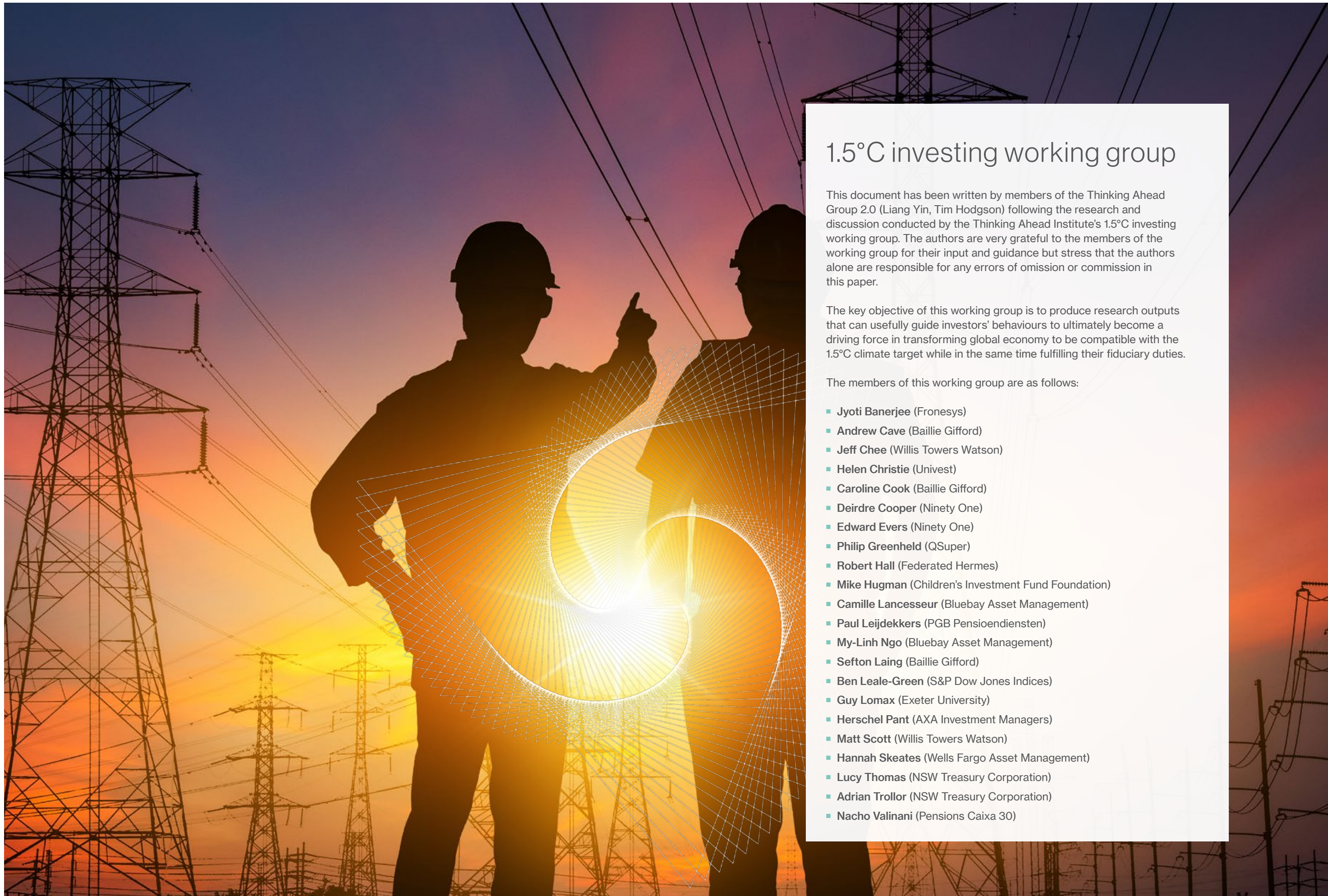


## How warm is your portfolio? Our take on the temperature rating of portfolios

Part of a series of articles from the 1.5°C investing working group







## 1.5°C investing working group

This document has been written by members of the Thinking Ahead Group 2.0 (Liang Yin, Tim Hodgson) following the research and discussion conducted by the Thinking Ahead Institute's 1.5°C investing working group. The authors are very grateful to the members of the working group for their input and guidance but stress that the authors alone are responsible for any errors of omission or commission in this paper.

The key objective of this working group is to produce research outputs that can usefully guide investors' behaviours to ultimately become a driving force in transforming global economy to be compatible with the 1.5°C climate target while in the same time fulfilling their fiduciary duties.

The members of this working group are as follows:

- Jyoti Banerjee (Fronesys)
- Andrew Cave (Baillie Gifford)
- Jeff Chee (Willis Towers Watson)
- Helen Christie (Univest)
- Caroline Cook (Baillie Gifford)
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- Philip Greenheld (QSuper)
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- Mike Hugman (Children's Investment Fund Foundation)
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# Summary

This paper describes the working group's investigation and discussion of the concept of temperature rating portfolios. The concept has enormous appeal as a communications device. It is something the end saver can immediately relate to. Offsetting this attraction are a number of problems. There is a composition problem, in that what matters is the temperature of the "whole pie", rather than our individual slices. Even a portfolio that is fully decarbonised will still suffer the financial consequences of the real world's level of carbon.

There will be behavioural problems. The group discussed gaming, greenwashing (and "coldwashing"! ) and Goodhart's law. And there are technical problems, ranging from the data, to the models, to the assumed relationship between the proxies and the temperature rating.

In the end, the working group settled on a clear position: when it comes to climate reporting, a dashboard comprising multiple measures should always be used.

## The rise in popularity of portfolio temperature ratings

In July 2020, [CDP](#), a not-for-profit that runs the global disclosure systems for investors and their investee companies to manage their environment impacts, announced its new set of climate ratings for measuring and communicating the global warming path. Europe's largest asset manager [Amundi](#), a long-standing member of the Thinking Ahead Institute, became the first investment organisation to use CDP's approach. [AXA group](#) published its 4th Climate Report in the same month, where it estimated that at the end of 2019 AXA's "warming potential" was 2.8°C, down compared to 2018 (3°C) and below the market average (3.6°C) (their subsidiary, AXA IM, is another long-standing member of the Thinking Ahead Institute). In addition, a rising number of investors are publicly reporting on the alignment of their portfolios with certain climate change related objectives.

One of the most high-profile endorsements for temperature rating a portfolio came from Mark Carney, former Governor of the Bank of England. In a [speech](#) of his in December 2019, he highlighted the inadequacy of the current approaches to measuring and managing the financial implications of climate change for investments – "carbon footprints are not forward-looking, divestments only focus on the most carbon-intensive sectors, green investments are still small scale, and the impact of shareholder engagement is hard to measure".

He then went on to suggest that measuring the warming potential of investment portfolios is one of the most promising developments. "Such a forward-looking measure can help asset owners and asset managers understand the transition pathways of their investments and develop strategies to align financial flows with the necessary transition to net zero", Carney remarked.

A number of climate metrics are already widely used at the portfolio level, most notably carbon footprinting metrics. However, as alluded to in Mark Carney's speech, they are backward looking and, more importantly, there is a lack of explicit connection between the climate characteristics (e.g. carbon intensity of the portfolio) and climate goals (eg 2°C temperature trajectory). Temperature rise indicators were created to directly connect the two. In practice, different investors and data providers have different terminologies for it, including for example "portfolio temperature ratings" (e.g. CDP and CDO-WWF), "warming potential" (e.g. AXA and MSCI) and implied temperature rise (e.g. S&P Trucost, Arabesque S-Ray and SB2A). This paper is not intended to be a technical review of various competing methodologies; for that purpose, we highly recommend Institut Louis Bachelier's [The Alignment Cookbook](#).

*"Such a forward looking measure [the warming potential of portfolios] can help asset owners and asset managers understand the transition pathways of their investments and develop strategies to align financial flows with the necessary transition to net zero".*

Mark Carney, 2019



# The concept has enormous appeal as a communications device

A temperature rating is a very intuitive concept, particularly compared to other widely-used metrics such as carbon footprinting. It is something that not only professional investors but also end savers can immediately relate to. That makes it a very powerful communications device. From an asset owner perspective, an instinctively understandable metric to communicate to end savers can be very valuable.

Members of the working group also highlight that temperature ratings can be beneficial for engagement practices, providing teams with an easy comparator of corporate carbon targets. In this regard, it is used as a behavioural change tool.

## But it hides layers of assumptions, uncertainties and trade-offs

As there often is, there is a gap between theory and practice. A theoretically sound concept can face multiple challenges in reality and that is very much the case for temperature rating. Again we refer technical-minded readers to [The Alignment Cookbook](#) for a detailed discussion of numerous methodological challenges. In this paper, however, we want to call attention to two important ones.

The first is the lack of comparability across different methodologies. While there is an apparent appeal to have an agreed and consistently applied approach, people tend to think their methodology is the best one and so we end up with many permutations in practice. Investors and data providers face a range of choices and limitations (e.g. which climate metrics to use, or availability of higher scope emission data), which eventually drive the methodologies that they select.

As a result, temperature rating is useful to indicate the relative climate performance of two companies or two portfolios only if the same methodology has been used for both assessments. In practice, because temperature rating is such an intuitive concept and appears easy to understand even for non-experts, it can give the false impression that the results from different methodologies are comparable. They are really not, at least in the current state of methodologies.

The second challenge is in relation to how climate models handle uncertainties. Robert Pindyck, in his 2017 paper [The use and misuse of models for climate policy](#) specifically critiques a class of models called integrated assessment models (IAMs) that are widely used in temperature rating methodologies. In particular, he claims that we know very little about climate sensitivity<sup>1</sup> (ie how much temperature would eventually increase if the concentration of carbon dioxide in the atmosphere say doubled). The paper notes that the uncertainty has actually increased over the last decade and climate sensitivity is a key input to IAMs. Furthermore, the relationship between temperature increase and GDP (the damage function) is an important part of an IAM, and yet there is no theory and no empirical evidence to support it.

The danger here is that seemingly-sophisticated modelling behind an intuitively-expressed temperature rating might create a perception of knowledge and precision that is illusory. Even worse, it might trick investors and end savers into thinking that the forecasts these models generated have some kind of scientific legitimacy that disguises the compounding of many poorly constrained uncertainties, assumptions and implicit value judgements. Of course, “all models are wrong, but some are useful”<sup>2</sup>. But the effective use of any model needs to start with acknowledging its limitations.

*“... the effective use of any model needs to start with acknowledging its limitations”.*

<sup>1</sup> It is worth noting that one member of the working group who has a climate research background believes that Pindyck goes a little far in saying that we “know very little” about climate sensitivity. They state that we know a lot about the processes that contribute to it, but there is still plenty of scientific uncertainty about the final number. It depends on some especially unpredictable aspects of cloud behaviour. We know considerably less about the damage function (even whether it is positive or negative!) because it requires that we predict what human civilisation will be doing in 50 years’ time!

<sup>2</sup> This aphorism is generally attributed to the statistician George Box.



# Disconnect between temperature rating and the real-world impact

A portfolio temperature rating can be used as an indication of that portfolio's real-world impact – that is, how an investment portfolio contributes to the transition towards a low-carbon world. When viewed via this lens, however, there is a legitimate question regarding whether temperature rating is effective at all in achieving that goal.

As the [2° Investing Initiative](#) points out, there is no clear evidence to suggest that the actions taken to reduce the carbon exposure of investment portfolios lead to a real-world carbon reduction, as often it just results in a redistribution of emissions between investors<sup>3</sup>.

Another source of disconnect is that most carbon metrics only cover listed companies. As a result, a temperature rating based on these carbon metrics fails to take into account the emissions from privately-owned and government-owned entities, which can be substantial. We will unpack this issue in greater details in a future publication.

Any temperature rating methodology depends on a critical, yet completely unrealistic, assumption that everyone else also plays their part for the actual temperature trajectory to be accomplished. So, an investor's claim that its portfolio is rated 2.0°C actually has very little real-world meaning. It does not at all suggest that the world is on a 2.0°C warming path, only in a hypothetical sense that if everyone else held the exact same portfolio, and the assumptions regarding future decarbonisation hold, then the world would be on the trajectory towards 2.0°C warming (and we ignore all the uncertainties around the modelling approach mentioned earlier!). In this regard, it is useful to note that the [UN Emissions Gap Report 2019](#) suggests that the planet is on a 3.2°C trajectory, despite numerous investment portfolios rated “cooler” than that.

*“Any temperature rating methodology depends on a critical, yet completely unrealistic, assumption that everyone else also plays their part for the actual temperature trajectory to be accomplished”.*



<sup>3</sup> This is not to deny the signalling effect that could lead to real-world changes, which will be discussed more in our next paper.

# Potentially perverse behaviours

Investors' real-world impact is determined by the approach that they adopt. Imagine one investor adopting a strategy to take concentrated positions on high-emitting companies and using these positions to transform the businesses to vastly reduce their carbon emissions. Once these companies complete the transition, this investor divests from them and repeats the process with other high-emitting companies. While it is clear that this investor is highly impactful, for most of the time the temperature rating of their portfolio would paint a completely opposite picture. On the contrary, one can easily achieve a lower temperature rating by simply replacing highly emitting companies with less emitting companies without creating any real-world impact.

And that touches on another key issue with regards to temperature rating, namely will it actually drive the right behaviours that it intends to create? “When a measure becomes a target, it ceases to be a good measure”. Goodhart's law tells us that whenever a metric – by default a proxy – is used as a target, it ceases to be an effective measure. Either the metric will stop connecting to the target or people will try to game it. The risk of temperature rating being gamed is certainly not trivial given the lack of transparency and consistency in its methodologies as discussed previously.

*“Goodhart's law tells us that whenever a metric – by default a proxy – is used as a target, it ceases to be an effective measure”.*



# So where does all this leave us?

All that has been stated so far, was discussed extensively within the working group – the intuitive appeal vs the technical, behavioural and compositional drawbacks. The problem was determining where, between these two positions, the group should settle. As a solution we asked the group to vote on some principles<sup>4</sup>. The results are shown in the table below.

While one of the principles came close to the passing score, only one of the three passed the pre-agreed hurdle. The working group's conclusion is that, when it comes to climate reporting, a dashboard comprising multiple measures should always be used. This therefore defined the next phase of work for the group.

At this time of writing, the group's work on a climate impact dashboard continues and will be written up in a future paper. At this stage we can note that the group have determined that the dashboard should show 'investor contribution' and (underlying investee) 'company impact'. The choice of language is deliberate and shows that investors should not be claiming impact in terms of reducing carbon emissions or climate change.

To claim impact there would need to be (i) intentionality to create impact, (ii) demonstrable causality between the action of the investor and the intended change, and (iii) demonstrable change as intended. In a complex, reflexive system the burden of proof to show causality is simply too high. Therefore, investors can, and should, document the ways in which they have contributed towards the achievement of their intended aims.

The working group have also concluded that a degree of standardisation of climate impact reporting is desirable. While, individually, we may wish to have the freedom to report as we like, it is clear that there is much scope for green-(or, cold-)washing. So, for the collective good, we should restrain our desire for individual freedom. Beyond this, it is also clear that narrative will play an important role in impact reporting – both in documenting intentionality and in explaining the metrics shown, and how they may affect subsequent decisions. A subsequent paper will expand on and add to these initial thoughts.

*“The working group's conclusion is that, when it comes to climate reporting, a dashboard comprising multiple measures should always be used”.*

Table 1 – Voting results

	I agree with this principle	I can live with this	I cannot live with this	Score <sup>5</sup>	Pass / fail <sup>6</sup>
If reporting a temperature rating for a portfolio, the temperature rating for the aggregate portfolio will also be shown	72%	6%	22%	75%	Fail
If reporting a temperature rating for a portfolio, a clear statement of the likely impact on real world temperature will also be given (ie likely zero impact)	28%	61%	11%	59%	Fail
For climate reporting, multiple measures (balanced scorecards, dashboards) should always be used	94%	6%	0%	97%	Pass

<sup>4</sup> Voting was electronic, with the results suppressed until all votes were in, to minimise the possibility of bias  
<sup>5</sup> Full weight is given to 'I agree', half-weight to 'I can live with' and zero weight to 'I cannot live with'  
<sup>6</sup> We agreed a pass score of 80% before the voting took place. For example, 60% 'I agree' and 40% 'I can live with' would pass with an 80% score





# Limitations of reliance

## Limitations of reliance – Thinking Ahead Group 2.0

This document has been written by members of the Thinking Ahead Group 2.0. Their role is to identify and develop new investment thinking and opportunities not naturally covered under mainstream research. They seek to encourage new ways of seeing the investment environment in ways that add value to our clients.

The contents of individual documents are therefore more likely to be the opinions of the respective authors rather than representing the formal view of the firm.

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# The Thinking Ahead Institute

## About the Thinking Ahead Institute

*Mobilising capital for a sustainable future.*

Since establishment in 2015, over 60 investment organisations have collaborated to bring this vision to light through designing fit-for-purpose investment strategies; better organisational effectiveness and strengthened stakeholder legitimacy.

Led by Tim Hodgson, Roger Urwin and Marisa Hall, our global not-for-profit research and innovation hub connects our members from around the investment world to harnesses the power of collective thought leadership and bring these ideas to life. Our members influence the research agenda and participate in working groups and events and have access to proprietary tools and a unique research library.

## Join the Thinking Ahead Institute

We seek collaboration with like-minded organisations to achieve our vision, so for more information about us please contact:

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### About the Thinking Ahead Institute

The Thinking Ahead Institute seeks to bring together the world's major investment organisations to mobilise capital for a sustainable future. Arising out of Willis Towers Watson's Thinking Ahead Group, formed in 2002 by Tim Hodgson and Roger Urwin, the Institute was established in January 2015 as a global not-for-profit group comprising asset owners, investment managers and service providers. Currently it has over 45 members with combined responsibility for over US\$12trn.

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