sample during the analysis, when these initiatives were referred to in annual reports and documents of other included initiatives and considered to fulfil the inclusion criteria. These 41 initiatives constitute the primary focus of our research. Although there may be differences in *how* different investor types participate in the identified initiatives, we did not examine this variance.

We conducted a qualitative content analysis, guided by a sectoral governance approach (see Table 1), on the websites and publicly available reports published by the 41 initiatives. Prior research into sustainability-related investor activity has generally examined the impacts of such activity on financial performance (of both investor portfolios and company stocks) (e.g. [30–32]), carbon emissions (e.g. [33,34]), or the level of environmental reporting or disclosures (e.g. [35–37]). However, there has been much less attention to the strategies, policies, and framings that investor initiatives use in establishing themselves as agents of climate action. Building on MacLeod [21], we contribute to conceptualisation and understanding of investor initiatives as potential governance actors, using Oberthür et al.’s sectoral perspective for global climate governance, which allows for exploring the myriad potential direct and indirect ways governance actors exert influence over a sector [38]. This approach argues for the need to analyse climate governance at more focused, sectoral levels in addition to the more ‘amorphous’ global level, in order to engage with sector-specific complexities and challenges [39]. Five key governance functions are used to structure analysis of both the current ‘supply’ of climate governance and the potential scope for enhancing governance. This framework has been used to analyse a variety of sectors with respect to climate goals and decarbonisation, including the FF, power, and transport sectors, as well as the financial sector [40–43]. Kretschmer’s [41] application of a sectoral governance perspective to the financial sector

<sup>1</sup> As of June 2022, [climateaction100.org](https://climateaction100.org)

<sup>2</sup> e.g. Investopedia, SWFI Institute.

**Table 1**  
Operationalisation of governance functions<sup>a</sup>.

Function	Definition	Application to climate action and FF sector
Guidance & signal	Governance institutions indicate desired paths, standards, targets, and actions, aligning with its purpose and objective. Signalling intends to influence norms beyond the scope of the institutional activity.	<ul style="list-style-type: none"> <li>• Commitments to decarbonise or adopt targets</li> <li>• Clear vision for action needed from investment community to address climate change</li> <li>• Statement of disagreement with business-as-usual practices of investment or of FF companies</li> </ul>
Setting rules	Entails establishing obligations and standards of behaviour to which members must subscribe. Such rules can apply to the behaviour of members of the governance institution, and to the actors being governed (e.g. FF companies).	<ul style="list-style-type: none"> <li>• Obligations for members to comply with certain specified climate targets for membership</li> <li>• ‘Set rules’ for companies they invest in (e.g. exclusion of certain companies, or using strategies to change the behaviour of companies including shareholder proposals, or sufficient threat of divestment)</li> <li>• Adoption of standards for investment or engagement action</li> </ul>
Transparency & accountability	Enhances transparency of actions of institution members, and accountability to agreed-upon rules. Transparency and accountability mechanisms are present, intending to generate trust among members, improve the effectiveness of governance policies, and address freeriding	<ul style="list-style-type: none"> <li>• Require transparency from investor members on their own portfolios and compliance with agreed rules of the institution</li> <li>• Transparency on actions taken by members of the initiative</li> <li>• Hold members accountable for their compliance with agreed rules</li> </ul>
Means of implementation	The provision of resources and finance to achieve the goals of the institution.	<ul style="list-style-type: none"> <li>• Facilitates coordination efforts with companies (financial assistance, or staff support)</li> <li>• Provision of tools to assist achievement of the stated goals/targets</li> </ul>
Knowledge & learning	Institutions can create knowledge and facilitate platforms for learning for individual members. Knowledge can be used to influence policy creation.	<ul style="list-style-type: none"> <li>• Provides information on how to address climate targets and risk</li> <li>• Technical assistance for measuring or assessing climate risks or alignment with goals</li> <li>• Training for conducting engagement</li> </ul>

<sup>a</sup> Informed by Oberthür et al. [38,39].

identifies investor-led initiatives as one actor in an ‘institutional complex’ governing the sector, though the initiatives are not the main focus of their research. In our study of a wide range of initiatives, many of which have recently emerged, the sectoral governance approach provides a useful framework to understand and compare the ways their range of strategies function with respect to their high-carbon assets. We operationalised each of the 5 functions with respect to investors and their potential actions to address both climate in general and the FF industry specifically (cf. [38–40], see Table 1), using this understanding to guide our document analysis. This approach allowed us to identify the ways in which a wide range of initiatives are using investor influence to work towards climate goals, as well as gaps in the governance provided by initiatives. In our analysis, each of the governance functions was treated in a dichotomous manner, as being either fulfilled by the

initiative or not. While we consider this approach valuable to identifying the current supply of governance provided by initiatives and subsequent gaps, we recognise that there will be wide variance in the quality of how initiatives fulfil functions. Although examining this variance for all initiatives was beyond the scope of this research, we have explored these questions further in our case study of CA100+ (see Section 4). To provide initial insights into the network of initiatives providing forms of climate governance, we also noted and tracked connections and cross-references between initiatives throughout the analysis in a co-occurrence matrix.

Following the analysis of 41 initiatives, one of the most relevant initiatives for its potential to undertake ambitious climate action, especially on FFs, CA100+, was selected for further analysis. Although not the largest initiative in the sample, CA100+ is nonetheless backed by a massive investor base, who manage assets worth \$68 trillion. Crucially, it is also the initiative most concretely engaging with the FF sector. Critical frame analysis, a method used to interrogate how the framing of problems and solutions by policymakers or institutions shapes the form interventions and action taken, was used to analyse key documents from CA100+<sup>3</sup> [46,47]. A list of ‘sensitising questions’ (see Appendix C) was developed and used to guide the coding of the selected documents and interrogate the framing of the problem of climate change, solutions, and attribution of responsibility [46]. Critical reading of the self-published documents was supplemented by analysis of 55 media articles from two financial news outlets (Financial Times and Responsible Investor) written between January 2020–February 2021, which reference CA100+.

This research intends to provide an exploratory examination of an actor, investor initiatives, which has been relatively unresearched, especially with respect to climate goals and the FF sector. For this reason, the depth to which each initiative is examined was limited, and the decision was made to examine only the most relevant initiatives in depth. This breadth, as well as the relative novelty of some of the initiatives, also limits the identification of temporal trends. The most recent available documents from each initiative and investor were included in this study, for which data collection took place between October 2020 – February 2021. It provides an up-to-date understanding of the state of investor initiatives but has not focused on the evolution of initiatives.

### 3. Investor initiatives and climate action

#### 3.1. Overview

This section presents the results of our analysis of 41 investor initiatives and illustrates the breadth of approaches and tactics taken by various initiatives. First, although attention to ESG and responsible investing has grown substantially in recent years [48], 25 of the sample of 70 institutional investors (36 %) did not report on their sustainability-related activities (see Appendix A), indicating that attention to sustainability is not yet ubiquitous, even among the largest investors. Second, investors who did demonstrate greater attention to sustainability participated in multiple initiatives. After excluding those who did not publish sustainability reporting, institutional investors in the sample participate in an average of 4.3 sustainability-related initiatives. Certain investors are extremely active in initiatives; the Ontario Teacher’s Pension, PIMCO Investment Management, Amundi Asset Management and Allianz are each members of 11 initiatives.

Third, investor initiatives are uniting huge amounts of capital; of those initiatives that disclose their size,<sup>4</sup> the initiatives unite investors controlling a total of between \$500 billion and \$106 trillion in AUM (see Appendix B). Fourth, the number of climate-related initiatives appears

<sup>3</sup> CA100+’s 2020 Progress Report [44] as well as supplementary materials on their Net Zero Benchmark (e.g. [45]).

<sup>4</sup> 16 initiatives did not disclose size in financial terms.

to be growing. While the oldest initiative in the sample was founded in 1971, there has been a marked resurgence of new investor initiatives since the Paris Agreement in 2015; 18 of the 40 identified initiatives (45 %) were founded in or after 2015. This trend also appears to be ongoing, as multiple high-profile initiatives were announced during or following the research period, including among others, the Net Zero Asset Managers Initiative, Net-Zero Insurance Alliance, and Net-Zero Banking Alliance [49–51].

### 3.2. Investor initiative governance functions

This section presents the findings, organised by ‘governance function’ of the content analysis of the 41 initiatives (see Table 1).

#### 3.2.1. Guidance & signal

Initiatives contribute to governance aims through ‘signalling’ or communicating needed climate goals or actions. They signal through requiring: a) statements of alignment with 1.5 °C pathways, b) climate-related disclosures, and c) pledges to decarbonise investor portfolios. Many initiatives release general statements supporting and calling for alignment with the Paris Agreement, 1.5 °C pathways, and net zero by 2050 goals. While many initiatives indicate the general need for finance and the economy to readjust to 1.5 °C pathways, they vary in the level of specificity of action they call for. Some initiatives limit their signalling to general calls for Paris alignment alone, while others (e.g. Ceres or the Net Zero Asset Owners Alliance (NZAOA)) provide detailed pathways and recommendations [52,53].

Much signalling centres around calling for disclosing climate risks and emissions. Two sampled initiatives, the TCFD and the CDP, aim to facilitate disclosure and encourage companies and investors to disclose in line with their frameworks. Other initiatives, when supporting disclosure, also recommend use of the frameworks provided by TCFD and CDP (see also Section 3.3). The TCFD, quickly becoming the default for investors (the CDP has now aligned their questionnaires with TCFD recommendations), recommends disclosure of a company's climate-related risks and opportunities, scopes 1, 2 and 3 emissions,<sup>5</sup> the processes and metrics used to identify and measure risks, and a scenario analysis for assessing the feasibility and effectiveness of a company's plans [56].

Several initiatives signal investor pledges to decarbonise their investment portfolios. Signatories to the Portfolio Decarbonisation Coalition (PDC) and Montreal Carbon Pledge (MCP) commit to measure and disclose their portfolio emissions, and ultimately decarbonise them. The NZAOA goes beyond the PDC and sets concrete deadlines for decarbonisation, namely a net zero by 2050 goal for the investment portfolios of all members. They also commit to setting interim 5-year targets [57]. The Investor Agenda (IA) also asks investors who sign on to set a net zero by 2050 target, with ‘credible intermediate targets,’ (they ensure credibility by using one of four recommended initiatives, including NZAOA and the Science Based Targets Initiative (SBTi)) as well as make low-carbon investments, phase out investments in thermal coal, and integrate climate change into portfolio analysis and decision making, although these actions are all optional [58].

#### 3.2.2. Setting rules

Initiatives take direct action to encourage alignment with climate goals through: a) shareholder engagement with companies and b) engagement with policymakers and other actors.

Many initiatives facilitate and coordinate investor engagement with companies on climate issues. For example, CA100+ aims to engage with

the top 166 highest GHG emitting companies to achieve emissions reductions. CA100+ promotes engagement with these target companies to: implement a company governance structure which accounts for climate risk, reduce GHG emissions in line with the Paris Agreement, and disclose in line with the TCFD recommendations [59]. CA100+ is made up of 5 member networks (PRI, the Investor Group on Climate Change (IGCC), the Institutional Investors Group on Climate Change (IIGCC), the Asia Investors Group on Climate Change (AIGCC), and Ceres) which coordinate the collective efforts, each also participating in separate engagement efforts with companies (see Fig. 1). However, the member initiatives each emphasise that many of their engagements with specific companies take place largely through CA100+, in which a select group of investors conducts the engagement with each company.

Several initiatives also coordinate or conduct engagements with policy makers, industry associations, or sector representatives. Ceres was active in ‘getting innovative climate and energy policies passed in states across the [US]. In 2019 [Ceres] coordinated and mobilized investors and companies to advocate for a wide range of clean energy policies in more than a dozen [US] states’ [60]. The AIGCC has advocated for greater climate policy with bodies including the Japanese regulator, Financial Services Agency, several government ministries, and the Japanese Business Federation [61]. The NZAOA considers policy engagement as critical and sees the private sector as ‘play[ing] an important role in raising government awareness and making the business case for getting back on track with the Paris Agreement and achieving climate neutrality by the middle of the century’ [53]. They argue that asset owners, who are themselves setting net zero targets, depend on policy and economic change for successful achievement of those targets.

#### 3.2.3. Transparency & accountability

Initiatives address transparency and accountability predominantly by mandating that investors: a) disclose emissions, b) provide progress reporting, or c) commit to emissions reductions.

The most frequent type of accountability is a requirement for disclosure of emissions or progress reporting. To join the MCP and PDC, members commit to disclose annually their portfolio carbon footprint and their decarbonisation plans respectively, though it is unclear whether any quality checks are conducted on disclosures. The SBTi also requires members to submit emissions reduction targets within two years of committing to the SBTi; these targets are then verified and approved by the SBTi to be in line with the latest climate science. Those who do not meet the two-year deadline or the necessary target level are removed from the SBTi website. The IA encourages members to set net zero by 2050 targets, and to disclose in line with the TCFD, but has no stated consequences for noncompliance. CA100+ requires its members to report annually on their priorities, progress, and strategies for engagement with their assigned companies. However, these commitments are not publicly available, limiting potential for public accountability. The PRI also requires reporting in line with TCFD recommendations, as well as annual reporting on progress on responsible investments across various asset classes. In 2018, the PRI implemented minimum requirements for signatories to meet, which were strengthened in 2020. Noncompliance with these mandatory requirements (implementation of a responsible investment (RI) policy, senior-level oversight of RI, presence of staff implementing RI) can result in a signatory being delisted after 2 years. The PRI indicates delisted signatories in their annual reports; in 2021, 15 investors were delisted for failing to provide reporting, or failing to meet the minimum standards [62].

The NZAOA has the most stringent accountability measures for member investors. Members are required to make long-term net zero by 2050 targets, as well as shorter-term interim targets. In 2021, members finalised their 2025 targets, which were required to consist of at least a 16 %–29 % CO<sub>2</sub> emissions reduction across portions of their portfolios, including equity, debt, and a recommendation to include real estate

<sup>5</sup> Scope 1 refers to direct emissions from a company's operations, scope 2 to indirect, but owned emissions (e.g. electricity use), and scope 3 to all other indirect emissions. Critically, for FF companies, scope 3 emissions make up the majority of their total emissions [54,55].

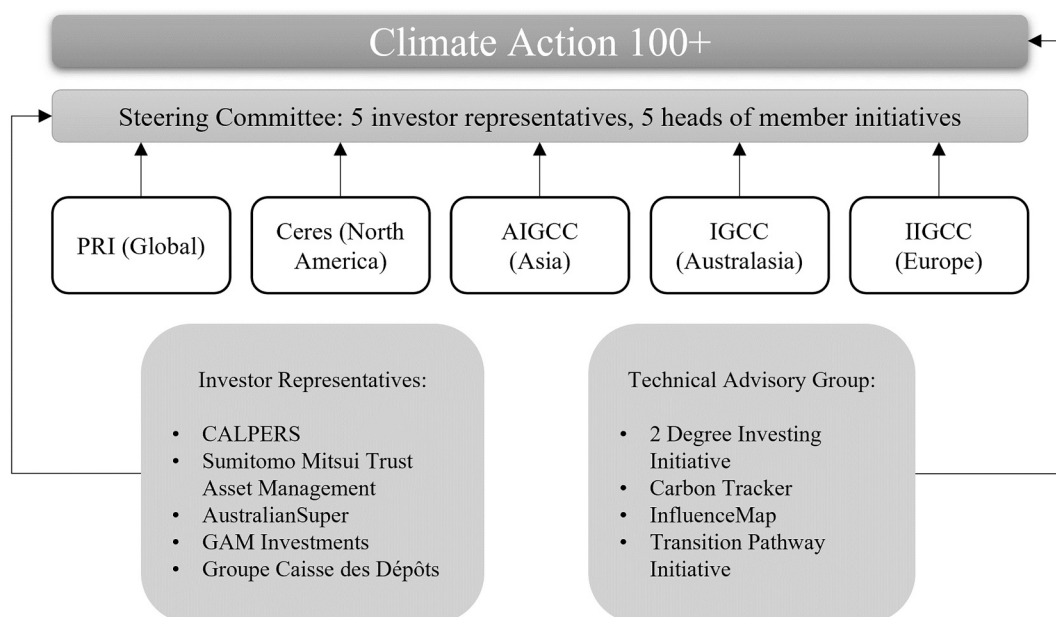


Fig. 1. CA100+ organisational structure.

assets [53]. Its emissions reduction targets cover only Scope 1 & 2 emissions, although they are asked to track Scope 3 emissions as well. Its current attention to only subsets of portfolios is ostensibly due to a lack of methodologies to track emissions across all portfolio areas, and these will be expanded across all asset classes when methodologies are available. Sector targets are also set, using intensity-based emissions reductions for the highest emitting sectors. While members are expected to be realistic in setting net zero targets, “without large overshoot or unrealistic BECCS<sup>6</sup> assumptions,” the NZAOA does not outline an explicit position on the use of carbon offsets (although this is expected to be addressed in one of their future position papers) [53]. In addition to emissions reduction targets, members are also required to set targets for engagement with at least 20 companies and for policy and sector advocacy. Additional requirements include reporting on their progress in financing transition targets, including ‘climate-positive investments’ [53].

### 3.2.4. Means of implementation

Initiatives can provide resources to assist investors in meeting their climate goals. Most investor initiatives do this through providing a collective platform which allows sharing, learning, and collaboration. Others take on some of the work involved with coordinating and organising investor engagement. They also provide tools that assist investors in addressing their climate goals, and educational resources for investors, also covered under knowledge and learning.

Many initiatives, including, PRI, CA100+, Ceres, UN Environment Programme Finance Initiative (UNEP FI), and the NZAOA, among others, act as networks or forums connecting investors interested in addressing climate or ESG goals. They argue that these initiatives are valuable to share best practices, learnings, and facilitate collective projects and action. For example, CA100+ provides the organisational capacity behind collective action, facilitating organisation of hundreds of investor members into engagement teams with all target companies.

Other initiatives provide tools or services that assist investors in addressing their climate goals. The Transition Pathway Initiative (TPI), IIGCC’s Paris Aligned Investment Initiative, and Paris Agreement Capital

Transition Assessment (PACTA) all provide investors with data, frameworks, and methodologies to measure their portfolio alignment with climate targets [63–65].

### 3.2.5. Knowledge & learning

Initiatives also produce their own research and knowledge or provide learning opportunities for members through research reports, trainings for investors, or carrying out research for policymakers. Many of the reports and trainings provided by initiatives are intended to support investors with technical or practical knowledge to facilitate the integration of climate risk monitoring, disclosure, or engagement with companies on climate-issues into their institutional practices. Others, such as CA100+ and its member networks, facilitate working groups for investors to share best practices and engagement updates.

### 3.3. Investor initiatives as governance actors

Analysis revealed a wide variation in the presence of different governance functions across the 41 initiatives. Knowledge and learning was the most frequently identified governance function among the initiatives, with 28 of the initiatives examined (68 %) fulfilling this function. In contrast, transparency and accountability was by far the least present, with only 8 initiatives (20 %) found to implement even a basic level of transparency or accountability requirements. Most initiatives were found to fulfil only a selection of the governance functions (with an average of 2.3 per initiative). Only three initiatives, the PRI, CA100+, and the NZAOA were found to fulfil all 5 functions, although, as discussed in Section 4, there remains ample room for critique of the effectiveness of their governance strategies.

Through the sectoral governance framework, we were able to identify different ‘types’ of initiatives. These types were developed qualitatively, after assessing the range of activities each initiative engages in. The types are not strictly defined, but rather intended to illustrate the range and differences between initiatives and their contribution to climate action (see Table 2).

Fig. 2 illustrates the relationship between number of governance functions identified and initiative type for the most frequently joined initiatives. Initiative type was not necessarily aligned to the number of climate governance functions an initiative was considered to fulfil. For example, the ICGN and CII were categorised as engagement-focused

<sup>6</sup> BECCS refers to bioenergy with carbon capture and storage and is a type of zero or negative emissions technology

**Table 2**  
Categorisation of investor initiatives.

Type	Initiatives from sample	Key traits
Multi-function	Principles for Responsible Investment (PRI) UN Environment Programme Finance Initiative (UNEP FI) Net Zero Asset Owners Alliance (NZAOA)	<ul style="list-style-type: none"> <li>• Active in multiple spheres</li> <li>• Conduct/facilitate engagement</li> <li>• Advise investors on sustainability issues in strategies/portfolios</li> <li>• Produce research</li> <li>• Build norms for finance sector</li> <li>• Influence and advise policymakers</li> </ul>
Engagement-focused	Climate Action 100+ (CA100+) One Planet Sovereign Wealth Funds (OPSWF) Asia Investor Group on Climate Change (AIGCC) Institutional Investors Group on Climate Change (IIGCC) Investor Group on Climate Change (IGCC) Canadian Coalition for Good Governance (CCGG) International Corporate Governance Network (ICGN) Ceres Council of Institutional Investors (CII) Interfaith Center on Corporate Responsibility (ICCR) Hermes EOS Vereniging van Belegers voor Duurzame Ontwikkeling (VBDO) Eumedion	<ul style="list-style-type: none"> <li>• Dominant purpose of the initiative is to facilitate collective engagement</li> <li>• The focus of their engagement varies widely by initiative, from general investor 'stewardship' to specific climate requests</li> </ul>
Signalling	Center for Climate and Energy Solutions (C2ES) United Nations Global Compact (UNGC) Accounting for Sustainability (A4S) Corporate Eco Forum (CEF) Montreal Carbon Pledge (MCP) Portfolio Decarbonisation Coalition (PDC) Internationaal Maatschappelijk Verantwoord Beleggen Pensionfondsen (IMVB) Investor Agenda (IA) Investor Leadership Network (ILN)	<ul style="list-style-type: none"> <li>• Investor membership represents a declaration of intent or interest in certain climate issues</li> <li>• Most signal intentions from members without requiring binding commitments</li> </ul>
Frameworks & tools	Sustainability Accounting Standards Board (SASB) Science-Based Targets Initiative (SBTi) Task Force for Climate Related Financial Disclosures (TCFD) Transition Pathway Initiative (TPI) Paris Aligned Capital Transition Assessment (PACTA) Carbon Disclosure Project (CDP)	<ul style="list-style-type: none"> <li>• Provide tools, recommendations, or data to investors</li> <li>• Assistance with assessing exposure to climate risk or setting targets for reducing emissions</li> </ul>
Specific issue	International Capital Market Association (ICMA) Global Real Estate Sustainability Benchmark (GRESB) Climate Bonds Initiative (CBI) Global Impact Investing Network (GIIN) Carbon Pricing Leadership Coalition (CPLC) Global Green Bond Partnership (GGBP) Coalition for Climate Resilient Investment (CCRI) Global Investors for Sustainable Development Alliance (GISD) Climate Finance Leadership Initiative (CFLI); Climate Leadership Council (CLC)	<ul style="list-style-type: none"> <li>• Occupy a niche role with respect to climate action</li> <li>• Address specific aspects of the financial sector, or specific issues within sustainability or climate action (e.g. green bonds or carbon pricing)</li> </ul>

initiatives, based on their dominant purpose and activities, but were considered only to fulfil one governance function, since their attention to climate specifically was limited to providing information to their members about ESG or climate issues. This initial analysis suggests that initiatives with the greatest potential for climate governance fall into the multi-function or engagement categories, while also fulfilling a high number of governance functions.

Our analysis also identified frequent connections and cross-references between the initiatives identified. Fig. 3 illustrates the connections between initiatives (limited to the top 15 initiatives joined by the investor sample for clarity). Three main types of connections were identified: 1) organisational ties, in which initiatives have formal organisational or structural connections, 2) collaborative relationships, in which initiatives work together on reports or other projects, and 3) recommendations or promoting relationships, in which initiatives recommend the work of other initiatives. Fig. 3 illustrates the 'strongest' level of connection between initiatives only, although it is assumed that multiple types of ties can exist between initiatives simultaneously.

### 3.4. Discussion

Our application of the governance framework provides supporting evidence for considering initiatives as governance actors within the "polycentric landscape of international climate governance" [39]. However, their climate governance most often takes the form of producing research, tools, or trainings for investors, followed by signalling the alignment of a portion of the financial sector with the Paris Agreement and climate goals. This supports findings from Kretschmer [41] which indicate that institutions governing the financial sector demonstrated a higher level of attention to knowledge and learning than to other governance functions. Given that investors have cited a lack of experience, institutional capacity, or knowledge on how to integrate climate risk into investment decisions as barriers to climate action [11,12], initiatives providing knowledge may meet a real investor need. Initiatives suggest that further development of knowledge and methodologies is needed to assist with calculating e.g., emissions across diverse asset classes or Scope 3 portfolio emissions [53]. While expanding investor knowledge and information may well be valuable for their capacity to assess climate risks in their investments, Ameli et al.

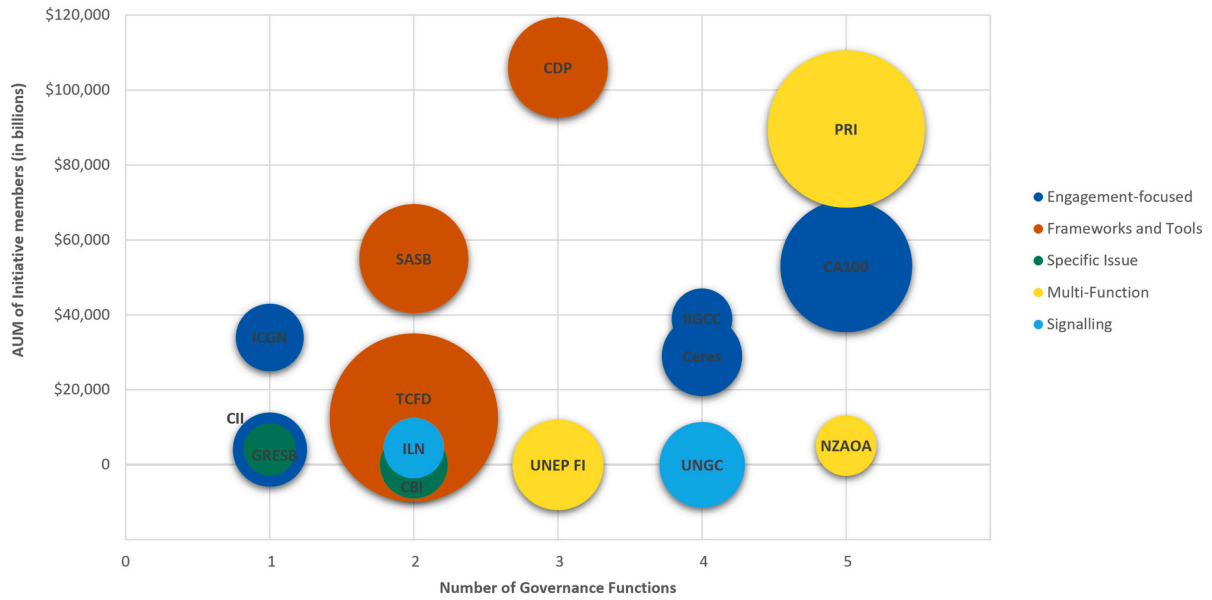


Fig. 2. Initiative type and governance functions of top investor initiatives by membership. Bubble size reflects number of investor members from the sample.

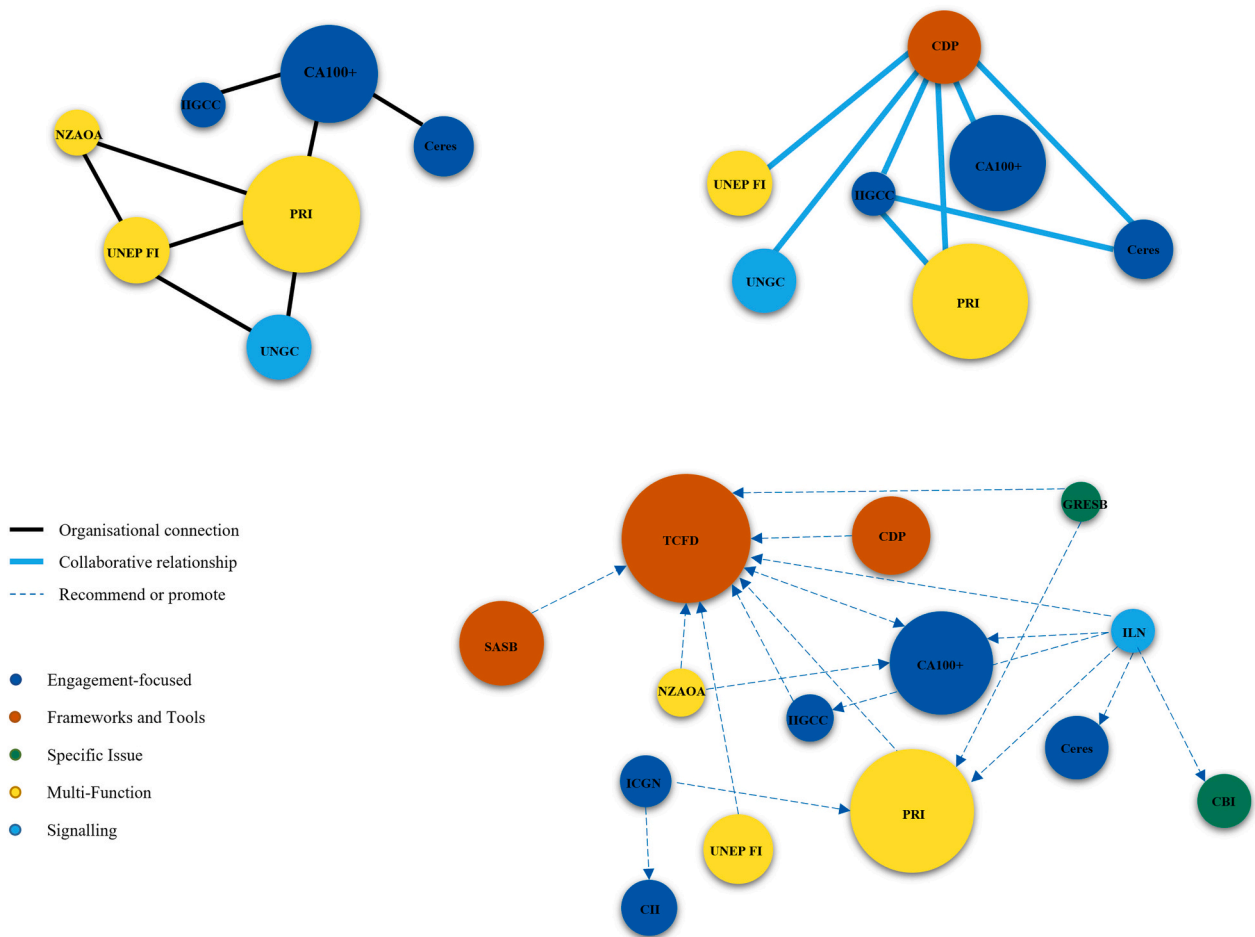


Fig. 3. Connections between top investor initiatives by membership. Bubble size reflects number of investor members from the sample.

[12] also caution against the belief that obtaining perfect information will result in a ‘rational flow’ of finance from high-carbon to low-carbon investments. They argue that even perfect transparency and information will not overcome barriers which keep investors tied to high carbon

assets, calling instead for policies to address barriers such as short-term incentive structures and uncertainty about returns on lower-carbon investments. The relatively low level of accountability measures within initiatives (and often weak accountability measures when present)



indicates that there remain significant gaps in initiatives' capacity to overcome these barriers. Signals may be helpful in indicating to high-carbon industries the priorities of investors, especially when these messages are backed by investors controlling trillions of dollars, however, failing to back these up with accountability for companies or investors risks these signals becoming little more than exercises in greenwashing.

The similar messaging from initiatives, as well as the high level of interconnection between initiatives, raises questions about the utility or added value that each individual initiative brings [5]. There is overlap in purpose or mission, although the existence of multiple initiatives may also provide benefits in dividing work. For example, CA100+ divides the work of engagement among its signatories, distributing their 166 target companies among investor members. Uniting under CA100+ allows its members and member organisations to engage with companies more efficiently, while still presenting a united front. However, other initiatives such as the IA, which asks for members to commit to joining a selection of other initiatives, demonstrate little clear additional value. The added value provided by emerging initiatives should be scrutinised, especially when their purpose overlaps with that of other existing initiatives and many of the same investor members active in other initiatives sign on. Joining new climate initiatives with no escalation in the ambition of action runs the risk of serving as a distraction or delay tactic. As one NGO campaigner put it: "we seem to have a lot of platforms and not enough trains" [66].

The concrete strategies adopted by initiatives to align financial flows with the Paris Agreement, whether adoption of net zero goals, portfolio decarbonisation goals, or engaging with companies to adopt net zero targets will ultimately require addressing FF investments. Despite the urgency of addressing FFs for meeting climate goals, most of the initiatives studied do not adopt an explicit position on FFs. The NZAOA has aligned on a group position on phasing out thermal coal, although the ambition level of this position has been critiqued [67,68]. However, several years into the initiative's existence, they have yet to align on a position on oil and gas, despite the preponderance of evidence demonstrating the need to halt new projects and phase down existing projects [69,70]. Adopting net zero or decarbonisation targets without specifically engaging with their implications for FF use risks accepting as sufficient the adoption of false solutions or delayed phaseouts. We expand on these arguments in the CA100+ case study in the following section.

## 4. Case study: Climate Action 100+

### 4.1. Overview

In our meta-analysis of 41 initiatives, CA100+ emerged as the initiative with arguably the greatest potential to influence the FF industry. It aims to engage with the top 166 polluting companies to reduce their emissions, thereby addressing up to 80 % of global industrial emissions [71]. Using critical frame analysis, we interrogate how the initiative's self-reported framing of the problems, solutions, and responsibilities associated with addressing the climate crisis may have implications for the types of action the initiative takes, and ultimately for meeting climate goals. We have attempted to balance our reliance on CA100+'s self-produced material by also analysing media reports covering the initiative.

### 4.2. Problem diagnosis

CA100+ clearly identifies the seriousness of the climate crisis and the urgency of action. The impacts of the climate crisis are framed almost exclusively in financial terms. It justifies its request for companies to implement net zero goals because these would "provide a long-term market and policy signal" and "reduce regulatory uncertainty" [44]. The 'opportunities' that climate change brings are also discussed,

as "sparking fresh investments in zero and low-carbon industries, technologies and infrastructure can help countries stimulate their economies, drive growth and create new jobs" [44]. While it acknowledges the role of the FF industry in contributing to global emissions, their framing of subsequent implications for the industry is vaguer. It refers to transition risk and "significant uncertainty around the demand outlook for oil and gas products given the move to decarbonisation by mid-century" [44]. It does not offer a position on the outlook for any given company, saying rather "each focus company is unique" and thus, "investors are seeking to understand how the company sees its own transformation into the future and the assumptions companies are using to underpin decisions about future capital expenditure on oil and gas exploration and production" [44].

### 4.3. Solutions & strategies

CA100+'s strategy for influencing companies relies on investor engagement. Each participant in the initiative must commit to engage with one of the target companies. CA100+ assigns 6–8 investors to the engagement team for each company, with 1–2 investors acting as the lead engager. While CA100+ and its member initiatives provide training on engagement strategies and sector or engagement topics, the content and process of each engagement is left to each individual engagement team's discretion. Prior to 2021, engagement was aligned around three broad principles: encouraging companies to implement governance structures which oversee climate risks, reducing GHG emissions in line with the Paris Agreement, and disclosing in line with the TCFD recommendations. In 2020, CA100+ announced a more cohesive list of targets they would like companies to achieve, articulated in their Net-Zero Company Benchmark (from here, Benchmark), to which they dedicate the largest portion of attention in their reporting. This Benchmark assigns each company a score based on its compliance, thereby assisting with transparency and reporting on the results of CA100+'s progress, and aiding investors in their engagement progress, by "providing investors with a tool that is both transparent and robust to facilitate focus company engagement" [44]. The Benchmark includes a range of disclosure and capital allocation indicators.

The disclosure indicators are based on publicly disclosed or self-disclosed information (such as CDP disclosures) from companies, with other initiatives and institutions providing the underlying research.<sup>7</sup> The Benchmark consists of 10 indicators, with 55 sub-indicators. The 10 main indicators include the setting of net zero by 2050 targets, including long-term (2036–2050), medium-term (2026–2035), and short term (2020–2025) GHG reduction targets. The remaining indicators address a company's decarbonisation strategy, capital allocation alignment, climate policy engagement, climate governance, just transition, and TCFD disclosure. The capital allocation indicators are intended to provide more insight for investors "regarding the adequacy of companies' capital allocation plans, and relative realignment with the company's stated emissions reduction targets" [44]. These indicators more concretely assess the alignment of companies' current and future capital expenditures with climate scenarios (rather than assessing only their climate plans, as addressed in the disclosure metrics). For oil and gas companies, indicators assess the number of conventional and unconventional oil and gas projects sanctioned that are outside the International Energy Agency's (IEA) Beyond 2 Degrees Scenario<sup>8</sup> (B2DS), the price assumptions made by the company, the percentage of capital expenditure for oil and gas that is inside and outside B2DS, and compares projected company oil and gas production against the IEA's net

<sup>7</sup> Including, the TPI, Carbon Tracker Initiative, 2° Investing Initiative, Grantham Research Institute on Climate Change and the Environment at the London School of Economics, and FTSE Russell.

<sup>8</sup> The B2DS refers to the IEA's decarbonisation pathway which aims to limit global temperature increase to 1.75 °C by 2100.

zero by 2050 scenario [72].

Beyond creating a structure which ensures investors are assigned to engage with each of the target companies and providing a common tool around which to structure engagement asks, CA100+ provides little public insight into the form or content of investor engagement strategies. Voting on shareholder resolutions and other company issues, such as board or director appointments, makes up a part of most investor engagement strategies. However, voting gets relatively little attention in CA100+'s strategies. While CA100+ makes clear that legally they cannot require members to vote a certain way, they flag resolutions from their investor members on the website, if these are considered to be "consistent with the goals of [CA100+]," "worded such that the request of management is considered reasonable and not burdensome," and "complementary to existing engagement strategy as set out by the [CA100+] collaborative engagement group for the company affected by the resolution" [44]. Relevant shareholder resolutions from NGOs<sup>9</sup> or other investors may be shared within some of the CA100+ working groups or member networks, but these will not be posted on the website.

#### 4.4. *Attributing responsibility*

The premise of CA100+ clearly attributes responsibility for creating the problem of climate change with the 166 companies they target, claiming that reducing the emissions from these companies would be a major contribution to reducing global emissions. Thus, investor responsibility within their strategies lies in convincing these companies to align with climate targets. Investor implication in financing the industries which drive the climate crisis is not recognised, although the foreword to the progress report, written by Mark Carney, indicates investor alignment with climate goals could be scrutinised at an unspecified future date: "Yet, over time, investors won't just judge company transition plans. They too shall be judged on their own plans and alignment to net-zero" [44]. Besides this statement, there is no attention given to assessment of investor behaviour or accountability to upholding the goals of CA100+. Even investor performance in the work of the initiative—their success in leading engagements at the companies they are responsible for—is almost completely unaddressed. CA100+ investor members are asked to submit annual reports on their engagement progress and strategies, but it is not clarified how or if these are evaluated by the initiative. The lack of transparency and seeming lack of accountability has led to accusations of investors using CA100+ to greenwash their image, with one media report claiming CA100+ "does need to be cognisant of being used as cover by asset managers wishing to tick an ESG engagement box but unwilling to oppose management." [73]. Leading members of CA100+ have recognised this shortcoming of the organisation and claim that there may be changes to address it in the future: "the next phase of the CA100+ will be getting asset owners and managers to make their own net zero commitments," while those who do not comply could be "invited to leave" [74]. Accountability measures such as these have not yet been introduced. Finally, CA100+ allocates a level of responsibility with policy makers and their relative levels of (in) action on climate. They highlight that unfavourable policy environments, such as the US under the Trump administration or China, have in some cases hindered their progress.

#### 4.5. *Discussion*

Despite the initiative's strong messaging through its Net-Zero Company Benchmark, the focus on the financial implications of the climate crisis and the adoption of strategies which require minimal commitments or accountability from investors leaves open the potential for inaction from its investor members. The Benchmark's ambition risks being diluted by the various caveats that can be inferred from how

CA100+ frames the risks of climate change and the types of action they will demand from companies. In its current form, the initiative does little to contest the tendency of investors to complacently accept the strategies presented by FF companies, as long as those companies remain profitable [11]. It is difficult to understand how allowing room for individual companies to develop unique trajectories and supporting interventions which are 'not burdensome' for management can be consistent with the scale of action needed, which requires by various estimations, sanctioning no new oil and gas projects [69], leaving over half of known reserves in the ground [2], and even about 40 % of the reserves from already developed projects [70]. If CA100+ has a coherent strategy for how the Benchmark will be integrated into engagements and how engagements will be escalated if met with resistance from companies, these have not been made public.

CA100+'s lack of transparency, limited ambition, and influence over investor action have all been subject to critique. Van Baal & Ashurst [75] condemn CA100+'s 'softly, softly' engagement strategy, in which "in a series of joint statements with oil and gas companies, CA100+ consistently lent its backing to plans that omit concrete emissions targets for the period to 2050. However well-intentioned this form of engagement, the public approval served as a fig leaf to hide inaction." The strategies of individual investors leading the engagement for CA100+ have also been criticised. In 2020, CA100+ lead engagers did not support climate resolutions at oil and gas companies, arguing that the proposals were unneeded. The lead engager for Shell maintained that they were "firmly of the view that we are achieving the scale and direction of change needed at Shell through engagement," even as the TPI declared Shell's net zero plan incompatible with the Paris Agreement [76]. Van Baal & Ashurst [77] also describe the CEO of BP, who at the 2019 annual general meeting, claimed that scope 3 emissions were not BP's responsibility, and that BP's "position on this issue was shared by CA100+ members." While CA100+'s current position is not aligned with this claim, it does indicate that the initiative's support has some history of being used by oil and gas companies as justification for their climate plans.

The signalling demonstrated from CA100+'s Benchmark goes well beyond many of the other initiatives studied, in specifying concrete asks from companies and tracking company progress against those asks. Full compliance with the Benchmark's requests would go a long way in reducing emissions to the levels needed to limit global warming to 1.5 °C. However, the Benchmark can be subjected to some of the critiques levelled at net zero goals in general (e.g., [78,79]), namely that the choice of methodologies or metrics used could allow for FF extraction beyond safe limits for meeting climate goals. Most crucially, first, the reduction targets rely on emissions intensity metrics, rather than absolute emissions. CA100+ argues that use of emissions intensity "better accounts for the difference in scale between companies and thereby enhances the comparability of company emissions reduction targets" [45]. However, there are also issues with using emissions intensity metrics alone to assess companies. A decrease in intensity does not necessarily imply a cut in producing FFs. Larger companies, especially ones with diversified activities may limit FF production to a small percentage of their activities, while still producing large absolute quantities of FF. Second, the role of carbon offsets or negative emissions technologies in the energy transition remains vague in the Benchmark. CA100+ indicates that "the use of offsetting or carbon credits should be avoided and limited if at all applied. Offsetting or 'carbon dioxide removal' should not be used by companies operating in sectors where viable decarbonisation technologies exist" [44]. However, it remains unclear which uses would be considered acceptable, or how uncredible use of offsets—due to the extent of use, or reliance on non-existent technologies—would be assessed in the Benchmark.

## 5. Conclusion

We have examined how investor initiatives inform efforts of

<sup>9</sup> E.g. Follow This or ShareAction.

institutional investors to align with the Paris Agreement and explored implications of these for a goal of leaving fossil fuels underground.

First, we find evidence to support considering investor initiatives as governing agents within the fractured landscape of climate governance, although the scope of their governance has thus far been limited. Many initiatives support investors in aligning their portfolios with the Paris Agreement by providing knowledge, tools, and communities to practically assist with measuring and implementing transition plans. They have also made progress in building on the collective capacity of investors as shareholders to pressure companies to align their operations with the Paris Agreement. By attracting investors controlling trillions to initiatives calling for companies to align with climate or net zero targets, these initiatives have the potential to send a strong signal on behalf of the financial sector.

However, as we have outlined, there are many limitations in the capacity for initiatives to drive climate action, including a) a lack of internal accountability measures; b) minimal transparency into their goals and timelines; c) an unwillingness to take action that is sufficiently ambitious to achieve climate goals; and d) an emergence of a multitude of initiatives with similar goals, which all serve to undermine the position of significant power and legitimacy that initiatives occupy, and their potential to influence FF and other high-carbon companies. Public and visible misalignment of individual investor members with the goals of the initiative may reduce the power of groups like CA100+ to achieve their stated aims. Thus far, initiatives have limited their demands of companies to relatively 'easy' actions (compared to the scale of the type of action needed), such as asking for disclosure or setting net zero 'ambitions'. Until the signals from initiatives to companies are followed up with meaningful consequences, and truly backed by the assets that claim to support the initiative, it is unlikely that these initiatives will live up to the massive scope of power that their size claims to represent. This initial survey of initiatives suggests that investor action alone will not be able to sufficiently cut company emissions—further interventions will be needed.

Third, although alignment with the Paris Agreement will ultimately necessitate leaving large portions of FF reserves underground, investor initiatives have generally avoided engaging with this issue. The net zero targets and pathways supported, and in some cases developed by initiatives themselves, could go some way in mitigating FF use. Ensuring cuts in FF production are adopted (rather than just the 'ambitions' to cut production) will present a greater challenge for initiatives, one that thus

far has not been successful. Until loopholes in net zero targets, like carbon offsets, exclusions of Scope 3 emissions, and reliance on carbon intensity metrics are addressed, true reduction of FF use may be delayed even further into the future. Additionally, as investors themselves also begin to adopt and implement net zero targets, attention should be paid to how these targets will be met. As others have pointed out [9], if investors intend to meet targets by selling off high-carbon assets, the problem of aligning the financial sector with climate goals will be merely reallocated to new actors, not solved.

As demonstrated in this research, new investor initiatives have continued to come onto the scene, often claiming increasingly ambitious climate goals. The potential of these emerging groups, and the progress of existing initiatives would benefit from further future research. Their contributions to building knowledge on transition pathways for investors and various sectors may be highly influential, given the power of the investors involved, and should be subject to ongoing scrutiny. Additionally, this research indicates that initiatives also have a sphere of influence beyond just influencing companies, as many engage directly with policy makers. The policy implications of such engagements would benefit from further research.

#### Data availability

Data will be made available on request.

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#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Appendix A. Investor sample

Name <sup>1</sup>	Investor type	Country	Sustainability document	Initiative participation
BlackRock Funds	Mutual Funds	US	Yes	3
Vanguard Group	Mutual Funds	US	Yes	3
Fidelity Investment Inc	Mutual Funds	US	No	0
UBS Group AG	Investment Bank	Switzerland	Yes	6
Charles Schwab	Mutual Funds	US	Yes	3
State Street Global Advisors	Mutual Funds	US	Yes	3
JP Morgan Chase	Investment Bank	US	Yes	10
Capital Group Companies	Mutual Funds	US	Yes	4
JP Morgan	Mutual Funds	US	Yes	1
PIMCO	Mutual Funds	US	Yes	11
BNY Mellon (Dreyfus)	Mutual Funds	US	Yes	4
Goldman Sachs	Investment Bank	US	Yes	4
Amundi Asset Management	Mutual Funds	France	Yes	11
Credit Suisse	Investment Bank	Switzerland	Yes	1
PingAn Insurance Group	Insurance Company	China	Yes	1
Bank of America Corporation	Investment Bank	US	Yes	3
Government Pension Investment	Pension Fund	Japan	Yes	5
Allianz SE	Insurance Company	Germany	Yes	11
Government Pension Fund	Pension Fund	Norway	Yes	1
AXA SA	Insurance Company	France	Yes	5
Berkshire Hathaway	Insurance Company	US	No	0

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Name <sup>1</sup>	Investor type	Country	Sustainability document	Initiative participation
Barclays	Investment Bank	UK	Yes	6
Morgan Stanley	Investment Bank	US	Yes	5
Legal & General Group PLC	Insurance Company	UK	Yes	1
Assicurazioni Generali	Insurance Company	Italy	Yes	3
Aviva PLC	Insurance Company	UK	Yes	3
HSBC Holdings	Investment Bank	UK	Yes	8
China Life Insurance Co Limited	Insurance Company	China	Yes	1
Federal Retirement Thrift	Pension Fund	US	No	0
National Pension	Pension Fund	South Korea	No	2
Prudential PLC	Insurance Company	UK	Yes	5
ABP	Pension Fund	Netherlands	Yes	5
California Public Employees	Pension Fund	US	Yes	9
National Social Security	Pension Fund	China	No	0
Central Provident Fund	Pension Fund	Singapore	No	0
Canada Pension	Pension Fund	Canada	Yes	6
Deutsche Bank	Investment Bank	Germany	Yes	3
PFZW	Pension Fund	Netherlands	Yes	3
California State Teachers	Pension Fund	US	Yes	5
Citigroup	Investment Bank	US	Yes	4
New York State Common	Pension Fund	US	Yes	7
Employees Provident Fund	Pension Fund	Malaysia	No	0
New York City Retirement	Pension Fund	US	No	0
Local Government Officials	Pension Fund	Japan	Yes	0
The People's Insurance Co Group of China	Insurance Company	China	Yes	0
Florida State Board	Pension Fund	US	Yes	3
Texas Teachers	Pension Fund	US	No	0
Employees' Provident	Pension Fund	India	No	0
Ontario Teachers	Pension Fund	Canada	Yes	11
ATP	Pension Fund	Denmark	Yes	2
Ensign Peak Advisors	Endowment Funds	US	No	0
Bridgewater Associates	Hedge Funds	US	No	0
Man Group	Hedge Funds	UK	Yes	4
Renaissance Technologies	Hedge Funds	US	No	0
Harvard Management Company	Endowment Funds	US	Yes	6
Stanford Management Company	Endowment Funds	US	No	0
Millennium Managements	Hedge Funds	US	No	0
Yale Investment Office	Endowment Funds	US	Yes	0
Elliot Management	Hedge Funds	US	No	0
BlackRock	Hedge Funds	US	Yes	0
Two Sigma Investments	Hedge Funds	US	No	0
Citadel	Hedge Funds	US	No	0
AQR Capital Management	Hedge Funds	US	Yes	2
Davidson Kempner Capital	Hedge Funds	US	No	0
Princeton University Investment Company	Endowment Funds	US	No	0
MIT Investment Management Company	Endowment Funds	US	No	0
KAUST Investment Management Company	Endowment Funds	Saudi Arabia	No	0
DUMAC	Endowment Funds	US	No	0
University of Notre Dame	Endowment Funds	US	No	0
Ohio State University	Endowment Funds	US	No	0

<sup>1</sup> Listed by investor size in AUM, as of October 2020.**Appendix B. Investor initiative sample**

Initiative Name	Year founded	Total assets under management of investor members <sup>1</sup> (in billions)
CDP	2000	\$106,000
Principles for Responsible Investment (PRI)	2005	\$89,653
Sustainability Accounting Standards Board (SASB)	2012	\$55,000
Climate Action 100+ (CA100+)	2017	\$68,000
Institutional Investors Group on Climate Change (IIGCC)	2012	\$39,000
Investor Agenda (IA)	2018	\$35,000
International Corporate Governance Network (ICGN)	1995	\$34,000
Ceres	1989	\$29,000
Transition Pathway Initiative (TPI)	2017	\$22,500
Global Investors for Sustainable Development (GISD)	2019	\$16,000
Task Force on Climate-Related Financial Disclosures (TCFD)	2015	\$12,600
Montreal Carbon Pledge (MCP)	2014	\$10,000
Coalition for Climate Resilient Investment (CCRI)	2019	\$10,000
Net Zero Asset Owner's Alliance (NZAOA)	2019	\$5,100
Canadian Coalition for Good Governance (CCGG)	2003	\$4,500
Asia Investor Group on Climate Change (AIGCC)	2016	\$4,500
Investor Leadership Network (ILN)	2018	\$4,400
Global Real Estate Sustainability Benchmark (GRESB)	2009	\$4,100
Council of Institutional Investors (CII)	1985	\$4,000

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Initiative Name	Year founded	Total assets under management of investor members <sup>1</sup> (in billions)
Corporate Eco Forum (CEF)	2008	\$4,000 <sup>2</sup>
Investor Group on Climate Change (IGCC)	2005	\$2,000
Portfolio Decarbonisation Project (PDC)	2015	\$800
Hermes EOS	2004	\$628
Interfaith Center on Corporate Responsibility (ICCR)	1971	\$500
United National Global Compact (UNGC)	2000	Not disclosed
International Capital Market Association (ICMA)	2005	Not disclosed
Climate Finance Leadership Initiative (CFLI)	2019	Not disclosed
UN Environment Program Finance Initiative (UNEP FI)	1992	Not disclosed
Verenigen van Beleggers voor Duurzame Ontwikkeling (VBDO)	1995	Not disclosed
Center for Climate and Energy Solutions (C2ES)	1998	Not disclosed
Accounting for Sustainability (A4S)	2004	Not disclosed
Eumedion	2006	Not disclosed
Climate Bonds Initiative (CBI)	2012	Not disclosed
Global Impact Investing Network (GIIN)	2012	Not disclosed
Science Based Targets Initiative (SBTi)	2015	Not disclosed
Carbon Pricing Leadership Coalition (CPLC)	2015	Not disclosed
Climate Leadership Council (CLC)	2017	Not disclosed
One Planet Sovereign Wealth Fund (OPSWF)	2017	Not disclosed
Paris Agreement Capital Transition Assessment (PACTA)	2018	Not disclosed
Internationaal Maatschappelijk Verantwoord Beleggen Pensioenfondsen (IMVB)	2018	Not disclosed
Global Green Bond Partnership (GGBP)	2018	Not disclosed

<sup>1</sup> As of October 2020, with the exception of CA100+, updated in June 2022.

<sup>2</sup> Figure includes revenue of non-investor company members.

## Appendix C. Critical frame analysis guide

Category	Sensitising Questions
Problem	How is climate change defined in the document?
	How are impacts of climate change discussed?
	What impacts of climate change are prioritised?
	How is climate change legitimised as a problem?
	How is the urgency of climate change addressed?
	How is fossil fuel use discussed or addressed in the document?
Solutions	What assumptions are made regarding future fossil fuel use?
	What approaches to climate change mitigation are stated?
	What is the goal of stated responses (implied or stated)?
	What responses are prioritised?
	What problems/challenges/barriers to responding to climate change are given?
	Is a need for additional actors/responses stated?
	How do proposed solutions address fossil fuels?
Responsibility	What examples of success are given?
	Who are the key players in delivering climate change response?
	What do the actors within the documents see as their role in climate change response?
	How do actors cement their legitimacy to take action on climate change?
	How do actors consider using their power to take action on climate change?
	What do the actors see as outside their role (stated or implied)?
	Is accountability considered? If so, how?
	Is responsibility for the problem of climate change addressed? If so, how?
Who benefits from the stated responses to climate change?	
Who/what is excluded from responses to climate change?	

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