



INVESTMENT PORTFOLIOS IN A CARBON CONSTRAINED WORLD:

THE SECOND ANNUAL PROGRESS REPORT OF

THE PORTFOLIO DECARBONIZATION COALITION



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THE PORTFOLIO DECARBONIZATION COALITION

The Portfolio Decarbonization Coalition (PDC) is a multi-stakeholder initiative that seeks to support and catalyse the transition to a low-carbon economy by encouraging and mobilising institutional investors to decarbonize their investment portfolios.

The PDC was co-founded in 2014 by UN Environment and its Finance Initiative (UNEP FI), the fourth national pension fund of Sweden (AP4), Europe's largest asset manager Amundi and CDP, the most important mechanism for climate disclosure worldwide.

This, the second annual progress report from the PDC, provides an introduction to the PDC and an overview of the decarbonization approaches and strategies of its members. It reflects on the experiences of PDC members, and offers suggestions on how governments, investors and the PDC can accelerate the process of portfolio decarbonization in ways that support the transition to a low-carbon economy.

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FOREWORDS

The Paris Agreement confirms that society is now committed to building the objective of limiting climate change to 2°C firmly into the structure of our economy.

The implications of this global commitment are vast - for financial markets in particular. At ERAFP we believe that the consequences of climate change - including the decarbonization of the global economy - are possibly one of the most significant risk factors to the value, and valuation, of our assets.

So we have moved to taking determined action. We implement a best in class investment approach to take into consideration the ESG criteria for all our investments. The publication in early 2014 of our equity portfolio's carbon footprint confirmed that this best in class approach had made it possible to significantly reduce the carbon intensity of our portfolio. We then decided to work with the French asset manager Amundi on a methodology to reduce the carbon footprint of a EUR 750 million portfolio managed on ERAFP's behalf under an index-managed mandate (a risk weighted index designed in-house). Results are very positive with a reduction of carbon intensity of around 35-40% compared to the benchmark.

There is, however, only so much we can do by ourselves, and we are convinced that by working together investors can help catalyse climate progress, to their own as well as broader societal benefit. This is why ERAFP is a committed member of the Institutional Investors Group

on Climate Change (IIGCC), through which investors engage in an effective, climate-focused dialogue with policy-makers across Europe.

Of crucial importance is also that concerned investors clearly and credibly convey - to policy-makers and the public at large - that they are committed to taking serious action themselves, through adjustments to what is their 'bread & butter': their core, mainstream portfolios. This is why we decided to also join the Portfolio Decarbonization Coalition, which, by mobilizing decarbonization commitments of US\$600 billion in AUMs became, at COP21 in Paris, an impactful finance sector initiative.

But it is now time to keep course and continue delivering. Portfolio action on climate change is a new agenda and there is much work to be done. As we see in this latest annual report, investors face many practical challenges – data, methodologies, performance and impact measurement and reporting to name just a few. But what we also see is an enthusiasm to work together, to share experiences and to learn together. In so doing, we and the other members of the PDC hope that we can encourage others to join us on the journey towards portfolio decarbonization.



A handwritten signature in black ink, which reads "Philippe Desfossés". The signature is written in a cursive, flowing style.

Philippe Desfossés
CEO, ERAFP

The finance and investment communities have a crucial role to play in implementing the Paris Agreement. As key economic actors, we have a responsibility as an industry to ensure that a low-carbon and climate resilient economy comes into play. Regarding the management of pension related assets it is of course our responsibility to ensure good financial returns. Also, it is equally important to secure a future in which those funds can be meaningfully enjoyed. Delivering on the Paris Agreement is central to both these goals. We are confident that we will be successful.

Investors are taking action by investing in environmental technologies and renewable energies, playing an active role in climate policy debates, and engaging with companies encouraging them to communicate strategies setting out science-based emission reduction paths, just to name a few. In order for investor action to have an even greater impact in the real economy, however, efforts need to be scaled up. Collaborating with governments and regulators to decrease regulatory uncertainty about orderly transition paths is an important element of this. The Portfolio Decarbonization Coalition is a key platform for designing and implementing strategies as well as for facilitating public-private exchange.

There is no trade-off between good financial returns and sustainable returns. Ensuring sustainable long term returns, in line with the Paris Agreement is an integral part of our fiduciary duty. At MN, we see a robust climate change policy as a key component of our fiduciary and fund governance responsibilities. Our climate policy should also

be seen in light of our identity as an industrial fund. We are a part of the Dutch 'metal' family. We firmly believe that our sector can make the difference through the development of new energy technologies and production techniques. This view is translated into MN's approach. Our climate policy emphasizes constructively working with emitters in the portfolio in order to support them in their decarbonization journey.

This latest annual report from the PDC reveals that portfolio decarbonization offers real benefits, both in terms of reducing a portfolio's carbon impact but also in terms of financial performance. Despite this, many barriers remain including technical and methodology issues, as well as a lack of awareness on what portfolio decarbonization means or entails. These, however are not insurmountable, and through constructive dialogue and knowledge sharing can be overcome.

The PDC has been an invaluable partner in our journey because of their crucial help in facilitating state of the art knowledge exchange, and a flexibility to embrace and support a variety of climate change strategy approaches. We deeply appreciate the PDC's network and support in working through a variety of strategic and technical challenges as well as the deep sense of feeling welcomed into an exceptional group of individuals and organisations. Thank you.



A handwritten signature in black ink, appearing to read 'René van de Kieft', written in a cursive style.

René van de Kieft
CEO, MN

EXECUTIVE SUMMARY

SETTING THE SCENE

Delivering emissions reductions of the magnitude envisaged by the Paris Agreement will require huge capital investment, by the public and by the private sector. It will require investors to accelerate the process of systematically aligning their core investment portfolios with the needs of the low-carbon economy.

The Portfolio Decarbonization Coalition (PDC) is a multi-stakeholder initiative that seeks to support and catalyse the transition to a low-carbon economy by encouraging and mobilising institutional investors to decarbonize their investment portfolios. PDC currently has 27 asset owner and asset manager members, representing over US\$3,000 billion in assets under management.

This is PDC's second annual report. It provides an overview of the decarbonization approaches and strategies of PDC's members, discusses the outcomes that have been achieved to date, and offers suggestions on how the process of portfolio decarbonization can be accelerated and its impacts in the real economy maximised.

KEY FINDINGS

This report finds that, over the past year, PDC's members have made significant progress in implementing their decarbonization commitments. For example, seventeen have now formal decarbonization-related objectives and targets covering some or all of their investment portfolios. All twenty-seven have started to take substantive action to decarbonize their investment portfolios. They have adopted a variety of approaches including:

- Engaging – individually and through collaborative initiatives such as CDP - with companies to encourage them to set emission reduction targets, and to strengthen their climate change-related disclosures.
- Engaging with their fund managers and other service providers to encourage them to take account of climate change in their investment practices and processes.
- Investing in environmental technologies and renewable energies.
- Excluding fossil fuels from their investment portfolios.
- Supporting the development of the green bond market.
- Supporting the development of low-carbon indices.
- Playing an active role in policy debates on climate change.

Definition: Portfolio Decarbonization

Portfolio decarbonization refers to systematic efforts by investors to align their investment portfolios with the goals of a low-carbon economy. It includes, but is not limited to, efforts to reduce the carbon footprint of investment portfolios, to increase investment in areas such as renewable energy, to withdraw capital from high energy consumption activities and to encourage companies and other entities to reduce their emissions and support the transition to a low-carbon economy.

There is clear evidence that decarbonization efforts are improving the carbon characteristics of PDC members' investment portfolios and funds. However, it is not yet possible to offer a definitive view on how portfolio decarbonization efforts – individually or in aggregate – will affect the real economy. It will take time for high level portfolio commitments to translate into tangible on-the-ground changes. It will also require scale; impact is only likely to be seen once a critical mass of investors has made decarbonization commitments and started to translate these into concrete action.

It is too early to offer a definitive view on the relationship between portfolio decarbonization, and investment performance. A number of PDC members that seek to track the major investment indices are clear that they can achieve the same investment performance but with significantly lower carbon footprints. Others argue that decarbonized portfolios offer potentially significant long-term investment benefits, including a reduced risk of value impairment because of climate change-related regulation, reduced risk of stranded assets and increased exposure to the companies that are likely to be the beneficiaries of the transition to a low-carbon economy (e.g. in areas such as renewable energy).

NEXT STEPS

The practical challenges of implementing decarbonization strategies are becoming much more apparent. Investors are required to engage with and address a series of complex technical and methodology issues. PDC members have identified the following as priority areas for action:

- Improving the quality of information being reported by companies on Scope 1, 2 and 3 emissions and on the wider life-cycle impacts of their products and services.
- Developing decarbonization measurement and assessment methodologies (see box).
- Developing decarbonization strategies for all asset classes, not just listed equities.
- Building the market for decarbonized investment products and investment solutions. This includes increasing asset owner demand for these products, and encouraging asset managers to develop innovative products, across asset classes, that meet asset owner needs.

- Developing tools that enable the aggregate effect of portfolio decarbonization efforts on the real economy to be assessed and reported.
- Developing the investment case for decarbonization.
- Developing understanding of the contribution that portfolio decarbonization can make to the goal of a low-carbon economy and the timeframes over which this contribution can be made.
- Sharing expertise and solutions.

PDC's priority for 2017 is to respond to these issues, and to support its members in both developing decarbonization-related methodologies and tools, and in building the wider market for decarbonization.

Developing Decarbonization Assessment Methodologies and Tools: Priority Areas for Further Work

PDC members have identified the following areas where tools and methodologies require further development:

- Assessing portfolio exposures to stranded assets.
- Conducting 2 degrees stress testing.
- Measuring the carbon footprint of investment portfolios.
- Accounting for avoided carbon and Scope 3 emissions in carbon footprinting methodologies.
- Assessing the impact of climate engagement and advocacy activities.
- Measuring and aggregating carbon footprints across asset classes.
- Comparing the carbon performance of different portfolios or of different investment organisations.
- Measuring the emissions produced or emissions saved from the use of a company's products.
- Assessing the adequacy of corporate decarbonization strategies.
- Allocating emissions or emissions savings between the many companies involved in production and use of the products.
- Assessing whether portfolio decarbonization contributes to countries meeting their Nationally Determined Contributions and other international decarbonization targets and scenarios.

INTRODUCTION: SETTING THE SCENE

THE CHANGING CONTEXT

At the 2015 United Nations Conference on Climate Change (the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change, COP21), the 195 participating countries adopted the Paris Agreement which aims to hold the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels. On 5 October 2016, the threshold for entry into force of the Paris Agreement was achieved and the Agreement entered into force on 4 November 2016. Over 160 countries have now made pledges – Nationally Determined Contributions (NDCs) – explaining how they intend to contribute to the Paris Agreement targets.

Delivering emissions reductions of the magnitude envisaged by the Paris Agreement will require huge capital investment, by the public and by the private sector. Many institutional investors – asset owners, asset managers, insurance companies – already have long track records of action on climate change. They have invested in low-carbon strategies (e.g. through green bonds), encouraged companies to reduce their greenhouse gas emissions, withdrawn capital from high emitting sectors and companies, and encouraged governments to adopt policy measures that accelerate the transition to a low-carbon economy. Despite these important contributions it is clear that much more needs to be done if the investor community is to truly support and catalyse the low-carbon economic transition. In the short to medium term, a critical mass of investors needs to systematically align their core investment portfolios with the

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needs of the low-carbon economy. In turn, this will provide the impetus for the wider investment industry to follow suit.

“It is now accepted that investors must take climate change risk into account in their investment practices and processes. If they fail to do this, they run the risk of being unable to honour their commitments in the long term. Put another way, aligning investment portfolios with international global warming containment objectives is central to how investors deliver on their fiduciary duties”.

Philippe Desfossés (CEO, ERAFP)

THE PORTFOLIO DECARBONIZATION COALITION

The Portfolio Decarbonization Coalition was co-founded in 2014 by the United Nations Environment Programme Finance Initiative (UNEP FI), AP4, Amundi and CDP. PDC is a multi-stakeholder initiative that seeks to reduce global greenhouse gas emissions by mobilising institutional investors to decarbonize their investment portfolios. As at 1 October 2016, PDC had twenty-seven (27) asset owner and asset manager signatories, representing over US\$3,000 billion in assets under management (see Table 1).

By offering a platform for these leading action-oriented investors, PDC aims to stimulate and catalyse further action by investors and to signal to policymakers and to companies that decarbonization is now a core concern for institutional investors, and that investors are committed to accelerating the transition to a low-carbon economy.

Table I: PDC Members as of 1 November, 2016

Organisation Name	Country of Origin	Organisation Type	Assets Under Management
A CAPITAL	Luxembourg	Asset manager	US\$100 million
ABP	Netherlands	Asset owner	US\$408 billion
Allianz	Germany	Asset owner	US\$704 billion
Amundi	France	Asset manager	US\$1,130 billion
AP4	Sweden	Asset owner	US\$37 billion
Australian Ethical	Australia	Asset manager	US\$1.2 billion
BNP Paribas Investment Partners	France	Asset manager	US\$598 billion
Caisse des Dépôts	France	Asset owner	US\$149 billion
Church of Sweden	Sweden	Asset owner	US\$860 million
Environment Agency Pension Fund	United Kingdom	Asset owner	US\$3.9billion
ERAFP	France	Asset owner	US\$25.5 billion
FRR (Fonds de Réserve pour les Retraites)	France	Asset owner	US\$39.7 billion
Hermes Investment Management	United Kingdom	Asset manager	US\$34.8 billion
Humanis	France	Asset owner	US\$14.5 billion
Inflection Point Capital Management	United Kingdom	Asset manager	US\$1 billion
KLP	Norway	Asset owner	US\$70 billion
Local Government Super (LGS)	Australia	Asset owner	US\$7.4 billion
Mandatum Life Investment Services	Finland	Asset manager	US\$2.9 billion
Mirova	France	Asset manager	US\$6.3 billion
MN	Netherlands	Asset manager	US\$142 billion
Öhman	Sweden	Asset manager	US\$9 billion
RobecoSAM	Switzerland	Asset manager	US\$5.5 billion
Sonen Capital	United States	Asset manager	US\$382 million
Storebrand	Norway	Asset manager	US\$69 billion
Toronto Atmospheric Fund	Canada	Asset owner	US\$23 million
University of Sydney	Australia	Asset owner	US\$1.2 billion
Wheb Asset Management	United Kingdom	Asset manager	US\$175 million

ABOUT THIS REPORT

This is PDC's second annual report.¹ It provides an overview of the decarbonization approaches and strategies of PDC's members, discusses the outcomes that have been achieved to date, and offers suggestions on how the process of portfolio decarbonization can be accelerated and its impacts in the real economy maximised.

This report's focus is somewhat different from the first report, which focused on the commitments that PDC members had made. Since then, PDC's members have started to grapple with the practicalities of portfolio decarbonization. It is these issues – data, strategies, challenges and solutions – that are the primary focus of this report.

1. The first report, launched in December 2015 at COP21, can be found at <http://www.unepfi.org/fileadmin/documents/FromDisclosureToAction.pdf>

The View from UNEP Finance Initiative

The Paris Climate Agreement has made it more clear than ever that the finance sector has a vital role to play in driving sustainable development. At UNEP Finance Initiative, we aim to understand the roles, potentials and needs of the finance sector in addressing climate change, and to advance the systematic integration of climate change factors – both risks and opportunities – into financial decision-making.

Responding to climate change will require transformative changes in the real economy, and will require private sector investors to ensure that capital is diverted away from business-as-usual investments and towards alternatives that are low-carbon as well as climate-resilient. The challenge of fulfilling the Paris Agreement will not be easy, and government action alone will not suffice. Private sector innovation and leadership will be key, particularly from the world's financial players.

Investors have already begun to make a major contribution. The year 2015 produced a new record for global investment in renewable energy. The amount of money committed to renewables rose 5% to US\$285.9 billion, exceeding the previous record of US\$278.5 billion achieved in 2011, while the 2016 green bond market is estimated to grow by 14% reaching US\$694 billion. But this is a drop in the bucket, and it is

clear that much more is needed if we are to meet the two degree target.

Portfolio decarbonization refers to systematic efforts by investors to align their investment portfolios with the goals of a low-carbon, climate resilient economy. It includes, but is not limited to, efforts to reduce the carbon footprint of investment portfolios, to increase investment in areas such as renewable energy, to withdraw capital from high energy consumption activities and to encourage companies and other entities to reduce their emissions.

The role of the Portfolio Decarbonization Coalition (PDC) is to catalyse this change, by mobilising a critical mass of institutional investors committed to gradually decarbonizing their portfolios. And by offering a platform for these leading action-oriented investors, the PDC aims to stimulate and catalyse further action by investors, including asset owners and asset managers.

This report, the second Annual Report of the PDC, shows that portfolio decarbonization is not a theoretical ideal, but a reality. It is a practical investment strategy that can enhance investment returns while simultaneously accelerating the transition to a low-carbon economy. It is a strategy that should be adopted by all investors, and the PDC is a first, crucial step in that direction.



Eric Usher
Head, UNEP Finance Initiative

CASE STUDY #1:

KLP

KLP is Norway's largest life assurance company, offering financial and insurance services to the public sector, enterprises associated with the public sector and their employees. It has total assets under management of NOK 577 billion.

In 2015/2016, KLP's decarbonization activities included:

1. **Divesting from coal companies:** At the end of 2015, KLP lowered the threshold for its coal-based exclusions for mining companies and utilities from 50% to 30% of revenues from coal-based activities. As of 21 June 2016, a total of 73 companies were excluded from KLP's portfolios as a result of this screen.
2. **Continuing to build up its portfolio of renewable energy projects in developing countries:** KLP previously committed NOK 850 million to this mandate. It now has four completed projects, with two others under construction and further projects in the pipeline.
3. **Engaging with companies:** KLP regards CDP as an important tool for encouraging and improving corporate reporting on climate emissions and climate strategy, and encourages companies to respond to the CDP climate questionnaire. In 2015/2016, KLP conducted a focused engagement programme, specifically on increasing CDP response rates. It engaged with all of the largest Norwegian companies that did not report to CDP for the most recent reporting year, and with the 10 most carbon intensive holdings in its developed and emerging market portfolios.
4. **Maintaining its investment in hydropower:** KLP has had significant investments in Norwegian hydropower for many years. As of Q2 2016, KLP had investments worth of NOK 22.1 billion in renewable energy in Norway.
5. **Certifying buildings in its property portfolio to the BREAAAM standards:** Several of the buildings in KLP's property portfolio are BREAAAM NOR certified. In 2016, KLP achieved its first BREAAAM In Use certificate.

These actions have delivered a variety of outcomes:

1. In 2015, the KLP funds that had been carbon footprinted had footprints that were between 11 and 25% lower than the funds' respective reference indices. The majority of this difference was attributable to KLP's exclusion of companies that obtain 30% or more of their revenues from coal-based activities.
2. Two of the companies KLP engaged with in 2016 announced they would join RE 100 and three of the global companies KLP engaged with decided to report to CDP for the first time.
3. A listed global utility announced that it would retire the majority of its company's coal power capacity.
4. The energy consumption in buildings in KLP's property portfolio has reduced.
5. Staff awareness of climate, carbon and energy-related issues has increased.

IMPLEMENTING PORTFOLIO DECARBONIZATION:

WHAT DO WE MEAN BY DECARBONIZATION?

PDC's high level definition of portfolio decarbonization is that it is the process through which investors align their investment portfolios with the needs of a low-carbon economy. In practice, however, the manner in which investors choose to decarbonize their portfolios is critically dependent on how they define decarbonization, how they define their targets or objectives for decarbonization and how they choose to measure their performance. It is also dependent on whether they are an asset owner or an asset manager, the types of assets they invest in, their historic approaches to climate change and their capacity and resources.

As PDC's members have started to move from high level commitments to practical action, it is evident that there is

no one size fits all approach to decarbonization. Different approaches are being adopted in different asset classes and in different funds. What we are seeing is a hugely encouraging process of experimentation and of learning-by-doing which should lead to new and innovative approaches to portfolio decarbonization. However, this diversity of approaches means that it is not yet possible to compare different organisations or to provide a definitive, consolidated account of investor action, individually or collectively, to the wider goal of delivering a low-carbon economy.

WHAT TARGETS DO INVESTORS SET FOR DECARBONIZATION?

There are divergent views among PDC members about what they should focus on when they talk about decarbonization. Some prioritise what are referred to as Scope 1 and 2 emissions. Scope 1 emissions are greenhouse gas emissions from sources that are owned or controlled by the company (or other entity). These include emissions from fossil fuels burned on site, emissions from company-owned or leased vehicles, and other direct sources. Scope 2 emissions, in contrast, result from electricity generation, heating and cooling, or steam generated off site but purchased by the company. There are good reasons to focus on Scope 1 and 2 emissions: they are relatively well understood, there is reasonable data on these emissions, they minimise the risk of double-counting and they align with the areas where companies have the most control.

However, Scope 1 and 2 emissions may provide an incomplete picture of a company's emissions. A fuller picture can be gathered by including Scope 3 emissions; these are all indirect emissions, excluding those covered by Scope 2, that occur in the value chain – i.e. upstream and downstream – of the reporting company. They may include emissions from the extraction and production of purchased materials and fuels, from employee travel and commuting, from waste disposal, from leased space, and from other outsourced activities. They may also include the emissions associated with the use of the company's products, e.g. emissions from the automobiles produced by the company, emissions from the combustion of the coal, oil or gas produced by the company. The problem with Scope 3

emissions is that calculation protocols and reporting are less well developed than those for Scope 1 and 2 emissions, there are many gaps in the data that are reported by companies and, in practice, companies may have relatively limited influence over these emissions.

It can be argued that a focus on emissions obscures the wider contribution that companies, their products and their services make to the low-carbon economy. For example, while there are greenhouse gas emissions associated with the production and installation of solar panels, these solar panels could reduce demand for other forms of energy. Despite the growing body of data that can be used to inform life-cycle assessments, to date, relatively few such assessments have been conducted by investors. The reasons include the time and cost of conducting life-cycle assessments, the still significant data gaps, and the lack of consensus on how to address issues such as who can claim credit for emissions savings (i.e. the producer or the user of the product or service).

These differences in views are illustrated by the variety of targets being set by PDC members (see Table 2). The targets differ in terms of rate at which emissions are expected to decline, the scope of the commitments and the timeframes over which emissions reductions are expected to be delivered.

Table 2: Examples of the Targets set by PDC Members

Organisation	Targets
A CAPITAL	<ul style="list-style-type: none"> Invest 50% of the portfolio in carbon negative projects (energy & environment technologies). Reduce the carbon footprint of portfolio companies by 10% per annum.
ABP	<ul style="list-style-type: none"> Reduce the carbon footprint per Euro invested in ABP's listed equity portfolio by 25% by 2020 compared to a 2014 baseline, with an interim target of a 10% reduction by 2016.
Allianz	<ul style="list-style-type: none"> Double Allianz's investments in photovoltaic and wind parks across Europe from EUR 3 to 6 billion in the medium term.
AP4	<ul style="list-style-type: none"> Invest 100% of AP4's global equities portfolio in low-carbon strategies by the end of 2020
Australian Ethical	<ul style="list-style-type: none"> Fully decarbonize Australian Ethical's investment portfolio (i.e. zero portfolio emissions) by 2050.
Caisse des Dépôts	<ul style="list-style-type: none"> Reduce CDC's fully owned real-estate portfolio's energy consumption by 38% between 2010 and 2030. Reduce the carbon footprint of CDC's directly held listed equity portfolio by 20% per thousand Euros invested between 2014 and 2020. Allocate EUR 15 billion between 2014 and 2017 to areas such as sustainable city and mobility projects, renewable energy production, storage and smart networks, energy efficiency solutions, and companies operating in the green energy and environmental sectors. Avoid investing in the equity and bonds of companies in the mining and utility sectors whose exposure to thermal coal exceeds 20% of the company's turnover.
Environment Agency Pension Fund	<ul style="list-style-type: none"> Invest 15% of the fund in low-carbon, energy efficient and other climate mitigation opportunities by 2020. Reduce the equity portfolio's exposure to "future emissions" (i.e. the amount of greenhouse gases that would be emitted should these reserves be extracted and ultimately burnt) by 90% for coal and 50% for oil and gas by 2020 compared to the exposure in the reference benchmark as at 31 March 2015. Support progress towards an orderly transition to a low-carbon economy by actively working with asset owners, fund managers, companies, academia, policy makers and others in the investment industry.
FRR	<ul style="list-style-type: none"> Reduce the carbon intensity and reserves of passive equity investments by at least 50%.
Hermes	<ul style="list-style-type: none"> Reduce absolute and relative to area carbon emissions from Hermes' real estate portfolio by 40% by 2020 from a 2006 baseline.
Humanis	<ul style="list-style-type: none"> Reduce carbon emissions in the equity portfolios by 2% per year.
KLP	<ul style="list-style-type: none"> Reduce energy usage by 3-4% for each building every year. Increase the percentage of Norwegian companies that respond to the CDP climate questionnaire each year. Have the 10 most carbon intensive holdings in KLP's developed and emerging market portfolios respond to the CDP climate questionnaire.

Ten PDC members have not yet set quantified decarbonization targets for their portfolios, although a number are considering doing so. There are various reasons.

The first – as we discuss further below - is that there are significant gaps and uncertainties in the data that are available. PDC members have expressed concern that these data are not yet reliable enough to enable them to set decarbonization targets or to measure their performance against these targets. A further practical consideration is that it takes time for investors to set up their data gathering processes and to educate their analysts and fund managers about how these data may be analysed and interpreted. That is, there is often a time lag between data being available and that data being integrated into investment research and decision-making processes.

“Data quality (timeliness, completeness, comparability, consistency, reliability) remains a key challenge. The integration of carbon data into portfolio construction means that our managers are in need of investment grade carbon data and metrics.”

Corien Wortmann-Kool (Chairwoman, ABP)

The second is that asset managers need to respond to the needs of their clients. PDC's asset manager members have commented that they are charged with managing money in line with client expectations and demands, and that the level of investment in decarbonized products is dependent on clients' willingness to invest in these products. This view has been challenged by PDC's asset owner members who have argued that there has been relatively little innovation in terms of the opportunities being presented to them, in particular beyond equities and clean energy. These

asset owners have also argued that there are relatively few investment managers with a strong track record on decarbonization, and they find that there is an insufficient choice of low-carbon opportunities across asset classes.

“The main challenge in the Finnish market has been the low awareness concerning decarbonized investments. However, the interest in portfolio decarbonization is clearly increasing.”

Petri Niemisvirta (CEO, Mandatum Life)

The third is that some investors consider that their investment strategy is already, by definition, lower carbon and, as a consequence, they do not need to set targets in order to decarbonize. For example, Sonen Capital’s investment strategies prohibit any exposure to coal exploration or development, as well as exploration or production of natural gas or oil. WHEB Asset Management makes a similar point, noting that its portfolio is already substantially decarbonized as it owns no oil and gas or coal mining businesses and has virtually no exposure to fossil-fuel powered utilities.

WHAT STRATEGIES DO INVESTORS USE?

PDC members have adopted a range of strategies to decarbonize their investment portfolios. The most common are engagement (with 22 out of 27 PDC signatories using this approach), preferentially investing in particular sectors or activities (18 out of 27) and negative screening or exclusions (16 out of 27), setting portfolio targets (14 out of 27) and using portfolio tilts (9 out of 27). Many PDC members use multiple strategies in combination, and use different strategies in different asset classes and different geographies. These explicit decarbonization strategies are often complemented by a greater focus on carbon-related risks in investment research and decision-making processes.

“By divesting from coal companies, we are decarbonizing our portfolios without a high financial risk. However, divestment on its own is not enough. We, therefore, complement our divestment strategy by increasing our asset allocation to projects that create new renewable energy capacity in developing countries.”

Sverre Thorne (CEO, KLP)

Engagement

PDC members have encouraged companies to report on their direct and indirect greenhouse gas emissions and to take action to reduce these emissions. This engagement has been conducted directly with companies as well through collaborative initiatives such as CDP and the major investor climate change networks (the European Institutional Investors Group on Climate Change (IIGCC), the Asia Investor Group on Climate Change (AIGCC), the Australia/New Zealand Investor Group on Climate Change (IGCC) and the Investor Network on Climate Risk (INCR)). These collaborative initiatives have encouraged companies to disclose their climate change strategies (e.g. the CDP information requests), to set emission reduction targets (e.g. the Carbon Action initiative) and to take action on sector-specific issues such as gas flaring in the oil and gas sector.

MN’s approach to engagement

In 2015 MN became a signatory of the Montréal Pledge, thereby committing to annually measure and report on the carbon footprint of its equity portfolios. MN subsequently developed a climate policy, which places a strong emphasis on engagement with corporates, regulators and other stakeholders.

In relation to corporate engagement, MN has established a two year engagement programme with the 10 heaviest emitters in its clients’ equity portfolios. Within two years, MN expects these companies to be able to demonstrate that they are ‘transition proof’ and ready to adapt their businesses to align with and generate interesting returns for investors in a two degrees scenario. If after two years a company on the list has not shown convincing willingness or capability to adapt, MN will advise its clients to divest.

MN has also taken a leadership role in climate-related policy discussions. For example, as part of a

broader sustainability initiative under leadership of the Dutch Central Bank, MN is chairing a working group on integrating climate risk across the Dutch financial sector. A key objective of the group will be to take forward the work of the Task Force on Climate-related Financial Disclosures (TCFD) in the Dutch financial sector context, with the aim of making the Dutch market a front-runner in TCFD implementation.

Finally, MN engages with its external managers as an important aspect of its wider work to integrate consideration of environmental, social and governance (ESG) issues into its investment research and decision-making. MN assesses all of its external managers on their ESG performance in general, including on climate change policy. Climate change policy is part of the regular reporting requirements for all of MN’s external managers.

One of the interesting features of the engagement being conducted by PDC members is that it often goes beyond encouraging companies to reduce their Scope 1 and 2 emissions. Many emphasise corporate strategy and capital expenditures in the context of the need to transition to a low-carbon economy, corporate risk from climate change regulation and the physical impacts of climate change.

Among PDC's asset owner members, fund manager engagement is also important. For example, Allianz asks its investment managers to take account of climate change and wider ESG issues as an integral part of their investment processes, and has made ESG factors part of the asset manager selection process for its proprietary assets. Others have focused on building capacity, given the relatively few investment managers and consultants with low-carbon investment expertise.

“As part of the process of establishing a new external mandate, our asset management organization included for the first time our carbon target in the legal documentation. This has contributed to awareness by the external manager who has performed initial assessments of the carbon footprint of its portfolio.”

Corien Wortmann-Kool
(Chairwoman, ABP)

“We actively engage with our fund managers to understand how they are assessing climate change risks and to encourage rigour in that analysis. We have a target to reduce the carbon footprint of our listed equity portfolio in aggregate. As a relatively small endowment, our responsibility is to help “shine a light” on the risks as well as manage them in pursuit of our objectives. Joining PDC enhances our ability to influence and impact the debate by working with other asset owners.”

Miles Collins
(Chief Investment Officer,
University of Sydney)

Australian Ethical's engagement activities

Australian Ethical's engagement and advocacy activities include:

- Direct engagement with companies on climate-related transparency, strategy and performance.
- Direct engagement with companies on sector-specific issues (e.g. financed emissions, fugitive emissions, corporate lobbying).
- Supporting shareholder climate resolutions.
- Supporting the development of the green bond market.
- Making submissions to government on climate change policy.
- Actively contributing to organisations such as the Investor Group on Climate Change, the Responsible Investment Association of Australasia and the Principles for Responsible Investment.
- Being an ethical climate voice in the media and at conferences and seminars.

Preferential Investments

PDC members have invested – directly or through fund of funds or other investment vehicles – in environmental technologies and renewable energies. For example, Australian Ethical has invested in renewable energy (solar, wind, geothermal, hydro and tidal power), energy efficiency (e.g. LED lighting, more efficient motors, smart energy management technologies) and products and activities that reduce energy usage (e.g. recycling, insulation, battery storage). Similarly, Mirova states that, for each

of its portfolios, it conducts an in-depth analysis of the investment opportunities presented by climate change, and it uses this analysis to increase the share of companies with products and services providing climate change solutions (e.g. renewables, energy efficiency, enabling technologies such as electric vehicles or smart grids). The LGS case-study below illustrates the range of investment opportunities that may be available to large multi-asset investors.

Negative Screening/Exclusions

A number of PDC members exclude companies involved in the mining of coal, the extraction of tar sands, and coal-fired power generation. For example, Allianz has committed to making no further investments in mining companies deriving more than 30% of their revenues from mining thermal coal, or in electric utilities deriving more than 30% of their generated electricity from thermal coal.

One interesting trend is that some of the PDC members that have had long-standing coal exclusions have now

started to exclude other fossil fuels. For example, in 2014, the Church of Sweden divested from its few remaining gas investments and in 2011, Australian Ethical divested from the unconventional gas sector. More recently, Australian Ethical extended its exclusions to cover pipelines transporting conventional gas; its reason is that rapid advancements in renewable energy technology, in particular energy storage technology and production, mean that it is now confident that divesting from conventional gas transport will not push demand back to coal-fired power.

Local Government Super's low-carbon investments

LGS invests more than US\$600 million in low-carbon opportunities including:

- Listed equities – fossil fuel free mandate plus low-carbon fund where all companies must derive 50% of value from low-carbon assets or activities (US\$70 million).
- Property – internally managed green property portfolio of office, industrial and retail buildings in addition to two external mandates with sustainability leaders (US\$390 million).
- Private equity – clean technology mandate covering renewable energy technologies and generation (US\$32 million).
- Fixed income – several Australian and global bond mandates with 6-15% allocation to green bonds (US\$56 million).
- Absolute return – mandate to hedge climate risks faced by utilities through investing in electricity and environmental markets (US\$50 million).
- Infrastructure – infrastructure fund with 10% allocation to renewables (US\$1.5 million).

Low-carbon Indices

FRR, Amundi and AP4 have collaborated with the index provider MSCI to develop the MSCI Low-carbon Leaders indices. These exclude the top 20% of companies in the relevant investment universe based on carbon emissions intensity (i.e. Scope 1 and Scope 2 emissions per million Euros of turnover) as well the largest owners of reserves per dollar of market capitalisation in the index. The aim is to achieve at least a 50% reduction in carbon footprints relative to the relevant parent indices. The experience with these indices has encouraged FRR to apply similar rules to its other equities portfolios.

Beyond Portfolio Decarbonization

PDC members recognise that reducing their own portfolio-related emissions is just part of their wider contribution to reducing greenhouse gas emissions. PDC members have, among other activities, supported the development of the green bond market, supported the development of low-carbon indices (see, for example, the case-study of the MSCI Low Carbon Leaders Index above), played an active role in policy debates on climate change, and collaborated with other investors, civil society organisations and companies, through initiatives such as CDP, the Principles

for Responsible Investment, and the Institutional Investors Group on Climate Change.

They have also sought to build wider market awareness of the case for low-carbon investing. For example, Storebrand has introduced a range of tools to enable retail and other investors to select funds based on their sustainability characteristics and fossil fuel composition. Similarly, BNP Paribas Investment Partners has published the carbon footprints of a range of its retail-oriented investment funds.

Hermes: Using Carbon Data in Engagement and in Investment Decision-making

Hermes used the data from its 2015 carbon footprint exercise as one of a range of metrics to enable it to understand the carbon risk within individual companies and portfolios. It examined absolute and benchmark relative carbon footprints in tonnes, carbon attribution between sector allocation and stock selection and details of the largest risks by company, including whether the companies are addressing these risks. It used these findings to supplement the research undertaken by a number of research providers, academics and others, to inform its analysis of companies and to understand the risks associated with carbon asset risk, stranded assets and various climate change scenarios.

Based on this analysis, Hermes identified a list of companies to engage with more intensively with respect to their carbon risks. This engagement focused on issues such as operational emissions, business resilience to climate change, the level of readiness to withstand the physical impacts of climate change and the governance of each of these issues. Hermes also sought to ensure that companies'

public policy positions were aligned with the positions of their long-term investors.

In public equities, corporate bonds, real estate and infrastructure, Hermes' fund managers integrate carbon risk exposure in their investment decision-making process, based on their assessment of the impact to value and their understanding of market fundamentals. Hermes is looking for the opportunities created by carbon risk. It invests in both low-carbon technologies and best-in-class performers. It also looks for companies which might still be among the laggards but have committed to change.

Hermes' private equity, infrastructure and real estate fund managers have identified green, low-carbon investment opportunities, such as energy efficiency, renewables and low-carbon transport and invest through dedicated green technology and environmental innovation funds. In its real estate investments, Hermes measures, sets targets and directly manages properties for carbon emission reductions.

CASE STUDY #2:

ENVIRONMENT AGENCY PENSION FUND

The Environment Agency Pension Fund (EAPF) is a UK pension fund with US\$3.9 billion in assets under management.

Climate change has been a long-standing area of focus. EAPF's objective is to ensure that its investment portfolio and processes are compatible with keeping the global average temperature increase to below 2°C relative to pre-industrial levels, in-line with international government agreements. To that end, it has set goals for 2020 in three areas: investment, decarbonization and engagement.

“We have chosen to use multiple strategies as we feel different solutions are needed for different asset types and circumstances. Some tools can be deployed quite quickly whereas other measures such as engagement, particularly public policy engagement, are longer-term.”

Mark Mansley (Chief Investment Officer, Environment Agency Pension Fund)

Climate goals	Progress
Invest 15% of the fund in low-carbon, energy efficient and other climate mitigation opportunities. This will contribute to its wider target of investing at least 25% of the fund in clean and sustainable companies and funds, across all asset classes.	7% invested with current commitments bringing it to 11%
Decarbonize the equity portfolio, reducing the fund's exposure to "future emissions" (i.e. the amount of greenhouse gases that would be emitted should these reserves be extracted and ultimately burnt) by 90% for coal and 50% for oil and gas by 2020 compared to the exposure in the fund's underlying benchmark as at 31 March 2015.	Coal is currently 60% less than the fund's baseline. Oil and gas is currently 82% less than the fund's baseline.
Support progress towards an orderly transition to a low-carbon economy through actively working with asset owners, fund managers, companies, academia, policy makers and others in the investment industry.	Active engagement across the industry with a strong focus on working collaboratively.

Carbon footprinting

EAPF is a signatory to the Montréal Carbon Pledge, where investors commit to measure and publicly disclose the carbon footprint of their investment portfolios on an annual basis.

It has reduced the carbon footprint of its active equities by 50% since 2008. Its equity portfolio is currently 23.7% more carbon efficient than its composite benchmark and its active bonds portfolio is 44% more carbon efficient than its bond benchmark.

In total, the fund carbon footprints 70% of its assets under management. It does not currently conduct

carbon footprints of its sovereign debt, currency or unlisted portfolios, although it does monitor developments in analytical tools and will look to use these if they are useful and cost effective.

“Each of our active managers analyses the carbon footprint of their portfolio each year. This information forms part of our review of the risks and opportunities in our portfolios and is also used to inform our engagement plans for the year.”

Faith Ward (Chief Responsible Investment and Risk Officer, Environment Agency Pension Fund)

Case-study: The Transition Pathway Initiative

The EAPF, along with the Church Commissioners for England and the Church of England Pensions Board, is leading the development of the Transition Pathway Initiative, an asset owner-led initiative to track how companies in high-impact sectors (e.g. oil and gas, utilities, automotives) are preparing for the transition to a low-carbon economy. The Transition Pathway Initiative involves asset owners working together to define a low-carbon transition pathway for companies in different sectors, consistent with science based targets for a 2-degree world.

The key output will be an online tool that assesses companies on the basis of their management quality and their performance. The assessment of management quality will consider questions such as whether the company has published a climate change policy, whether the company has assigned management responsibility for climate change, whether the company has reduced its greenhouse gas emissions, whether the company supports domestic and international efforts to limit

global temperature rise to less than two degrees Celsius above pre-industrial levels, and whether the company has assessed the risks and opportunities presented by the transition to a low-carbon economy. The performance assessment will assess how the company's future greenhouse gas emissions compare to the targets being set by national governments, and how they compare to the emissions reductions required if global temperature rise is to be limited to less than two degrees Celsius above pre-industrial levels.

“The Transition Pathway Initiative can be used by asset owners to inform their investment decision-making, their engagement activities and their voting decisions. Critically, it will send a clear signal from the investment markets to companies and to policymakers about the importance of preparing for the low-carbon transition.”

Dawn Turner (Chief Pension Officer,
Environment Agency Pension Fund)

HOW DO INVESTORS MEASURE PERFORMANCE?

PDC members use a variety of metrics to track their performance against their own organisational objectives, to track year on year changes in their performance, and to report to clients and to other stakeholders. The most commonly used metrics are total portfolio carbon (used by 16 out of 27 PDC members), carbon intensity (18 out of 27), capital allocations (12 out of 27) and risk exposure (9 out of 27).

While these suggest a degree of convergence in performance assessment, a closer look at the specific metrics being used suggests we are some way from standardisation. The variety of performance metrics being used – see Box - to describe and report on decarbonization efforts reflects the different views among PDC members about the meaning of portfolio decarbonization and the strategies that they are using to deliver on their decarbonization objectives.

Not only do PDC members use quite different performance metrics but they also analyse and report their performance outcomes in very different ways. Amongst

others, PDC members normalise the performance metrics by the value of the fund or by the assets under management (i.e. performance is expressed per dollar invested in the fund or in the relevant portfolio), by the turnover of the companies in the fund or by the number of companies held. We are also seeing the emergence of asset class specific metrics; for example, many real estate investors normalise emissions or energy usage by building floor area.

“We have found carbon footprinting an interesting exercise. We see its primary value as being to open up dialogue with companies and our clients and to provide us with a measure of the effectiveness of our decarbonization efforts. However, this footprinting does not tell us about the future nor does it tell us about risk management.”

Matthew Kiernan
(Chief Executive, Inflection Point Capital Management)

Decarbonization Performance Metrics Used by PDC Members

- Scope 1 and 2 emissions.
- Scope 1, Scope 2 and direct suppliers' emissions.
- Scope 1, 2 and 3 emissions.
- Potential greenhouse gas emissions from (proven) fossil fuel reserves.
- Exposure to fossil fuel reserves.
- Total investments in low-carbon strategies.²
- Avoided greenhouse gas emissions (e.g. from renewable energy, from carbon offsets).
- Investments in companies with good carbon management scores.
- Investments in companies with good management of environmental and social issues.
- Emissions reductions that can be attributed to a company's products, activities or services.
- Changes in corporate practices and reporting.
- CDP transparency levels and scores.

Inflection Point Capital Management (IPCM): Portfolio Measurement

IPCM uses two measures to track its decarbonization performance: the carbon emissions generated by companies in its portfolio for each US\$ million invested, and the megawatts of renewable energy that are converted to tonnes of carbon avoided.

2. PDC members define low-carbon strategies in different ways. The term can refer explicitly to investments in renewable energy and energy efficiency, to investments in wider decarbonization activities, or may include investments in areas such as water efficiency and waste management.

To put their performance into context, PDC members often describe their performance by referring to particular investment benchmarks or indices. These may be the specific benchmarks against which their investment performance is assessed or generic benchmarks (e.g. standard global or national indices). The use of market benchmarks or indices raises the question of whether performance should be compared to standard large cap benchmarks or whether it is more appropriate to compare performance to other green funds or ethical indices. At present, both are used by PDC members depending on the audiences that they wish to communicate with and on how they wish to frame the performance outcomes that they have achieved.

PDC members have pointed to the significant limitations in the data that are available for assessing performance as a barrier to developing metrics that enable meaningful performance comparisons to be made. There are various reasons: many companies still do not report on their greenhouse gas emissions, companies often only report

on a subset of their emissions, companies use a variety of calculation methodologies and assumptions, and data are often not assured. While there has been significant improvement in terms of the data provided by listed companies (in particular from medium and large caps in Europe and North America), there are major weaknesses in the disclosure being provided by unlisted companies (e.g. fixed income issuers), by smaller companies, and by companies in markets other than Europe and North America. More generally, there are significant data gaps in fixed income, private equity and infrastructure.

“Data quality is still an issue for carbon footprinting. We contact companies directly where we find data abnormalities in carbon footprinting results. We have also worked with CDP, IIGCC and other investors to encourage companies to provide better quality carbon related disclosures.”

Seb Beloe (Partner, Head of Sustainability Research, WHEB Asset Management)

Local Government Super (LGS): Measuring Performance

LGS utilises a range of tools to assess its performance including:

1. Traditional performance monitoring that tracks returns relative to mainstream benchmarks and that monitors the performance impact of stocks that have been excluded under LGS screens.
2. Carbon audits that track LGS performance relative to mainstream and carbon optimised benchmarks. LGS receives six monthly audits of the carbon risk profile of its equity portfolios and benchmarks from MSCI ESG Research, and it also calculates carbon emissions from its direct property portfolio and internal operations.
3. The total percentage of the portfolio invested in low-carbon activities such as renewable energy, energy and water efficiency, waste management and green property.
4. The integration of climate change into its strategic asset allocation review process to assess current and future climate risks and opportunities.

These measures help LGS to understand its carbon risks relative to the benchmarks and assist in answering the following questions:

5. How are LGS Australian and international equities portfolios' carbon footprints positioned relative to their benchmarks? Does this explain relative out/under performance?
6. Are there any particular sectors that have particularly large carbon footprints? If so, what are the potential responses?
7. Do any of LGS's external managers have particularly high or low-carbon footprints? If so what are the reasons? Does this represent an engagement opportunity? Are the managers well-informed on carbon risks?
8. Are LGS' low-carbon thematic allocations actually low-carbon?

It is also important to recognise that decarbonization and carbon footprinting are relatively new activities, and that practice on decarbonization has, in many ways, moved ahead of practice on portfolio measurement and monitoring. It is also important to recognise that none of the challenges are seen as insurmountable. Rather, they are a function of the current state of practice, and it is expected that greater clarity and consensus around performance tracking and measurement will emerge over time. Improving data quality is currently a key area of focus for many PDC members. They have actively supported disclosure initiatives such as CDP, the Global Reporting Initiative, the Climate Disclosure Standards Board, the FSB's Task Force on Climate-related Financial Disclosures

and the Portfolio Carbon Initiative. PDC members have also engaged directly with investee companies to improve their reporting.

“One of the practical challenges we face is finding the best methodology to assess our carbon footprint. We therefore assess our portfolio in a number of different ways: the absolute footprint per EUR 1,000 invested, the carbon intensity of the portfolio (calculated by dividing the annual CO₂ emissions of companies by their annual turnover), and the fossil-fuel reserves contained in the portfolio.”

Yves Chevalier (Executive Director, FRR)

Individual and Collective Action on Carbon Footprinting

The Montréal Carbon Pledge³ was launched on 25 September 2014 at PRI in Person in Montréal, and is supported by the Principles for Responsible Investment (PRI) and the UNEP Finance Initiative (UNEP FI). By signing the Pledge, investors commit to measure and publicly disclose the carbon footprint of their investment portfolios on an annual basis.

The FSB Task Force on Climate-related Financial Disclosures (TCFD)⁴ will develop recommendations for voluntary climate-related financial disclosures that are consistent, comparable, reliable, clear, and efficient, and provide decision-useful information to lenders, insurers, and investors. The Task Force will consider the physical, liability and transition risks associated with climate change and what constitutes effective financial disclosures across industries.

The Portfolio Carbon Initiative,⁵ a collaboration between the World Resources Institute (WRI), the 2 Degrees Investing Initiative and UNEP FI, aims to provide guidance on how to define, assess, and track climate performance for asset owners and banks, and to provide guidance on how to identify, assess, and manage “carbon asset risks” for financial institutions. Its report *Climate Strategies and Metrics: Exploring Options for Institutional Investors* evaluates currently available metrics by asset class,

provides best-practices based on available data, and offers recommendations on how to move towards a science-based target setting and accounting framework.

The Sustainable Energy Investment (SEI) Metrics project aims to develop a climate performance framework and associated investment products that measure the exposure of financial portfolios to the new climate economy.⁶

Individual PDC members such as Mirova and ERAFP are also taking action. For example, Mirova is working with Carbone4, a French consultancy specialising in carbon accounting, to develop a methodology that allows it to estimate the overall life-cycle contribution of companies to the energy transition and low-carbon economy. ERAFP's efforts include using and testing current carbon footprinting methodologies, working with its asset managers on portfolio decarbonization approaches, and disclosing the results of its work in these areas. ERAFP has also entered into an agreement with Cedrus AM and amLeague to develop a framework that asset managers can use to demonstrate their expertise in managing a notional low-carbon portfolio of international equities.

3. montrealpledge.org/

4. www.fsb-tcfd.org/about/#

5. www.ghgprotocol.org/Portfolio_Carbon_Initiative

6. 2degrees-investing.org/IMG/pdf/sei_metrics_summary-3.pdf?iframe=true&width=986&height=616

Beyond data quality issues, PDC members have encountered a variety of other technical and methodological issues when looking to develop and implement their decarbonization strategies. There is ongoing discussion about issues such as:

- How to assess exposures to stranded assets.
- How to conduct 2 degrees stress testing.
- How best to measure carbon footprint of a portfolio.
- How to account for avoided carbon and Scope 3 emissions in carbon footprinting methodologies.
- How to assess the impact of climate engagement and advocacy activities.
- How to measure and aggregate companies' carbon footprints across asset classes.
- How to meaningfully benchmark or compare the carbon performance of different portfolios or of different investment organisations.
- How to measure emissions produced or emissions saved from the use of a company's products.
- How to assess the adequacy of corporate decarbonization strategies.
- How to allocate emissions or emissions savings between the many companies involved in the production and use of products.
- How to assess whether portfolio decarbonization contributes to countries meeting their Nationally Determined Contributions and other international decarbonization targets and scenarios.

“The underlying idea is that, as a shareholder or creditor, an investor is responsible for a share of the greenhouse gas emissions of the entity in question. The problem is that, at constant CO₂ emission and activity levels, the share of a company's emissions attributable to an investor fluctuates based on the company's capitalisation, debt level or, more generally, financial structure. For example, the holder of a bond in a company whose overall debt increased would be allocated a smaller share of that company's CO₂ emissions, even though the company's emissions and activity levels may have remained the same. Similarly, the contribution to a portfolio's carbon footprint of two companies that have the same weight in the portfolio, the same level of CO₂ emissions, the same activity, the same geographical exposure and the same revenue can vary depending on the market capitalisation or level of debt of each company.”

Philippe Desfossés (CEO, ERAFP)

“Another big challenge is to understand what ‘good’ performance looks like. The emergence of science-based targets in carbon footprinting is a very healthy development and we look forward to seeing greater use of this approach in future carbon footprinting assessments.”

Seb Beloe (Partner, Head of Sustainability Research, WHEB Asset Management)

“Corporate climate change data and performance reporting are, by and large, not presently linked to science-based targets or other outcome-based measures. Without a meaningful assessment framework, climate change data exists more or less in a vacuum without meaning.”

Will Morgan (Director of Impact, Sonen Capital)

CASE STUDY #3:

BNP PARIBAS INVESTMENT PARTNERS

BNP Paribas Investment Partners (BNPP IP) is a French asset manager with US\$598 billion in assets under management. BNPP IP's approach to decarbonization comprises three main elements, namely carbon footprinting, coal policy and green financing, and engagement and voting.

Carbon footprinting

In late 2015, BNPP IP reported the carbon footprint of 26 of its equity open-ended funds part of its Parvest range.⁷ In 2016, it conducted carbon footprints of 70 more funds, as well as updating the 2015 analysis of its Parvest range.

BNPP IP's fund managers can now know in real time what the impact on their portfolios' carbon footprint will be when choosing one stock over another. BNPP IP has developed a "carbon awareness" tool for those equity fund managers whose funds' carbon footprint is calculated. The tool is now being piloted, before being rolled out across the business.

Coal Policy and Green Financing

Following its decision to become a member of the PDC in late 2015, BNPP IP divested from thermal coal mining in all of its Socially Responsible Investment (SRI) funds. These funds' policies now require the exclusion of all mining companies that generate more than 10% of their revenues from thermal coal and the exclusion of power producers that emit more than 600kg of CO₂ per MWh. Even if a power producer meets these emission limits, BNPP IP will still divest if a company's coal-fired installed capacity is above 30% of its total installed capacity, or if its average carbon intensity when producing electricity is higher than 400 kg of CO₂ per MWh. BNPP IP's decarbonized assets under management now amount to US\$23 billion (as at 30 June 2016).

BNPP IP has almost US\$250 billion in fixed income investments. It is, therefore, particularly interested in the development of the green bond market. To this end, BNPP IP has developed its own internal methodology – which includes definition, analysis and engagement – that allows it to determine whether or not a bond can be considered 'green'; this standard is stricter than current market standards. Today, it has US\$460 million invested in bonds that comply with this stricter definition of

"We focused on these funds because we have access to carbon data for more than 90% of the companies in the benchmark indices. For other benchmarks, corporate disclosures are much weaker. For these benchmarks we have, therefore, focused our engagement and voting activities on encouraging improved corporate carbon disclosures."

Helena Vines Fiestas (Head of Sustainability Research, BNP Paribas Investment Partners)

green bonds. BNPP IP is also working on a Green Bonds Policy which it will use to encourage increased investments in green bonds across BNPP IP's fixed income strategies.

BNPP IP has encouraged policy makers and international financial institutions to facilitate and incentivise the issuance of green bonds, in particular by helping smaller issuers by acting as advisers, guarantors or aggregators. In December 2015, BNPP IP supported the "Paris Green Bonds Statement", an appeal to institutional investors aimed at encouraging issuers to work towards better harmonisation of standards in this sector. It also called for governments to act through policy, risk mitigation and tax credits to support the issuance of green bonds. In line with the Statement, in May 2016 BNPP IP joined the Green Bond Principles; these are voluntary process guidelines that encourage transparency and disclosure and promote integrity in this market. The Green Bond Principles encompass four components aimed at ensuring the integrity of green bond issuance: Use of Proceeds, Process for Project Evaluation and Selection, Management of Proceeds and Reporting.

7. <http://sustainable-responsible-investments.parvest.com/carbon-footprint-en/>

Engagement and Voting

The aims of BNPP IP's engagement are to improve companies' carbon disclosures and environmental performance, and to help BNPP IP to assess companies' carbon risks and the quality of companies' strategies to align with a below 2°C scenario.

In late 2015, BNPP IP revised its voting policy to specifically address climate change. The new policy states that BNPP IP will abstain on companies' financial statements if they do not report properly on their carbon footprint (Scope 1 and 2) and/or if they do not communicate on or wish to engage with BNPP IP in relation to their business strategies to mitigate and adapt to climate change. In addition, BNPP IP will vote in favour of value enhancing resolutions which ask corporates to reduce greenhouse gas emissions in alignment with a below 2°C scenario and which ask corporates to stop lobbying against public policy designed to achieve this.

In 2015/2016, BNPP IP collaborated with the "Aiming for A" initiative on a series of shareholder resolutions that requested companies to report their strategic business plans to support the goals of the Paris Agreement. BNPP IP supported the resolutions filed at BP, Shell and Statoil and co-filed similar resolutions at Rio Tinto, Glencore and Anglo American. All of these resolutions were supported by the companies and by a majority of shareholders. BNPP IP also supported similar resolutions at a number of US oil and gas company AGMs, including ExxonMobil and Chevron.

In relation to collaborative engagement:

- BNPP IP joined the collaborative engagement led by the PRI asking 131 listed companies to disclose their scope 1 and 2 emissions.
- BNPP IP, in conjunction with other members of the GRESB (Global Real Estate Sustainable Benchmark), encouraged all EPRA (European Public Real Estate Association) companies to achieve greater levels of disclosure and energy efficiency performance.
- BNPP IP is an active participant in the corporate programme of the Institutional Investors Group on Climate Change (IIGCC). The working group has developed specific guidance for engagement with the boards and management of the mining, oil & gas and electric utilities sectors.

WHAT IS THE IMPACT?

There is clear evidence – see the box below – that decarbonization efforts are improving the carbon characteristics of PDC members' investment portfolios and funds.

Despite the positive outcomes at the portfolio level, it is not possible to offer a definitive view on how portfolio decarbonization efforts will affect the real economy. In part, it is because portfolio decarbonization is such a new activity. Inevitably, it takes time for high level portfolio commitments to translate into tangible on-the-ground changes. In part it is a question of scale. In fact, it may be that the overall contribution of portfolio decarbonization can only be robustly measured at an aggregate level, e.g. in terms of the absolute level of capital allocated to an area such as renewable energy, in terms of the impact on the share price or cost of capital of high emitting or high impact companies.

In part it is because the impact on the real economy will depend on the actual decarbonization strategies that are adopted. It is likely that the most tangible impacts will be seen in areas where capital is allocated directly to a specific activity (e.g. the provision of equity or debt to a new renewable energy project). For existing activities, the decisions made by individual investors as part of their portfolio decarbonization strategies may have limited, if any, impact. An example could be the decision to sell shares in coal mining companies where the decision may have a positive effect on portfolio-related emissions and may affect the company's cost of capital but may not have any substantial effect on the company's emissions. It is also worth noting that investors may adopt decarbonization strategies that enable them to manage their carbon and climate change-related risks – an example could be the use of hedging instruments – but do not affect the characteristics of their underlying holdings.

Examples of Portfolio Decarbonization Outcomes

- AP4: In 2015, the emissions from AP4's global equity portfolio were 12.7% lower than AP4's reference global index, and the emissions from its Swedish equity portfolio were 34.5% lower than the reference Swedish index.
 - Australian Ethical: Over the 2015 calendar year, Australian Ethical's carbon footprint decreased by 3% and is now 40% below the footprint of its benchmark.
 - ERAFP: At the end of 2015, ERAFP's portfolio had a carbon intensity that was 12% lower than its benchmark, the MSCI World.
 - FRR: At the end of 2015, the carbon intensity – expressed in terms of the emissions per million Euros of turnover of the companies in the portfolio – of FRR's equity portfolio was 25.3% less than that of its benchmark index.
- Furthermore, the emissions per Euro invested in the FRR's portfolio were 30.4% lower than the benchmark index.
- Hermes: On a like-for-like portfolio basis, Hermes has reduced the emissions from its real estate portfolio by 6.5% per annum in the period from 2006 to 2014.
 - Local Government Super (LGS): At 31 December 2015, LGS's Australian equities portfolio had 4.5% lower carbon emissions (in terms of greenhouse emissions per dollar invested) and its international equities portfolio had 20% lower carbon emissions than their respective benchmarks.
 - WHEB Asset Management: The carbon intensity of the companies held in WHEB's Cleaner Energy theme declined by 4% in 2015.

“We have bought data and research that will support our decarbonization work. All of our fund managers now have access to these data. We have found that our fund managers have increasingly become more interested in environmental, social and governance (ESG) issues in general, and climate change in particular. Some are now involved in different external initiatives and also developing investment methodologies. In order to meet client demands, our salesforce is now more involved and having more in-depth discussions with clients.”

Johan Malm (CEO, Öhman)

It is too early to offer a definitive view on the relationship between portfolio decarbonization, and investment performance. A number of PDC members that seek to track the major investment indices are clear that they can achieve the same investment performance but with significantly lower carbon footprints. Others argue that decarbonized portfolios offer potentially significant long-term investment benefits, including a reduced risk of value impairment because of climate change-related regulation, reduced risk of stranded assets and increased exposure to the companies that are likely to be the beneficiaries of the transition to a low-carbon economy (e.g. in areas such as renewable energy).

Despite this enthusiasm, it is important to acknowledge that many of PDC asset owner and asset manager members

have qualified their commitments to decarbonization by noting that they need to deliver investment performance or by arguing there needs to be a business case for action. These qualifications suggest that investors are concerned about how decarbonization will affect their investment performance, and whether the goals of carbon reductions and delivering investment performance can be reconciled.

One of the interesting points to note is that a number of PDC members see that decarbonization provides a range of other benefits beyond the direct investment benefits. For instance, both the Church of the Sweden and LGS have highlighted the positive effects on their reputation, Amundi has used decarbonization to raise its clients' awareness of climate change and related issues and Allianz decarbonization commitment and call for renewable investments triggered a dialogue with policymakers on the enabling conditions for financing large-scale low-carbon investments. There is also a clear sense of the benefits of learning by doing. A number of PDC members have noted that at least some of the capacity and expertise barriers to progress tend to disappear as analysts and fund managers develop their understanding of how climate change is relevant to them and their activities. In fact, Amundi and Hermes have both commented that the increased familiarity with the carbon data in their investment teams has led to analysts and fund managers pressing companies to provide better disclosures on these issues.

CASE STUDY #4:

CAISSE DES DÉPÔTS

Caisse des Dépôts is a French asset owner with EUR 137 billion in assets under management at 31 December 2015.

Caisse des Dépôts has committed to integrate climate change in its asset management decisions, and to exert its influence in order to promote the transition to a low-carbon economy through:

1. Contributing, through its financial investments, to decarbonize the real economy, starting with its investment portfolios.
2. Reinforcing shareholder engagement on climate and energy issues.
3. Facilitating the transition to a resilient and low-carbon economy by channelling capital towards low-carbon projects.
4. Restricting financing of thermal coal-exposed assets

It has set a number of targets for its decarbonization efforts:

- Reducing its fully owned real-estate portfolio's energy consumption by 38% between 2010 and 2030.
- Reducing the carbon footprint of its directly held listed equity portfolio by 20% per thousand Euros invested between 2014 and 2020.
 - The group portfolio carbon footprint declined from 0.452 tonnes of CO₂ per thousand Euros invested at the end of 2014, to 0.409 tonnes at the end of 2015.
 - In 2016, Caisse des Dépôts' equity portfolio managers engaged directly with 87 portfolio companies on specific energy and climate issues, mostly through one-on-ones with management.

- Allocating EUR 15 billion between 2014 and 2017 to areas such as sustainable city and mobility projects, renewable energy production, storage and smart networks, energy efficiency solutions for real-estate and industry, and companies operating in the green energy and environmental sectors.
 - By the end of calendar year 2015, Caisse des Dépôts had invested EUR 7.2 billion and was on track to meet its EUR 15 billion total commitment for the 2014-2017 time-period.
 - In addition to these infrastructure investments, Caisse des Dépôts held EUR 262 million in thematic funds dedicated to the transition to a low-carbon economy, and had a further EUR 156 million directly invested in equity or debt securities that contribute to the energy transition.
- Not investing, from 2016, in the listed equities and corporate bonds of companies in the mining and utility sectors whose exposure to thermal coal exceeds 20% of turnover.

“For listed equities, the 20% Group strategy objective has been translated into individual portfolio targets which have been defined according to their initial composition and modelled scope for improvement. The primary methodology for meeting this target is corporate engagement. This strategy was chosen to maximise our impact as a long term investor on the real economy, by incentivising the decarbonization of portfolio companies. If voluntary emissions reduction by portfolio companies proves insufficient, the Group will reallocate its portfolios in order to reach its reduction target by 2020.”

Virgine Chapron du Jeu (Chief Financial Officer, Caisse des Dépôts Group)

CONCLUSIONS

The central finding from this report is that, as PDC members go deeper into implementation, the practical challenges of implementing a decarbonization strategy are becoming much more apparent. Portfolio decarbonization offers real benefits, both in terms of reducing a portfolio's carbon impact but also in terms of financial performance. However, realising these benefits will require investors to engage with and address a series of complex technical and other issues. These include technical and methodology issues, as well as building the wider market for decarbonization and addressing the barriers.

This report points to the following as priority areas for action by PDC and its members:

- Improving the quality of information being reported by companies on Scope 1, 2 and 3 emissions and on the wider life-cycle impacts of their products and services.
- Developing decarbonization measurement and assessment methodologies (see box).
- Developing decarbonization strategies for all asset classes, not just listed equities.
- Building the market for decarbonized investment products and investment solutions. This includes increasing asset owner demand for these products, and encouraging asset managers to develop innovative products, across asset classes, that meet asset owner needs.
- Developing tools that enable the aggregate effect of portfolio decarbonization efforts on the real economy to be assessed and reported.
- Developing the investment case for decarbonization.
- Developing understanding of the contribution that portfolio decarbonization can make to the goal of a low-carbon economy and the timeframes over which this contribution can be made.
- Sharing expertise and solutions.

The wider conclusion is that non-state actors such as investors have a critical role to play if the goals of the Paris Agreement (i.e. to hold the increase in the global average temperature to well below 2 °C above pre-industrial levels) are to be achieved. Governments alone will not be able to deliver these goals. Portfolio decarbonization – through capital allocations to low-carbon activities, through the withdrawal of capital from high carbon strategies, through engagement with companies and policymakers in support of the low-carbon economy, and through the many other approaches described in this report – is likely to be a critical element of the transition to a low-carbon economy.

Developing Decarbonization Assessment Methodologies and Tools: Priority Areas for Further Work

PDC members have identified the following areas where tools and methodologies require further development:

- Assessing portfolio exposures to stranded assets.
- Conducting 2 degrees stress testing.
- Measuring the carbon footprint of investment portfolios.
- Accounting for avoided carbon and Scope 3 emissions in carbon footprinting methodologies.
- Assessing the impact of climate engagement and advocacy activities.
- Measuring and aggregating carbon footprints across asset classes.
- Comparing the carbon performance of different portfolios or of different investment organisations.
- Measuring the emissions produced or emissions saved from the use of a company's products.
- Assessing the adequacy of corporate decarbonization strategies.
- Allocating emissions or emissions savings between the many companies involved in production and use of the products.
- Assessing whether portfolio decarbonization contributes to countries meeting their Nationally Determined Contributions and other international decarbonization targets and scenarios.



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