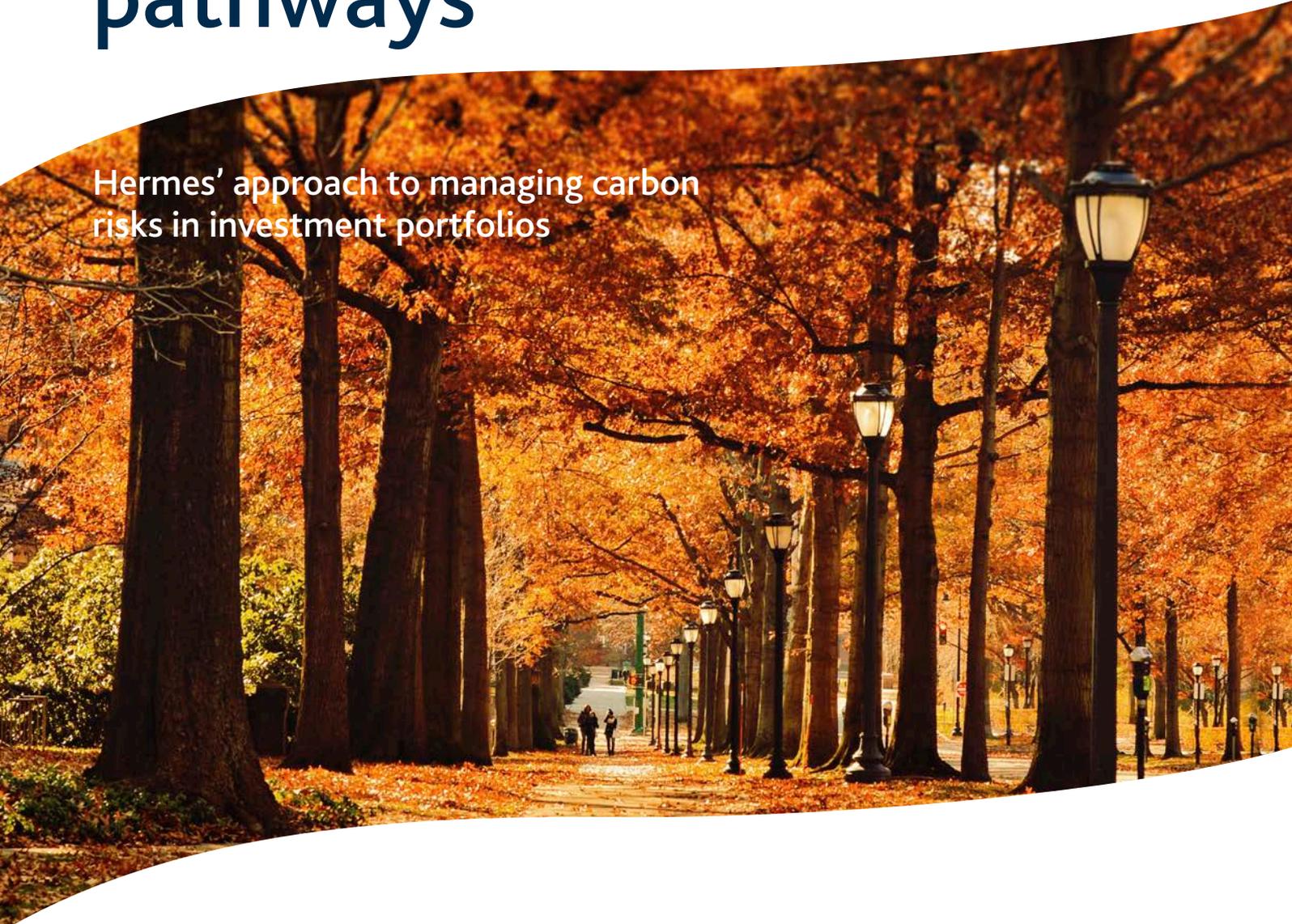


Navigating low-carbon pathways



Hermes' approach to managing carbon risks in investment portfolios

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Hermes Investment Management

Hermes Investment Management is an investment manager focused on delivering superior, sustainable, risk adjusted returns to its clients – responsibly. Hermes Investment Management provides active investment strategies and stewardship. Our goal is to help people invest better, retire better and create a better society for all.

We have been doing this since 1983, firstly to manage the assets of our owner, the BT Pension Scheme, and more recently for a growing range of external customers, from institutions to advised private investors resulting in £28.6 billion of assets under management and £236.8¹ billion in assets under advice.

We concentrate on areas where our expertise can add most value for our investors, whether through specialist skill or accessing unique investment opportunities. We offer actively managed public and private

markets solutions to investors across the world and, in Hermes EOS, have one of the world's largest stewardship resources. Our public markets capabilities include high active share equities, specialist credit and multi asset. Our private markets expertise includes real estate, infrastructure, private equity and private debt.

At Hermes, as part of our responsibility philosophy, we are not content to simply follow investment orthodoxies. Instead look to highlight and constructively challenge areas where we believe as industry we are failing to improve the contribution of financial services to society. We do this because in the finance industry we are in a privileged position, and importantly, one in which we are acting as fiduciaries on behalf of others. As such it is incumbent upon to us ensure that the system in which we operate is working on behalf of those whom we serve.

¹ Note the total AUM figure includes £5.4bn/US\$7.0bn/€6.2bn of assets managed or under an advisory agreement by Hermes GPE LLP ("HGPE"), a joint venture between Hermes Fund Managers Limited ("HFM") and GPE Partner Limited. HGPE is an independent entity and not part of the Hermes group. £0.2bn/US\$0.3bn/€0.2bn of total group AUM figure represents HFM mandates under advice. Source: Hermes as at 30 September 2016.

Navigating low-carbon pathways

Executive summary

Role of investors

With the ratification of the Paris Climate Agreement, 2016 was a decisive year on the path to decarbonisation. There is now a growing sense that the number of institutional investors committed to gradually decarbonising their portfolios must reach a critical mass in order to finance the necessary transition to a low-carbon economy and adapt to the physical effects of climate change. That transition is expected to cost US\$4 trillion per annum in capital expenditure by 2030, which will create the opportunity to define the next generation of winners – those who provide sustainable energy supply, efficiency improvements, green infrastructure and low-carbon services.

However, despite the significant progress made in the last few years, many investors have yet to fully integrate climate change into their investment decision-making processes. Indeed, a lot still needs to be done in order to close the emissions gap between current commitments and the levels required to deliver the Paris objectives. Investors need to play their part in financing emerging technologies and services, and in supporting adaptation to climate effects. Cooperation with policymakers will also be imperative to build a supportive public policy environment.

Hermes' approach

Responsibility has long been a guiding principle of what we at Hermes Investment Management do. We recognise that our duty to the asset owners and investors we represent includes playing our part in mitigating the risks of climate change that will materialise in the coming decades. We therefore developed a comprehensive approach to manage our exposure to carbon risk in 2015. Last year we continued to implement this approach across our investment and stewardship activities, taking account of the specific challenges that different investment strategies and asset classes present. We also continued to learn from our own experience and industry best practice.

Our approach has four elements:

Hermes' four strand approach to carbon risk management.



2 Principles of Responsible Investing (PRI) www.unpri.org | Institutional Investors Group on Climate Change (IIGCC) www.iigcc.org | UNEP Finance Initiative (UNEP FI) www.unepfi.org

Mitigation activities in public markets

As a firm we recognise that environmental, social and governance (ESG) integration – particularly where it relates to climate risk – must be carried out at various stages of the investment process. Drawing on our considerable stewardship capabilities, we identify these risks within the companies and assets we invest in and engage actively to mitigate them.

We apply this investment philosophy to every aspect of each of the unique investment processes underlying our funds, carefully adapting it to their various idiosyncrasies. This report highlights how the consideration of carbon risk informs our idea generation, investment decisions and risk monitoring.

The integration of climate risks at the idea generation stage depends on how each team works; In some of our emerging markets funds for instance we make use of both a top-down and bottom-up approach. This top-down analysis led to removing direct exposure to the oil & gas industry partly informed by their view that long-term climate risks were too high and made the industry generally unattractive.

Once an idea has been generated, it goes through a process of fundamental analysis and valuation to validate whether it is a good potential investment. We have developed proprietary tools to analyse ESG factors, such as our ESG Dashboard that includes information on carbon emissions and other environmental metrics, which our investment teams can put to use.

 We apply this investment philosophy to every aspect of the unique investment process underlying each of our funds, carefully adapting it to their various idiosyncrasies. This report highlights how the consideration of carbon risk informs our idea generation, investment decisions and risk monitoring. 

**Leon Kamhi, Head of Responsibility,
Hermes Investment Management**

Stewardship is a core element of Hermes' investment approach. Constructive engagement creates a mechanism by which we can take a more responsible approach to ownership. It provides a positive feedback-loop that enables a better understanding of the long-term value creation process within a company. It also creates a mechanism for measuring progress against intended outcomes on specific sustainability goals. Through engagement we are able to better understand the carbon performance of investee companies, identify potential areas for improvement at individual companies and across markets, and ultimately make sure risks stemming from climate change and mitigation actions are full embedded in a company's strategy.

Monitoring is also critical and we have developed proprietary portfolio analytics tools, including our ESG Portfolio Monitor, which analyses environmental risk exposures (among others). We actively assess the carbon footprints of our portfolios to ascertain what drives their carbon intensity. This has given us some useful guiding insights over the years: investment style is a strong predictor of carbon footprint as, for example, value funds are more likely to hold utilities and thus have a higher carbon footprint; in general, we found there is a strong correlation between sector allocation and carbon intensity versus a benchmark; stockpicking has the highest impact on portfolio carbon footprint while regions and benchmarks have the minimum influence.

For instance, a value-oriented strategy seems more likely to have active exposure to utilities companies, potentially leading to greater carbon intensity than its benchmark or peer-group. We are able to address this at other stages in the investment process, particularly through engagement.

Furthermore, our analysis shows that most emissions are concentrated in a very small number of companies. As such, engagement with the top carbon emitters among our investee companies can have a large positive impact.

The results of the carbon footprint analysis for 2016 showed that 10 of the 12 equities funds we analysed were less carbon intensive than the benchmark for scopes 1 and 2 emissions. Eight of those had less than half the carbon intensity of the benchmark. The strength of this performance is primarily a result of being generally underweight in the utilities, materials and energy sectors – the three most carbon-intensive sectors. Overall our emissions were very concentrated in a small number of companies: the top 10 emitters represented over 70% of emissions. This makes engagement a very effective tool.

During 2016 we also developed a low-carbon strategy in response to client demand. This strategy, which places an emphasis on the integration of climate risk at the portfolio construction level, excludes the coal, oil and gas industries.

Capturing climate risks and opportunities in private markets

Our preferred approach to managing carbon risks across both public and private markets is to utilise our rights and leverage as owners or shareholders to influence practice and strategy within the assets and companies we invest in.

During 2016 we continued to work on deepening the collection and distribution of appropriate data and knowledge to enable more informed real-estate and infrastructure investment decisions.

In our real estate funds we predominantly directly own and manage assets and, since 2006, have set long-term carbon emissions reduction targets and integrated carbon management across our investment and asset management processes. Last year we focused on how to move from a risk management approach to delivering positive climate impacts through carbon emission reductions and scaling-up energy efficiency measures.

With regard to infrastructure, risk is primarily addressed through direct engagement with the management operating those assets. By taking significant stakes in private assets, we are able to play an active role in how those companies are governed, which, in turn, means we can influence strategic risk management. 2016 saw us continue to analyse and develop a detailed ESG and carbon-risk profile for each of our individual infrastructure assets. Through engagement with those assets, we have been able to better understand both their carbon footprints and assess their carbon risk strategies.

Decarbonisation is a clear social trend today, with the longevity of an asset now inextricably linked to its environmental credentials.

Peter Hofbauer, Head of Infrastructure, Hermes Investment Management.

We are still investigating how best to measure the carbon risks and footprints of our more numerous and relatively small private equity investments. In 2016 our work focussed on assessing how to best measure risks, which we did through an in-depth review of co-investment opportunities and conducting a pilot 'climate risk' survey across a sample of funds and companies within our private equity portfolio.

Time to challenge economic and financial models

While there has been positive progress in recent years in terms of the policy agenda and the action taken by investors to understand and define how investments can start to be decarbonised, there is still a long way to go.

We believe that to ignore carbon risk is to ignore valuation threats to portfolios. The challenge, however, is bringing this issue into the way the finance industry operates. Divestment is not an option in mainstream investing simply because it is not carbon-friendly. Rather, we need to think whether it will have an impact on value and risk.

Within an industry driven by market benchmarks, investment decisions tend to be short term and aligned with the mainstream average. Against that backdrop, it is challenging to incorporate longer-term climate externalities into today's investment models. However, what seem like attractive investment decisions or apparently sound capital expenditures in the short run might lead to stranded capital trapped in inviable assets in the longer-term. Similarly, some investments that do not pass the short-term investment tests today, can deliver good performance in the long run.

Both the quantity and quality of data on carbon risks need to be improved to enable better assessment of how those risks could affect asset values and to allow for more fine-tuned integration of those risks into mainstream investment processes. The question then becomes how to review the benchmarks being used by the industry more fundamentally to account for a wider range of risks and opportunities over longer timeframes.

Investor advocacy must become more forceful to maintain and increase the momentum towards a world where global warming is limited to two degrees or less. In the future, greater attention needs to be given to the opportunities decarbonisation presents and less on risk. Similarly, more attention should be paid to the demand, rather than supply, side of the equation: to reduce demand we need to focus on opportunities in new technologies and in high sectors and turn our attention to less obvious sectors such as food producers' and retailers' supply chains. A step-change in energy efficiency is possibly the biggest single opportunity to achieve emissions reductions. Finally, companies' lobbying efforts should be harnessed as a positive force for change to generate new approaches to public policy engagement.

In the current political environment, many uncertainties remain. We should not underestimate the extent to which both considerable uncertainty about policy implementation and the pace of technological innovation could affect the timing and magnitude of the transition to a low-carbon economy. This will be particularly important in the coming years, including how the new US administration influences the climate policy agenda.

We need to challenge the current economic and financial models used by the investment industry if we are to ensure the world does not breach the scientifically-guided objectives we have set for ourselves on climate change.

Tatiana Bosteels, Director Responsibility, Hermes Investment Management.

SECTION 1

Investors’ role in implementing the Paris Climate Agreement

There is now a sense among institutional investors that to finance the necessary transition to a low carbon economy and the adaptation to the physical effects of climate change requires a significant re-allocation and scaling-up of current investment efforts.

On the 4 November 2016, the Paris Climate Agreement was ratified, the fastest international ratification in history. That the agreement exceeded expectations was encouraging and a signal that countries are ready to take the necessary action to address climate change and to limit global warming to 2°C or less. The significant involvement of the institutional investor community in the run up to the Paris conference was an indication of the clear shift in perceptions, which is equally encouraging.

However, the ambition established in Paris will be challenging to implement. The analysis of the current plans put forward by the 195 countries, known as the Nationally Determined Contributions, which form the bedrock of the Paris Climate Agreement, demonstrate that the proposed measures will restrict average temperature rise to about 3.5°C. As such there is a significant emission gap to bridge if we are to achieve the scientifically-driven 2°C target or a move towards the 1.5°C Paris ambition.

■ We recognise that we have a fiduciary responsibility to play our part in steering the direction of companies and supporting their transition towards a 1.5°C world. ■

**Saker Nusseibeh, CEO,
Hermes Investment Management**

Potential carbon risks and opportunities are therefore more of an issue for investors today than they have ever been. During the last two years a number of initiatives and publications have deepened investors’ understanding of carbon risk. Will the value of investments be affected by the policy and market shift to a low carbon economy, or ‘transition’ risk? Will fossil fuel companies and other carbon intensive sectors remain viable in a low carbon economy? Will the long-term ‘physical’ risk affect the value of individual assets and even whole asset classes? Will investors face the threat of legal action arising out of further reviews of, or clarifications to, the fiduciary duties of institutional investors to manage their long-term risks including those stemming from climate risks? Will they be questioned as to whether they considered the risk of assets becoming stranded? And if not, why not?

The transition to a low carbon economy will also represent significant opportunities as new winners will emerge driven by technological innovation and demand for new services. With the necessary capital expenditure to deliver the transition to a low carbon economy³ estimated at US\$4 trillion per annum by 2030, there will be opportunities to pick

Paris Climate Agreement

<p style="font-size: 2em; font-weight: bold;">195</p> <p>countries</p>	<p>Each agreed own plan, known as the Nationally Determined Contribution</p>
<p style="font-size: 2em; font-weight: bold;">↓2°C</p> <p>High ambition level</p>	<p>Temperature goal tightened to well below 2 degrees, striving for 1.5 degrees</p>
<p style="font-size: 2em; font-weight: bold;">ZERO</p> <p>Long-term goal</p>	<p>Net zero emissions in the second half of the century</p>
<p style="font-size: 2em; font-weight: bold;">5</p> <p>Ratchet</p>	<p>National plans will be updated every five years. Each subsequent national climate plan will be a progression.</p>
<p style="font-size: 2em; font-weight: bold;">£100BN</p> <p>Progress on climate finance</p>	<p>£100bn p.a. from public private and alternative sources as a floor from 2020</p>

Source: from IIGCC.

the new winners based on more sustainable energy supply, efficiency improvements, green infrastructure, and low carbon services. This will require both new capital and the re-allocation of capital at an unprecedented scale. Investors will have to understand new market and policy trends to avoid being trapped with high-carbon stranded assets.

We recognise that we have a fiduciary responsibility to play our part in steering the direction of companies and supporting their transition towards a 1.5°C world. There is undoubtedly an important role for investors to play in addressing the emissions gap as owners of public and private companies as well as infrastructure assets and extensive commercial and residential real estate. We have much at stake and we owe a great responsibility to our clients and their underlying beneficiaries to not turn a blind eye to this issue.

³ UN Environment Programme, Enquiry into the design for a new sustainable financial system, http://unepinquiry.org/wp-content/uploads/2016/09/The_Financial_System_We_Need_From_Momentum_to_Transformation_Summary_EN.pdf & Cambridge Institute for Sustainability Leadership Green Growth Platform <http://www.cisl.cam.ac.uk/publications/publication-pdfs/financing-the-global-low-carbon-transition.pdf>

To address the risks posed by climate change necessitates mobilising a critical mass of investors committed to gradually decarbonising their portfolios. This requires systematic effort by investors to align their investment portfolios with the goal of a low carbon economy. It includes, but is not limited to, efforts to reduce the carbon footprint of investment portfolios. This may be achieved through: increasing investment in areas such as renewable energy and energy efficiency; withdrawing capital from high energy-consumption activities; encouraging companies and other entities to reduce the emissions throughout their value chain and support the transition to a low carbon economy; and mobilising investors and companies to support, and be transparent about, constructive public policy engagement. It is certainly important to recognise that divesting from fossil fuels will not make them disappear – there remain many willing buyers of such stocks.

While keen to play our part, we also recognise that there are limitations to what investors can do to scale-up finance to the levels required to close the emissions gap without a supportive public policy environment. The pace of investing in low-carbon alternatives, without lower returns, is likely to be driven by government policy. Companies and investors alone, especially where climate risks have a significant impact on their value chain, cannot succeed in decarbonising business models without supportive public policy that allows them to achieve a reasonable return on capital. While we can push emissions down through win-win strategies such as energy efficiency, to achieve significant step-changes will require effective public-private cooperation. Engagement of actors across the investment value chain will be crucial. For example, during 2016 we saw ratings agencies update their approach to climate risks and communicate their assessment of credit implications.

Despite this significant progress, however, many investors have yet to fully integrate environmental, social and governance (ESG) issues, including climate change, into their investment decision-making processes. Structural barriers and cultural issues are preventing this transformation.

A mismatch of timeframe is one of these barriers; because companies, investors and policymakers all operate to different timeframes, none of which are particularly long-term, co-ordinated action becomes difficult. The transition to a low carbon economy necessitates a 20-30 year time horizon and fund managers, guided by the mandates awarded by their clients, are commonly working at most to a five-year time horizon. Within an investment industry led by market benchmarks over short-term periods, it is challenging to incorporate climate externalities into investment models; what seem like attractive investment decisions or apparently sound capital expenditures in the short run might lead to stranded capital trapped in unviable assets in the longer-term. Similarly some investments which do not pass the short-term investment tests today, can deliver good performance in longer terms.

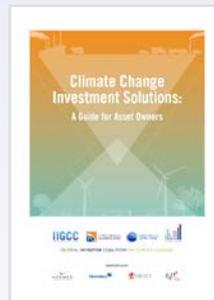
What is clear is that these risks are likely to materialise over the medium to longer term. In order to achieve a smooth transition to a low carbon economy, it is necessary to take action sooner rather than later.



The Portfolio Decarbonization Coalition (PDC) is a multi-stakeholder initiative that will drive GHG emissions reductions on the ground by mobilising a critical mass of institutional investors committed to gradually decarbonizing their portfolios.⁴



<http://unepfi.org/pdc>



IIGCC's Climate Solutions programme⁵ aims to help investors identify, and to the extent possible, quantify the strategic implications of policy measures and physical risks to long-term investments with a view to inform communication with other stakeholders.



www.iigcc.org

⁴ <http://www.unepfi.org/wordpress/wp-content/uploads/2016/11/PDCreport2016.pdf>

⁵ <http://www.iigcc.org/publications/publication/climate-change-investment-solutions-a-guide-for-asset-owners>

SECTION 2

Hermes approach: Awareness, integration, engagement, advocacy

A holistic assessment of carbon requires analysing risks and opportunities along the whole value chain.

From carbon risk awareness to integration in the investment process

Responsibility has for a long time been a guiding principle for Hermes Investment Management. We believe that in addition to delivering excellent performance to our clients we have responsibilities that extend beyond those defined in any contract. We have these additional responsibilities because our activities will have impacts on the world in which our beneficiaries live and work today as well as the one in which they will retire tomorrow. It is this holistic understanding of our responsibility towards our clients and their beneficiaries that informs our approach as a firm.

We recognise that our duty to our asset owners and investor beneficiaries includes playing our part in mitigating the risks of climate change that will materialise over the next 20 to 30 years. Therefore, we developed a comprehensive approach to manage our exposure to carbon risk back in 2015. During 2016 we continued the process of implementing this approach across our investments taking account of the specific challenges faced by each investment strategy and different asset class, and learning from our experiences and industry best practice.

Across asset classes, when the market moves, new technologies and better management skills create new opportunities. Taking advantage of the opportunities created by carbon risk will require sound and informed

judgements, and is not always about buying best-in-class performers. At times, what might seem like attractive investment decisions or apparently sound capital expenditures in the short run might lead to stranded capital trapped in unviable assets in the longer term. Similarly, some investments that do not pass the short-term investment tests today, can deliver good performance in longer terms. Sometimes, it can be better to find a laggard that has committed to change. Therefore it is important to avoid being driven by simplistic carbon targets as there is a risk of missing out on opportunities and failing to have the impact we might desire. Instead, a holistic assessment of carbon requires analysing risks and opportunities along the whole value chain.

While we are able to screen out certain sectors and stocks as per our clients' objectives, in general we continue to believe divestment of individual stocks or the avoidance of entire industries should be solely based on a hard-headed analysis of the prospects of a company and its sector. Divestment has its place where carbon risk outweighs the overall benefits of holding an investment. In cases where we are holding an investment that is a significant carbon emitter, engagement becomes a critical tool in seeking to reduce the carbon emissions made by the company or asset. In many cases, engagement rather than divestment may be the more responsible action to take and lead to a higher likelihood of reduced emissions given there is no guarantee the acquirer of the divested asset or security will share our view on climate change risks.

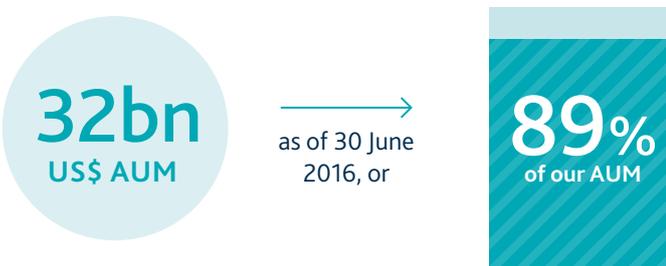
Hermes' four strand approach to carbon risk management.



Measuring carbon performance

At Hermes, the carbon risk management activities we are in the process of implementing cover our public equities and credit, private real estate and infrastructure assets⁶, representing US\$32 billion assets under management (AUM) as of 30 June 2016, or 89% of our AUM.

Coverage of carbon risk management in Hermes activities



As part of our carbon risk approach we acknowledge it is important to set specific and measurable targets to monitor and measure progress against. In the last twelve months we have gone through an internal process of identifying the most appropriate performance measurement indicators for each asset class. We have identified the indicators below as the most effective measures of our approach. We intend to report annually on our performance against these measures from 2017.

In line with our commitments under the Montreal Pledge, we have a target to measure and report the carbon footprint of our investments across all relevant assets classes. We recognise developing the appropriate methodologies and ensuring data availability varies between asset classes. This year we have measured the carbon footprint of our public equities, credit and real estate assets, representing 89% of our AUM as of June 2016. We are making good progress in measuring the carbon footprint of our infrastructure assets and continue to explore the best approach to do so for our private equity investments.

We have long had targets for portfolio decarbonisation in relation to our real estate portfolio. This is appropriate as we have direct management control of these assets. We do not have specific carbon reduction targets in our equity and bond portfolios. As a mainstream fund manager, exclusion of fossil fuels and other carbon intensive industries are not part of our investment strategies and it is impracticable to set carbon emission reduction targets. Our strategy for these portfolios is to be aware of the level, intensity and source of carbon risk, to factor this risk explicitly into investment decision making and to engage with those high carbon-intensive assets that we hold to identify and encourage best practice in managing their carbon risks.

Our carbon performance indicators are as below:



Awareness

- ▶ Level of carbon emissions attached to investments and expended in Hermes operations, yearly
- ▶ Percentage of assets under management (AUM) we measure the level of carbon emissions per USD invested and breakdown by holding, yearly
- ▶ **Listed equities and corporate credit:** carbon intensity per fund relative to benchmark in carbon emissions per USD invested



Active management

- ▶ **Real Estate:** Long-term carbon emissions reduction targets in absolute and relative terms (tCO₂ and tCO₂/m²), by 40% by 2020 from a 2006 baseline; Annual operational targets to reduce by 5% year-on-year the absolute carbon emissions (tCO₂) of our standing portfolio and our relative energy consumption (kWh/m²)
- ▶ **Infrastructure:** Assets with a climate risk plan as a % of assets under management (AUM)



Engagement

- ▶ Percentage of carbon in the portfolio being managed directly or engaged upon



Carbon footprint of Hermes corporate activities

For 2015 we have measured and offset the carbon emissions from our corporate activities. The emissions from our headquarters and corporate travel equate to 1750t CO₂.



These are offset by working with Natural Capital Partners. We have supported their 'Mongolia Improved Insulation and Fuel-Efficient Stoves' gold standard project which has set up supply and distribution chains for stove and insulation products; supporting local production, creating jobs and reducing indoor air pollution and fuel costs, and their 'Habitat Portfolio' which focuses on the protection, maintenance and expansion of forested areas.

⁶ We are currently working with our private equity team to assess how to develop a carbon risk management approach matching their specific investment constraints. See private equity section for more details.

Challenging investment orthodoxy

Our philosophy of responsibility goes far beyond simply following accepted investment orthodoxy. Instead, we look to highlight and constructively challenge areas where we believe the financial services industry is failing to improve its contribution to society. We do this as we have a responsibility to act as fiduciaries on behalf of others and because we have influence through the investment activities we carry out.

Over the years we have been actively engaged in the work of organisations such as the PRI, IIGCC and UNEP-FI⁷ in an effort to promote a better understanding of the responsibilities of investors. Our public policy and sector engagement has focused on helping to shape capital markets for the benefit of all stakeholders. To enable us to better manage carbon risks in particular we engage with public policymakers to encourage transparency on carbon risk assessment, best practice approaches and methodologies as well as carbon-pricing mechanisms.

Calling for deeper and more detailed carbon disclosure

We believe increased transparency is critical to allowing the mitigation of climate and carbon risk. At the beginning of 2016 the G20 Financial Stability Board (FSB) initiated a major piece of work on climate related financial disclosure. It established a Taskforce (FSB taskforce on climate related financial disclosure TCFD) aimed at helping define a clear, efficient and voluntary disclosure framework that improves the ease of both producing and using financial disclosures.

We welcomed this project, and in particular the high-level and international support for it. We have been advocating for some time that deeper, more detailed and consistent disclosures are needed from companies in order that we can assess and gain reassurance that companies are prepared for the transition through scenario planning, risk and opportunity analysis, reducing their own emissions and investing in technologies and services that will deliver a low carbon economy.

■ We are keen that companies disclose the results of a “stress-test” of the value and performance of each materially exposed asset or operation to a range of climate change scenarios. This means assessing whether asset values will hold up to the adjustment towards a lower-carbon economy. ■

**Bruce Duguid, Director Engagement,
Hermes Investment Management**

These should be communicated using both narrative reporting and the estimated quantified value-at-risk (%), together with potential mitigating actions. These stress-test results should be disclosed using a standardised approach to enable comparability of outcomes. This requires the establishment of guidelines tailored to the relevant asset class, sector and geographies of the investment concerned.

While there is increasing agreement that stress testing is an important component for assessing climate risks, to date there are no agreed and consistent approaches and models. In our submission to the FSB Taskforce we encouraged it to support the provision of guidance on the way forward and set up further working groups to define the standards and methodologies to be followed to secure market confidence in these assessments.

While we are asking more of companies we also believe it is important that investors assess and disclose their own exposure to climate risks. Ideally investors should disclose the extent to which, through their investment strategy and other actions, they are achieving alignment with the transition to a low carbon economy. This could include the following areas:

- The profile of investments in sectors aligned to a low carbon economy;
- The investors’ stewardship activities including corporate engagement, voting, and/or recommendations on climate-related issues;
- Investors’ public policy positions and associated advocacy on climate change.

Scaling up energy efficiency investments

We believe that a more integrated policy approach supported by market incentives should enable the necessary investment to be scaled up to the IEA’s estimated EU requirement of US\$150 billion per annum by 2030.⁸ Investments in energy efficiency and green buildings form a significant part of the solution to moving from today’s business-as-usual situation to a world able to live within its means. Strikingly, of all the measures that must be implemented, energy efficiency represents almost 50% of investment opportunities globally. Data shows that as of today only 20% of the necessary energy efficiency from buildings has been achieved. Achieving the remaining 80% offers a major investment opportunity for all types of real estate investors, estimated to represent about US\$300 billion per year between now and 2030 (UNEP Finance Initiative).

We also actively engaged with the G20’s Energy Efficiency Taskforce and with EU institutions to push for the energy efficiency policy package to be reflected within all relevant policies in order to operationalise the “Efficiency First” principle.

⁷ Principles of Responsible Investing (PRI) www.unpri.org | Institutional Investors Group on Climate Change (IIGCC) www.iigcc.org | UNEP Finance Initiative (UNEP FI) www.unepfi.org

We were early supporters of the establishment of the G20 energy efficiency taskforce to help bridge the investment gap. The taskforce established the “Voluntary Energy Efficiency Investment Principles for G20 Participating Countries”, and an “Investor Statement on Energy Efficiency” for supporting financial institutions. This statement, supported by Hermes, demonstrates the interest of investors in energy efficiency finance and calls for an enabling regulatory framework to scale up current levels of investment. Encouragingly, investors managing US\$4 trillion of assets along with over 100 banks have already shown their support.

Calling for an ambitious EU and UK energy efficiency package

In the last few years, jointly with representatives of the investment industry, we have been engaging with the European Commission towards implementing the recommendations of the Energy Efficiency Finance Institutions Group⁹. The Commission’s “smart finance for smart buildings” recommendations are a result of this work and we have been further calling for the inclusion of these recommendations into various EU policy packages being reviewed within the Energy and the Capital Markets Union.

The revision of two EU Directives that govern energy efficiency and the energy performance of buildings provides an opportunity to drive radical improvements in the energy efficiency performance of Europe’s existing building stock. We suggest that:

- The principle of ‘continuous improvement’ should be used to drive the retrofitting and refurbishment of existing building stock through transforming energy performance certificates from a static into a dynamic tool;
- The EU should consider setting a binding goal to bring the entire European buildings sector to a nearly-zero energy standard by 2050;
- Energy performance certificates should be upgraded to a dynamic electronic format that records, and more frequently updates, both the design and operational performance of property and which becomes the foundation of an electronic building passport.

Energy efficiency investment opportunity



Post Brexit, we believe that the UK should retain its climate commitments as set out in the Climate Change Act and the Carbon budgets. The UK has a number of national regulations supporting energy efficiency such as the Minimum Energy Efficiency Standards that should be continued and strengthened over time. We believe, whatever the outcome of the negotiation with the EU, the UK should follow the same recommendations in the revision of the national application of the EU directives.

The infographic is divided into two vertical panels. The top panel features a blue document cover titled "Recommendations of the Task Force on Climate-related Financial Disclosures" with a TCFD logo at the bottom. To its right, a dashed arrow points to the URL www.fsb-tcfid.org/publications/recommendations-report/. The bottom panel features a document cover titled "Clean energy for all Europeans: World leader in renewables, energy efficiency first" with a colorful geometric pattern at the top and icons for energy, wind, and solar at the bottom. To its right, a dashed arrow points to the URL http://ec.europa.eu/priorities/priorities/energy-union-and-climate/proposals-clean-energy-all-europeans_en.

8 IEA, 2015: "World Energy Outlook Special Report" p.49.
9 www.eefig.eu

SECTION 3

Carbon mitigation activities in public equities and fixed income

As a firm we recognise ESG integration in general, and the consideration of climate risk in particular, must be taken at various stages in the investment process alongside other financial factors. In particular, drawing on our strong stewardship capabilities, we identify carbon risks within our investments and engage to mitigate them.

Our investment approach

We apply this general investment philosophy to the specificities of each fund's investment process across our public equities and fixed income strategies. Thus, this year we have worked towards understanding and ensuring climate risks feature where it is most relevant according to each asset class, sector and geographic specificities. As mainstream investment managers, our general approach is to be aware of risks, but not be constrained by them.

Each investment strategy has a way of identifying opportunities and generating relative outperformance that is unique. The overall investment philosophy greatly influences the targeted outcome that the product is looking to achieve and how the whole investment process is carried out.

This has consequences for the integration of climate risks – in particular in identifying where within the investment process ESG integration will have the most impact and thus where we should focus our efforts. For instance, a value-oriented strategy is more likely to have significant exposure to utilities companies which are responsible for a great deal of our total carbon emissions. This translates into a potential structural tendency to be more carbon intensive than the benchmark; we seek to address this at other stages in the investment process, in particular through engagement.

We are also seeing growth in certain client mandates targeting an outright exclusion of carbon-intensive sectors, for that reason we developed a specific low-carbon mandate which limits exposure of the oil & gas industry from the portfolio, while putting an emphasis on the integration of climate risks at the portfolio construction level.



Developing a low carbon strategy at Hermes

During 2016 the Hermes Global Equities team developed a new low carbon strategy. This approach is not biased towards value, growth or quality within the investment process: each stock is systematically analysed across all of these dimensions, factoring in market sentiment towards the company, to identify those with the most attractive combinations of attributes.

With the combustion of fossil fuels being the main source of global greenhouse gas emissions, the strategy seeks to limit exposure to companies which have a material exposure to the most carbon-intensive fossil fuels. This includes companies with revenues from coal, oil and natural gas up to certain revenue thresholds including extraction, exploration and development. In addition, the strategy avoids companies operating within sectors

with recognised high negative social impact, including companies with 'material exposure' to the production or manufacture of certain non-sustainable products and are therefore not fulfilling socially-responsible criteria.

The strategy therefore includes both negative and positive screening to create a portfolio that avoids certain products and behaviours and with exposure to companies with good or improving ESG risk characteristics. Stocks with the most attractive combinations of fundamental characteristics and ESG characteristics are selected for a portfolio that aims to maximise expected risk-adjusted return. The product's objective is to outperform the MSCI World Net Index by 0.5-1.0% over a rolling-three year period with a target tracking error of 1-2%.

Idea generation and stock selection

The integration of climate risks at this stage of the process depends on how ideas are generated. Our Global Emerging Markets investment team for instance makes use of both a top-down and bottom-up approach; their top-down analysis led to removing direct exposure to the oil & gas industry partly informed by their view that long-term climate risks were too high and made the industry generally unattractive.



In Europe, for example, two companies offering wind-power generation and motor-vehicle emissions reduction technologies were identified from a bottom-up perspective. Due to their attractive exposure to low-carbon technologies, and following the expected growth in these sectors.”

Following idea generation, each investment goes through a rigorous process of fundamental analysis and valuation to validate whether it is a good potential investment. In so doing, investment teams can

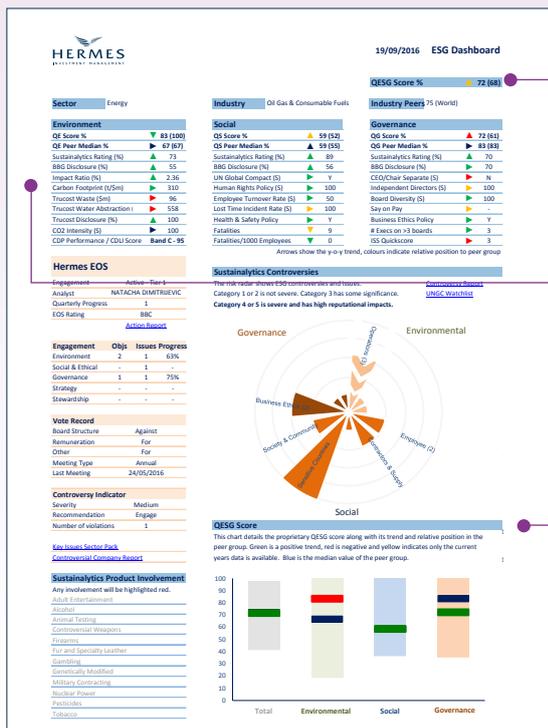
make use of our proprietary tools to analyse ESG issues, in particular our ESG Dashboard that includes, where it is available, information on carbon emissions and other environmental metrics. The QESG Score, and particularly the environmental score (QE score), shown on the Dashboard offers an objective assessment of how adequately the company is managing environmental exposures.

Environmental factors are used to identify companies that operate sustainably, with robust policies and procedures in place. The score captures companies that are exposed to less environmental risk relative to industry peers. The factors taken into consideration include the historical and current performance of the company as well as the current level and favours companies with an adequate level of disclosure around environmental risk exposures highlighting a proactive, risk-focused approach.

In addition to this quantitative input, our investment teams can also incorporate engagement insights from our stewardship team, Hermes EOS, including their specific work on climate change, in order to inform their overall understanding of the business strategy and prospects.



Hermes ESG Dashboard



Following idea generation, each investment goes through a rigorous process of fundamental analysis and valuation to validate whether it is a good potential investment.

Eoin Murray, Head of Investment, Hermes Investment Management

The QESG Score.

Information on carbon emissions and other environmental metrics.

Quantitative Environmental score (QE score) shown on the Dashboard offers an objective assessment of how adequately the company is managing environmental exposures.



Delving into the details, a material manufacturer in India

A good illustration of why looking beyond the quantitative numbers at this stage is so important can be shown in the decision to invest in a material manufacturer in India. The company was highlighted by our quantitative screens as a carbon-intensive company, but the analyst understood that

the company's products were helping automobile manufacturers decrease the weight of their vehicles, thus helping provide lower carbon emissions. The negative emissions from its own operations were therefore more than outweighed by the positive impact it was able to have through the products it is providing.

Risk monitoring and reporting

Monitoring is critical to make sure the companies we invest in continue to deliver returns and maintain an attractive ESG profile. As long term investors we recognise that companies, even those with a clear plan in place, can deviate or fail to deliver against targets.

We have developed portfolio analytics tools, including our ESG Portfolio Monitor, which analyses the ESG risk exposures and in particular environmental risk. We also actively assess the carbon footprint of each of our portfolios using data from Trucost and Bloomberg. We consider that footprint, while crude, is a useful tool for thinking about level and source of carbon risk.

Reflecting on the results of our carbon footprint exercise in 2015 and 2016 has helped us refine our understanding of what drives the level of carbon intensity of our portfolios, yielding the following conclusions for our funds:

- **Regions and benchmarks matter, but stock picking has the highest impact on the carbon footprint.** In general, emerging market benchmarks are a lot more carbon intensive than developed markets ones, but we observe that portfolios' carbon intensity don't tend to be correlated with country or regional benchmarks.
- **Investment style is a key determinant.** For example, value funds are more likely to hold utilities, which are among the most carbon intensive industrial sectors, and thus have a higher carbon footprint.
- **Sector allocation drives most of a portfolio's carbon footprint, rather than a portfolio benchmark.** Except for financial, there is a strong correlation between sector allocation and carbon intensity rather than the benchmark of portfolios.
- **Most emissions are concentrated in a very small number of companies.** Due to the concentration of emissions, engagement with our top carbon emitters can have a large positive impact.

- **Analysis of carbon footprint is a useful but imperfect tool for understanding climate change exposures.** While it allows for a useful overview of portfolio risk exposures related to climate change, it has numerous shortcomings: it is static, based on lagging and sometimes outdated data, relies on estimation models that have large margins of error, and does not take into account activities that companies can be involved in that help reduce emissions along the whole value chain, as well as future investment plans in particular business segments.



Hermes public equities portfolios carbon footprints 2016

- In aggregate, as of end of June 2016, Hermes equity and corporate bond portfolios were less carbon intensive than the relevant benchmarks. Hermes equity funds are close to 30% below the benchmark on both scopes 1 and 2 and scopes 1, 2 and 3 combined.
- On the 12 equities funds we carried out the footprint analysis on, 10 are less intensive than the benchmark for scopes 1 and 2. Of these portfolios, 8 have less than half the carbon intensity of the benchmark for scopes 1 and 2 emissions.
- This carbon footprint performance is primarily a result of underweight sector positions generally in utilities, materials and energy, the three most carbon intensive sectors. Our overall emissions are very concentrated within a small number of companies. Within individual portfolios this concentration remains, with the top 10 emitters representing over 70% of emissions.
- This concentration makes engagement easier and potentially more impactful. Following our commitment in 2015, we are engaging with our top emitters: in the equities portfolios currently 7 out of the 10 most emitting companies are covered by our engagement programme, which we will extend further to cover additional high emitters.

Engagement's positive feedback loop

Stewardship is fully integrated in our investment approach, informing our investment decisions and helping manage risk at individual companies and across markets. We aim to make sure that the most risky companies from a climate change perspective are covered by an engagement initiative whenever we think we can achieve material changes to enhance long-term value. This assessment includes a consideration of the size of our holding of the company's shares, the materiality of the risks identified and our assessment of the feasibility of success.

Our engagements enable us to better understand the carbon performance of investee companies, identify potential areas for improvement at individual companies and across markets, and ultimately make sure risks stemming from climate change and mitigation actions are fully embedded in a company's strategy. Our stewardship team broadly follow a sector-led approach and therefore actively address the material risks from climate change with an industry focus. Thus our engagement acts to encourage companies to address the pertinent risks that the company faces as well as ensuring the company is adequately communicating with shareholders about the progress and the strategy on environmental risks. Moreover, we attempt to influence the environment in which both companies and investors operate through providing input into public policy and best-practice developments that affect our activities.

Active and collaborative engagement with companies provides a positive feedback loop to the portfolio managers, companies and clients alike on progress towards achieving specific goals. Such a feedback loop provides a better understanding of the long-term value creation process within a business and a mechanism for the measurement of the intended outcomes from delivery on specific sustainability goals. Through collaborative engagement we aim to provide better alignment between shareholders and company management and encourage a focus on long-term value creation.

**Andrew Parry, Head of Equities,
Hermes Investment Management.**

We saw good progress for corporate engagement on climate change during 2016, supported by the positive momentum leading up to the ratification of the Paris Agreement. For the 12 months to the end of June 2016 our engagement programme has achieved the following:

- 86** We engaged 86 companies on climate change topics
- 52** Of which 52 companies had specific objectives against which we can measure the company's progress
- 72%** Out of our 69 climate change objectives (some companies have more than one climate change objective) 50 made progress against the milestones we have set. This equates to progress on 72% of all objectives

These objectives do not include our best-practice work. For example, we wrote to the chairs of the S&P 200 in the run up to the Paris negotiations in 2015 calling on them publicly to support an agreement. In 2016 we wrote to them to publicly support the ambition of the Paris climate change agreement.

To date, a large focus of our engagement has been on the extractive industries of oil & gas and mining. The shareholder resolutions filed with large European oil and gas companies in 2015 are bearing fruit through new disclosure of risks and mitigating actions well beyond that of prior years, though we continue to seek further transparency and activity to limit emissions.

Similar shareholder resolutions at 3 global mining companies passed with more than 95% approval. In one particular case, the company has already published a significant report on low carbon resilience. A global oil & gas company has also joined the same voluntary reporting framework and has pledged that 20% of its portfolio will be low carbon in 20 years' time following pressure from investors led by Hermes EOS. And there has been progress with similar resolutions in 3 large US oil & gas companies (co-filed by Hermes) achieving 38%, 41% and 49% approval. Leading to a positive sign for a richer dialogue in the coming years.

To support this effort we engage in best-practice activity. For example we recently responded to IPIECA's (the oil and gas industry association for environmental and social issues) consultation on climate risk reporting to re-emphasise our expectations to an important stakeholder.

In our engagement, we seek to encourage greater energy efficiency, better dialogue with ourselves and other stakeholders on climate risks and opportunities, and to encourage the companies to prepare their business models for the energy transition.

Strengthening stewardship through investor coalitions

In addition to directly engaging with individual companies, we recognise the importance of establishing cross-sector consensus for change. We have found this is most effectively achieved through collaboration with other investors. For this reason we are active members of the 'Aiming for A' investor coalition and we work with the Carbon Asset Risk Group of the Institutional Investors Group on Climate Change.

It is clear that the coming energy transition may put the fossil fuel investments of institutional investors and those of their clients at risk. To date, some fossil fuel companies appear to have seen it as their duty to preserve shareholder value by ferociously defending the ground on which their current business models operate. The paradox is that long-term focused, universal investors actually want the opposite - namely companies taking a constructive approach to the development of ambitious policy frameworks even if this leads to the inevitable shrinkage of some of their existing business activities, such as fossil fuels. Clearly dialogue and support is needed in the transition to a low carbon economy.

As part of the Aiming for A coalition of investors, we supported climate change-related shareholder resolutions at 2 European oil and gas majors in 2015 in the belief that carefully crafted, supportive but stretching shareholder proposals can play a positive role in encouraging best practice during the transition to a low-carbon economy. In 2016 we supported similar resolutions on the disclosure of asset portfolio resilience to climate change at three major diversified mining companies with the support of their boards. With the shareholder resolutions all passed, we are now working with the companies to help define the nature of the additional disclosure required to meet the requirements of the shareholder resolutions, which we believe should be part of the strategy section of their annual reports.

The shareholder resolutions put together by the Aiming for A investor coalition are helping to define a new industry standard for reporting on climate change. We believe investors who fail to vote on resolutions such as these should explain how their approach in practice is aligned with their stated commitments to seek to achieve the goals outlined by the Paris climate change agreement and their fiduciary duty to their clients.

We have also worked collaboratively through the Carbon Asset Risk Group of the Institutional Investors Group on Climate Change. For these groups we were lead-author of the reports entitled "Investor Expectations of Automotive Companies and also Investor Expectations of Mining Companies".

Finally, we have had a significant number of interactions of an advocacy nature on the issue of climate change with regulatory and other stakeholders, for example seeking a reduction of fugitive methane

in the oil and gas value chain by working with a variety of oil & gas, and investor industry bodies as well as some non-governmental organisations (NGOs).

In line with these bilateral and sector engagements, there are glimmers of hope from corporates themselves. In 2015 six of the world's largest oil and gas majors called on the UN to help set a framework to introduce carbon-pricing systems. The Oil & Gas Climate Initiative, a coalition of 10 oil and gas majors formed in 2015 to tackle climate change, now has the opportunity to further consolidate this work. We will seek to galvanise it to do so. Our task as investors is to encourage companies to work together with policy-makers. We will also need to encourage and empower companies to support policy outcomes and be flexible to scenarios which may not be aligned to their existing business models. This is our engagement challenge.



Investor Expectations of Automotive Companies – Shifting gears to accelerate the transition to low carbon vehicles is intended to enable investors to engage with the boards of automotive (and component supply) companies about their efforts to address climate change risk and place sustainability at the heart of the industry's future. Michael Viehs at Hermes was the lead author.



<http://www.iigcc.org/publications/publication/investor-expectations-of-automotive-companies-2016>



Investor Expectations on Mining Companies, provides a guide to investors to have constructive engagement with the Boards of mining companies to consider and direct more sustainable strategies with the aim of mitigating the long term risks to us as investors. Bruce Duguid at Hermes was the lead author.



<http://www.iigcc.org/publications/publication/investor-expectations-of-mining-companies-digging-deeper-on-carbon-asset-ri>

The future for corporate engagement on climate change

To date our engagements with companies have focused primarily on their management of operational emissions and on the macro level risks to the extractive industries from lower aggregate demand for coal and oil, and over a longer-term horizon for gas as well. We have also sought to align public policy objectives of companies on climate change with those of long-term investors. These objectives, together with an ongoing push for greater transparency, in particular around companies’ strategies to transition towards a two-degree world, are embodied within the Aiming for A shareholder resolutions.

Despite positive progress, the global economy, and therefore most corporate activity, remains misaligned to the desired two-degrees-or-lower goal, in large part due to the weak public policy environment. With divestment unlikely to make a significant difference, other than as a signal to policy-makers, investor advocacy must continue to become more forceful in order that momentum towards a two-degrees-or-lower world is maintained and increased.

We suggest that greater focus in corporate engagement is needed as follows:

More opportunity, less risk

Real progress has been made on carbon risk reporting and we must complete our work by establishing a new normal, through the Financial Stability Board’s Task Force on Climate-Related Financial Disclosures.

More focus on the demand side and less on the supply side

The recent focus on carbon asset risk in the extractive industries does not materially alter demand and is more about managing capital expenditure than reducing carbon emissions. To reduce demand, we must focus opportunities in new technologies and high-demand sectors, in particular the utilities and the automotive industry, together with the industrial goods players that make the world’s energy-hungry boilers and air conditioners. We also need to work to address emissions in less obvious areas, such as in agriculture, by turning our attention to food producers’ and retailers’ supply chains.

Energy efficiency step change

The biggest single opportunity for emissions reduction is not renewables, but energy efficiency. To achieve two degrees or lower, we must move from business-as-usual reductions to more strategic, sometimes higher-investment projects, which may be justified by their more predictable savings. The obvious initial focus is the more energy intensive sectors such as steel or chemicals.

New approaches to public policy engagement

Companies are a powerful lobbying force and often have deep insights into the pitfalls of regulatory change. As investors we must therefore not only neutralise any anti-climate change lobbying, but seek to harness companies as a positive force for change. This may not always be easy and calls for some reflection on the best approaches, potentially involving the formation of new alliances and with new incentives.

Bringing together the different strands of our carbon approach



Identifying and monitoring positive impacts in a Danish utility company

Our approach to identifying and monitoring positive change within companies is well illustrated with a Danish utility company held by our Global Equities team. The company has signalled its clear intention to move its business model over the next decade from one focused on traditional fossil fuels towards one more focused on renewable energy. Its market capitalisation of over US\$15 billion allows large investors to have a meaningful participation in the transition to a greener economy.

The company was founded in 2006 when, as a traditional oil and gas company, it merged with five power utilities. Today the most carbon-intensive fossil fuels are seen as a non-core business segment with legacy assets being managed to maximise cash returns. Instead, the main focus of the company is its fast growing offshore wind farm business that is expected to grow from producing a third of EBITDA today to 80% in 2020. Over this same period, the contribution from the oil and gas segment will shrink from over half the business to less than 10%. The strategy to run down the oil and gas assets is value and cash-flow enhancing.

The company's size as the largest developer of wind farms globally makes it very competitive. Typically it sells 50% of the interest in a wind farm prior to completion to crystallise the value of its projects. This strategy reduces the risk for investors and increases the visibility of its cash-flows. There is strong demand to invest in wind farms from infrastructure investors looking for stable yields – indeed we have a number of such investments ourselves.

In our investment process we rank our companies by assessing their financial attractiveness and ESG risk factors. For this company we expect a return on capital of approximately 15%, approximately 5% higher than its legacy business. The company's financial visibility is very clear through to 2020. We expect the company to start paying a dividend in 2017 of 2.5%, with steady growth thereafter.

Historically, the company has predominantly used coal in energy production. With its focus on wind power, together with a smaller contribution from biomass, the carbon intensity of their production is expected to decline from 638g CO₂/KWh to 260g CO₂/KWh by 2020. Excluding companies with hydro exposure,

This utility company has the highest percentage of renewables in the energy mix of any European integrated utility company. The company's corporate governance is also strong with good transparency, a separate CEO and chair, a high level of board independence and almost forty percent female board representation – all positive indicators.

It is this combination of financial attractiveness and a strong ESG profile that informed our decision to buy into the company. While our investment case is dependent on a favourable regulatory environment and power prices, thus far the company has shown excellent project management skills and we expect this to continue to deliver value in the long term.



<10%

contribution from the oil and gas segment will shrink from over half the business



260g

carbon intensity of their production is expected to decline from 638g CO₂/KWh by 2020.



50%

of the interest in a wind farm sold prior to completion to crystallise the value of its projects.



2.5%

steady growth after initial dividend payment in 2017.



Managing high carbon exposure in a Korean electricity company

A Korean electricity generation company identified by our investment teams as attractive both in terms of quality and valuation provides a good insight in the balance needed when dealing with high carbon intensive companies.

This company is not only the highest emitter of carbon emissions across our portfolios, it is also one of the highest emitting companies in Asia. This is in large part due to its heavy reliance on coal-fired power plants, representing 39% of its power generation which has put the company under scrutiny in South Korea as a cause of air pollution in the country.

At first glance, this company does not therefore appear to fit neatly with our ascribed ambitions for being carbon aware. Our analysis of the company highlighted some mitigating factors, however. With the government controlling the majority share, the company is working on delivering Korea's national energy plan of reducing carbon emissions by 30% by 2020 versus business as usual. The Korean government also has plans to develop more renewable energy, which is currently under 5% of the energy mix of this company.

Aligned with our approach, our stewardship team has been engaging with this company since 2013, with a main focus on governance and reporting. We closely follow the company and carried out six engagement actions undertaken across five engagement issues in 2016.

To date the company has appeared to be on track to deliver the 30% emissions reduction target for 2020. As this deadline approaches, we will increase our engagement to seek to ensure that this is delivered and to discuss longer-term plans.



39%

coal-fired power plants, representing 39% of its power generation



30%

target to reduce 30% emissions by 2020

SECTION 4

Capturing climate risks and opportunities in private markets

As in public markets, our preferred approach to manage carbon risk is to utilise our rights and leverage as an owner or shareholder of those assets and companies in which we are invested in order to influence practice and strategy.

Throughout 2016 our private markets teams continued to work on deepening the understanding of climate risks and strengthening the collection and distribution of appropriate data and knowledge to enable more informed decisions when making investments in real estate, infrastructure or private equity.

Integrating carbon risks in real estate investment process

Carbon risk management is particularly relevant for real estate as buildings consume around 40% of the world’s energy and contribute up to 30% of its annual GHG emissions, and because the sector offers some of the most cost-effective opportunities to implement low carbon solutions. Our approach goes beyond regulatory requirements, driven by our belief that a responsible strategy impacts real estate investment fundamentals, from rents, value, obsolescence, voids, to occupier satisfaction. Thus, real estate investors will be particularly affected by tightening regulation. Given our position, we see that we have a fiduciary duty to play our part in supporting the emissions reduction goals set out in the Paris Agreement.

In 2016 we focused on how to move from risk management to delivering positive climate impacts through carbon emission reductions and scaling-up of energy efficiency measures.



Hermes real estate carbon targets and performance

In our real estate funds we predominantly directly own and manage assets, and since 2006 we have therefore set long-term carbon emission reduction targets and integrated carbon management across our investment and asset management process.

Our real estate investment processes integrate carbon risk management along the length of the value chain. At acquisition our due diligence process includes a comprehensive climate risk assessment, from physical impacts and adaptation strategies, to refurbishment needs and budgets to bring the asset up to our minimum sustainability and energy efficiency requirements. During active management we have a detailed active property management programme that monitors and manages energy and utilities consumption, and, working with occupiers, identifies areas for improvements. Our responsible refurbishment and development guides set minimum requirements for building quality and energy and utility efficiency in order to ensure that our buildings feature ambitious green building characteristics driven by their location and supported by market demand.

Climate mitigation and adaptation is naturally applicable to real estate as we invest in the development of urban infrastructure. Through such developments we can ensure that we encompass the needs of today's local communities as well as those of future users of the places we build and the wider environment. Integrating climate mitigation and adaptation measures as part of the development process offers the best way to future-proof both urban infrastructure and long term investment returns.

“The way to future-proof buildings – for the benefit of our investors – is to make sure they are located within a sustainable, socially inclusive environment. It’s not the individual building itself that is important, but the broader amenity value associated with its location in terms of the accessibility to infrastructure and public realm. You need only look at the great estates of London to understand that they have endured because the integrity of the estate has been maintained as much as the buildings, therefore the wider estate is more valuable than the sum of the parts.”

Chris Taylor, Head of Private Markets, Hermes Investment Management

Real Estate carbon emissions footprint and performance

Our carbon reductions performance:



55%

carbon intensity reduction (kgCO₂/m²) in offices including occupiers since 2006¹⁰



25%

carbon intensity reduction (tCO₂/m²) in shopping centre common areas since 2006



7%

annual carbon emissions reductions on average per year since (tCO₂) since 2006

While our absolute carbon footprint since 2006 has increased for our standing portfolio by 20% (carbon emissions equated to just under 30,000 tCO₂ in 2015) we also have more than twice as many assets and square meters being managed in the portfolios today. As such we have decoupled the emissions increase from the growth of our assets.

Pleasingly, we have seen continuous carbon intensity improvements within our standing portfolio, with a 55% carbon intensity reduction (kgCO₂/m²) in offices including occupiers since 2006¹¹ and a 25% carbon intensity reduction (tCO₂/m²) in shopping centre common areas. Additionally, over 50% of the properties in the portfolio have seen a decrease in energy intensity during the period 2014 to 2015.

Through the Better Buildings Partnership Real Estate Environmental Benchmark (REEB) we are able to analyse the actual energy performance of our assets compared to a peer group of UK real estate investors and thus the relative effectiveness of our programme. For our office portfolio we were third in the BBP REEB league table in 2015 and our average benchmark was more efficient than the REEB good practice benchmark. This detailed benchmarking enables us to analyse our performance asset by asset and concentrate our resources on the lowest performing assets.

Based on our internal analysis, since the baseline year in 2006, Hermes' like-for-like portfolios, composed of those assets we have held for more than eight consecutive quarters, have achieved annual carbon emissions reductions on average of 7% per year. For 2015 the like-for-like portfolio has seen an 11% reduction in emissions with associated energy savings of £25,000 across the portfolio. Electricity was reduced by 6% and natural gas consumption decreased by 4%, when normalised for weather conditions.

These numbers reflect our operational performance beyond acquisitions and refurbishments. The results were achieved partially through continued reductions in energy consumption and also due to a decrease in electricity and natural gas annual emissions factor representing the decarbonisation of the grid.¹²



From climate risks to positive impacts: time for action" Hermes Responsible property investment report 2016



<https://www.hermes-investment.com/uki/blog/perspective/climate-risks-positive-impacts-time-action/>

¹⁰Where we have the ability to delineate between owner and occupier's areas, we report separately owner data, where this is not possible we have included occupier's data.

¹¹Data Re-statement: *2014 office data point has been re-stated due to a correction in floor area.

¹²NOTE: In 2015 the official Defra emissions factor for grid electricity in the UK decreased by 6% compared to 2014, this has played a part in the decrease of reported emissions for the year.

Carbon efficiency delivering positive impacts

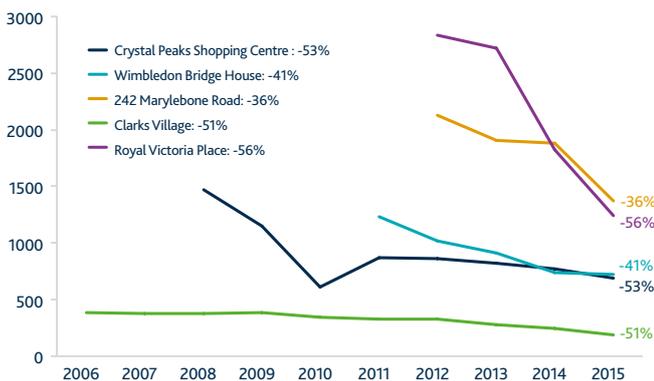
Assessing carbon risk at acquisition

The market conditions in the last three years have led to a large number of acquisitions into existing funds and newly established funds. Overall, three of our newly acquired assets – Aldgate House, Finsbury Tower and Chiswick Tower – accounted for over half of the total emissions from all the new assets. Our risk assessment enabled us to identify this and take mitigating actions through analysing the building characteristics and the investment plan for each asset. As a part of the investment survey, sustainability improvements were identified and integrated into the future investment plan for these assets, whether in refurbishment budgets or in the property management programme.

Positive impact of active management

The chart below shows the performance of five buildings representative of the type of buildings we manage. It demonstrates the impact of a successful implementation of our Responsible Property Management approach. Previously these properties were energy intensive assets. Now, through engagement with occupiers and active management by our property managers, significant reductions in operational demand have followed. Since 2012 collectively these properties have reduced their emissions by 41% equating to a saving of 2,950 kgCO₂e.

Changes in absolute carbon emissions for selected landlord controlled properties across the portfolio that have delivered efficiency savings following acquisition and active management by Hermes (tonnes of CO₂e/year). Percentage figures below compare 2015 with the acquisition year.



242 Marylebone Road

At Marylebone we implemented an array of asset improvements including installing LEDs and microwave occupancy sensors in common areas to reduce electricity use and converting to waterless urinals. The latter of these initiatives achieved a saving in excess of 4,000 cubic metres of water per year, a 59% reduction in water use compared to the year before. Energy management has also played a vital role, optimising plant running times through incremental improvements and tenant engagement. In the two years since the property joined the responsible property management programme, this site has achieved a 36% absolute reduction in carbon emissions.



Royal Victoria Place Shopping Centre

At Royal Victoria Place Shopping Centre, an active management program has turned around the energy performance of the asset, moving it away from its position as the worst performer in the UK operational benchmark (the Better Building Partnership Real Estate Environmental Benchmark) when Hermes Real Estate acquired management control. The energy management programme includes a large engagement programme reaching out to employees and tenants. This is coupled with a thorough review of all site equipment consuming energy and the 'turn off' campaign. It has resulted in an extensive initiative to decommission selected appliances and active management of other equipment to ensure effective utilisation patterns. This has delivered outstanding performance of over 56% carbon emission reductions. Using the savings achieved through the energy management programme, a staged LED roll-out programme was developed using the surplus funds generated from the energy savings.

Putting energy efficiency regulation to work

The UK implementation of the EU Energy Efficiency Directive has led to a requirement for large undertakings in the UK to do energy efficiency audits. Faced with the new regulation we chose to build on a number of existing initiatives implemented over the last few years to carry out assessments and define energy efficiency plans for all the major energy consuming buildings in our portfolio.

During 2015 and 2016 we set up a systematic process to assess which of a series of 23 typical energy saving opportunities were relevant and cost-effective to implement in our largest energy consuming assets, which represent 90% of our energy consumption. We assessed whether each opportunity was already implemented or was feasible, and identified and integrated those aligned with the building's business plan into the asset management plan along the investment life-cycle of each asset.

Real estate investment climate action framework

Given the major role that real estate investors can play to drive the transition to a low-carbon economy, and in the process better protect the future value of real estate investments, a coalition of six leading investors organisations – UNEP Finance Initiative, Principles for Responsible Investment (PRI), Royal Institute of Chartered Surveyors (RICS) and the Investor Climate Coalition members from Europe (IIGCC), North America (INCR Ceres) and Australasia (IGCC)¹² – published a practical framework for real estate investors and their professional advisors defining a clear set of steps and the actions they

need to take to integrate climate and environmental, social and governance (ESG) risks and opportunities within their standard business processes. Hermes was one of the lead authors of this report. With this framework now available, real estate investors have no reason to delay taking concrete steps to transform their routine business practice so that it addresses the climate and ESG challenge across the investment supply chain.

Sustainable Real Estate Investment

Implementing the Paris Climate Agreement: An Action Framework

Audiences
Real Estate Investors

Owners & Advisers
Direct Investor
Equity, Bonds, Debt
All

WHY USE THIS GUIDE ?

- Explains how informed and active asset management around climate and ESG represents a clear business opportunity.
- Emphasises the physical impacts of climate change and highlights the potential socio-economic benefits of integrating climate and ESG.
- Offers a Framework for all enabling alignment along often complex supply chains, as there is no size barrier for organisations addressing ESG and climate risks.
- Provides investors with guidance from inquiry and disclosure to prescriptive requests focusing on performance.
- Distils material from many sources into one guide that is easy to use and helps every type of real estate investor make sense of available resources.

STEPS

MUST DO ACTIONS

STEP	Execution: Integrate ESG & climate in Investment Strategy				Alignment: Advisers and consultants selection process	Feedback loop: Monitoring & Reporting	Market Engagement
1	Strategy: Develop ESG & climate Strategy	Owners & Advisers	Direct Investors	Equity/Bonds Debt	ESG in selection requirements: Require proven knowledge of sustainability set clear and prescriptive ESG expectations.	Monitor delivery of ESG and climate strategies and targets, focusing on impact to value using Sustainability Management Systems.	Engage on public policy with sector organisations to ensure regulation matches with market needs.
2	Assess material risks and opportunities that impact value.	Passive mandates: Base selection on sustainability benchmarks and green property ratings.	Include ESG in investment calculations, due diligence with targets for green certification & benchmarking.	Equity/REITs: Select managers with proven active investment approaches. Be active in engagement & proxy voting.	Include ESG and climate expectations and targets in legal contracts for investment mandates & service agreements.	Report performance to clients and the public, on agreed frequency, using recognised industry standards.	Support research initiatives to understand risks and integrate ESG.
3	Develop ESG and climate strategy based on materiality and value assessment.	Active ownership: Prefer investment managers with proven active management approaches.	Active Management: Clear set of ESG, community and climate targets and minimum requirements for green developments.	Bonds: Require green property bonds to be certified by recognised standards and information on assets' sustainability performance.	Incentivise and reward contractors based on delivering sustainability goals.	Contribute to sustainability benchmarking at portfolio and operational levels and assess performance results.	
4	Set ESG and Climate targets at all levels of the investment process and across the supply chain.	Active engagement & proxy voting: Require equity and REIT investors to use shareholder power.	Supply Chain: Work with occupiers to address split incentives and include ESG in sub-contractors agreements.	Debt: Integrate ESG in due diligence at transaction, valuation assessment and include in loan documentation.			

RECOMMENDED RESOURCES

Investing in a time of climate change' Mercer 2015	'The 21st-century investor-ceres blueprint for sustainable investing' Ceres 2013	'Advancing Responsible Business in Land, Construction and Real Estate Use and Investment' RICS / UN Global Compact, 2015	Developing an asset owner climate change strategy' PRI 2015	ICGN model mandate initiative ICGN 2012	'G4 Sustainability Reporting Guidelines: Construction and Real Estate Sector Disclosure' GRI 2015, Global.	PRI Policy Frameworks for Long-Term Responsible Investment: The Case for Investor Engagement in Public Policy' PRI 2015, Global
Developing an asset owner climate change strategy' PRI 2015	'Advancing Responsible Business in Land, Construction and Real Estate Use and Investment' RICS / UN Global Compact, 2015	'Trustee's Guide: Protecting value in real estate through better climate risk management' IIGCC 2014	Climate Change Investment Solutions Guide' IIGCC 2015	Aligning expectations: guidance for asset owners on incorporating ESG factors into manages selection, appointment and monitoring' PRI 201	'PRI reporting framework - Asset Owners, Direct, Equity and Debt investments' PRI, Global	
Climate Change Investment Solutions Guide' IIGCC 2015	'Trustee's Guide: Protecting value in real estate through better climate risk management' IIGCC 2014	'Assessing climate change risks and opportunities for investors: Property and Construction Sector' IIGCC 2013	The 21st-century investor-ceres blueprint for sustainable investing' Ceres 2013	'Sustainability metrics: transition and impact on property investment and management' UNEP FI et al 2014	'Global Real Estate Sustainability Benchmark' GRESB 2015 (annually)	
The 21st-century investor-ceres blueprint for sustainable investing' Ceres 2013	'Investing through an adaptation lens' IIGCC 2015	'Unlocking the energy efficiency retrofit investment opportunity' UNEP FI 2014	Green Property Bonds Standards, Climate Bonds Initiative 2015	'Greening the building supply chain' UNEP SBCI 2014, Global	'Sector led operational benchmark and indices for Direct Investors, Real Estate Companies and their Advisers	
'Investing through an adaptation lens', IIGCC 2015		'Sustainability and commercial property valuation - Professional Guidance Note, Global', RICS 2013	Green bond guidance for real estate sector' GRESB	'Global Real Estate Sustainability Benchmark' GRESB 2015 (annually), Global		

www.unepfi.org/fileadmin/fileadmin/docs/SustainableRealEstateInvestment.pdf

¹² IIGCC Europe www.iigcc.org, INCR Ceres US www.ceres.org/investor-network/incr, PRI [https://unpri.org](http://unpri.org), UNEP FI www.unepfi.org and RICS www.rics.org/uk.

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Climate risks, resilience and opportunities in Infrastructure

With respect to infrastructure, risk is primarily addressed through direct engagement with the management team that operate the assets. The fact that we take significant stakes in assets provides us with a governance role and in turn the ability to influence strategic risk management. During 2016 we continued to define a more detailed ESG and carbon risk profile for our individual assets. Through engagement with our infrastructure assets we were able to gain a good understanding of both their carbon footprint exposure and assessment of their carbon risk strategies.

Responsible investment is a fundamental pillar of Hermes Infrastructure's investment philosophy. We aim to ensure that each asset within our portfolio is working to make a positive and meaningful contribution to the wider social and environmental agenda, with our renewable energy assets being a primary example. We work closely with key stakeholders and management to ensure companies are focusing on environmental impacts.

Recognising future trends is an important part of ensuring an asset's long-term sustainability and profitability. Today decarbonisation of the environment is a clear societal trend, with the longevity of an asset now inextricably linked to its environmental credentials. Decarbonisation has also resulted in the increasing role of renewable energy in supplying the nation with power. This is an area well understood by Hermes, with a number of onshore wind farms and solar energy assets in our current infrastructure portfolio. Other industries such as rail transport, ports and energy metering offer similar opportunities.

In infrastructure, the UK Government's introduction of a comprehensive policy framework to encourage and support renewable energy investment created the opportunity to invest in attractive assets that possessed the desired investment characteristics and also contributed to the decarbonisation of the UK economy.

Reviewing climate risks

In the last year, Hermes Infrastructure has undertaken a portfolio-level review of climate risk, resilience and opportunities leading to continued development of our strategic engagement priorities in this area. By benchmarking against the Summer 2016 UK Climate Change Evidence Report that was commissioned by the government, Hermes Infrastructure has identified:

- The key potential risks to our portfolio, including direct asset damage and business interruption caused by extreme weather events (including flooding, extreme heat, extreme cold and/or water shortages);
- The key opportunities, including increased demand for energy efficiency related goods, services and technology, continued funding and subsidies for clean energy;
- The potential impacts of the decarbonisation agenda on future investments, such as the impact of a potential carbon price increase on energy intensive sectors.



Associated British Ports

In 2015 we acquired a 40% stake in Associated British Ports ('ABP') in conjunction with the Canada Public Pension Investment Board ('CPPIB'). ABP is the UK's leading ports group, which owns and operates 21 ports in Great Britain which account for 30% of the value of UK exports of goods through seaports¹³. As well as undertaking the direct delivery of port services, ABP also follows a 'landlord ports' model at some of its ports.

The ports industry offers both risks and opportunities in the context of the decarbonisation agenda: ports have until recently imported huge quantities of coal to supply coal fired power stations, but as these are phased out, coal volumes are declining. New methods of power generation have therefore provided an opportunity to reconfigure port utilisation. This is well illustrated by ABP-owned Ports of Hull and Immingham, which now have state-of-the-art handling facilities for biomass

imports to supply the Drax power station in North Yorkshire. Drax now provides about 7% of the UK's electricity supply from its generation facilities.

There is a tie-in too between renewable energy and the UK's port industry, with a growing number of offshore wind farms requiring access via ABP ports. ABP has partnered with Siemens, alongside Hull City and East Riding Councils to promote the investment and development of a dynamic renewable energy sector in the Humber region, including the landmark Siemens facility, Green Port Hull. ABP also has a number of prime development sites in Queen Elizabeth Dock and at nearby Paull that are ideally placed to support the renewables industry, with the 230 hectare site at Paull capable of housing major manufacturing sites that can be linked by secure road or rail to the rest of the port estate.

¹³ IIGCC Europe www.iigcc.org, INCR Ceres US www.ceres.org/investor-network/incr, PRI <https://unpri.org>, UNEP FI www.unepfi.org and RICS www.rics.org/uk.



Energy Assets Group

Our recent investment in Energy Assets Group, which provides advanced metering services to monitor energy usage across the industrial and commercial sector in the UK, is a further example of our approach to investing in socially important activities that benefit our clients through long-term sustainable real returns, while simultaneously benefitting consumers and the environment. The group generates a high proportion of its revenue by leasing advanced metering and data recording

devices which are required to be installed as part of the UK Government's mandatory programme to replace existing older generation utility meters. The advanced meter roll-out programme will help to provide consumers, suppliers and the energy system operators with detailed, real-time information in respect of energy usage and system demand profiles. Energy regulator Ofgem believes this should drive real energy efficiency gains across the energy sector.

Assessing carbon footprints and strategies

Of Hermes Infrastructure's direct portfolio, 97% of assets under management (AUM) measure and share carbon footprint data. Assets representing 79% of the total direct portfolio have carbon emissions targets and a carbon policy, whilst the remaining 18% are renewable energy assets that offset carbon as a primary function. The wind farm assets, Fallago Rig and Braes of Doune, offset a combined 260,000tn of carbon dioxide each year. The water management assets publicly disclose their greenhouse gas emissions on their websites using the annually updated UK Water Industry Research Carbon Accounting Workbook (CAW). Eurostar reports on carbon emissions and progress against its set goal to reduce carbon dioxide emissions by 35% per traveller journey, last renewed in 2011.

Hermes Infrastructure continues to work with the management teams of each of our investments to assess the impacts of their carbon emission data and strategies, and ensure climate risk is being considered and managed, where relevant. We also continue to review our overall carbon and climate change risk framework and carbon footprint data collection in the knowledge that there is scope for continuous improvement over time in response to changing expectations, technology and other circumstances.

While all infrastructure assets have different risk return profiles, the asset class demonstrates attractive investment characteristics due to the essential services provided by infrastructure being largely inelastic to demand, economic cycles and other influencing factors. Ensuring the sustainability and climate resilience of our assets through our own responsible ownership and governance and awareness of future trends, allows infrastructure investors like ourselves to generate stable returns for our clients while providing beneficial outcomes for a range of stakeholders and arguably society as a whole.

“ Today, decarbonisation of the environment is a clear societal trend, with the longevity of an asset now inextricably linked to its environmental credentials. ”

**Peter Hofbauer, Head of Infrastructure,
Hermes Investment Management**



Our wind farm assets offset a combined 260,000 tCO₂ per annum, equivalent to the annual emissions of roughly 26 thousand UK citizens.

Surveying climate engagement in Private Equity

Within our private equity business, Hermes GPE LLP ('Hermes GPE'), we continue to grapple with the problem of how best to measure carbon risks and our carbon footprint across a portfolio of numerous and relatively small private companies. Given the nature of these investments, which are typically made on a co-investment basis alongside a lead investor, identifying and accessing data that will enable us to establish a carbon footprint and carbon risk exposure continues to be a challenge. As a result, we have commenced pilot initiatives that will inform the future design and implementation of more accurate and widespread data capture programmes.

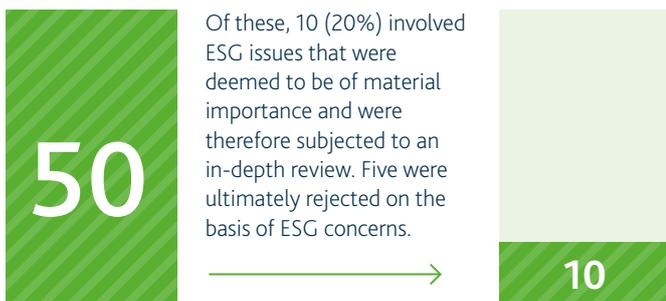
In 2016 the focus of our work was on assessing ways to best measure risks through an in-depth review of co-investment opportunities and conducting a pilot 'climate risk' survey across a sample of funds and companies within our portfolio.

Reviewing ESG and carbon risks integration

During the first half of 2016, Hermes GPE implemented a comprehensive review of its approach to assessing the ESG credentials of investment opportunities. The resultant framework was developed by integrating industry best practice with deal-team experience. It outlines a comprehensive staged process through which deal teams work with lead investors and target companies to:

- Identify existing and potential ESG risks and opportunities;
- Develop a plan to address these;
- Ensure that sufficient resources are in place to implement the plan;
- Establish ongoing monitoring, engagement and reporting on progress against the plan.

In the 12 months to 31 August 2016, the deal team conducted an in-depth review of 50 co-investment opportunities.



Climate risk survey

While typically challenging to quantify, assessment of carbon risk forms an important part of our ESG review and is a topic around which we plan to increase portfolio engagement. For instance, during Q3 2016 we conducted a pilot 'climate risk' survey across a sample of funds and companies within our portfolio. Interestingly, the results revealed that 80% of fund managers assess the risks and opportunities of climate change on existing and new investments, while 60% engage and work with their portfolio companies to factor climate change risks and opportunities into business processes and strategy. Sixty percent of the companies that responded actively assess the possible legal, financial and commercial impacts of climate change on their business, with 40% and 20% measuring their direct and indirect carbon footprint respectively. We intend to build on this pilot survey as a means of assessing risk levels across our wider portfolio, while also continuing to drive engagement with the lead investors and co-invested companies on the topic.

As a firm, we believe that environmental issues such as climate change are disrupting almost all sectors and, consequently, catalysing compelling investment opportunities.

Peter Gale, Head of Private Equity and CIO, Hermes Investment Management

Most notably, we have sought to pursue these through the Hermes GPE Environmental Innovation Fund ('HEIF'), which was established in 2010 to invest in high-growth potential opportunities in the environmental technology sector. In particular, the fund holds investments in the low carbon and cleantech industries focusing on energy and resource efficiency including the low carbon, advanced materials, waste and water segments.

Hermes GPE has a long-standing commitment to the Principles for Responsible Investment and has positioned itself as a leading proponent of ESG integration within private markets investing. The question of how to measure carbon risks and carbon footprint effectively across our portfolios is a key area of focus for us and we will continue to develop our approach over the coming year.



Hermes Environmental Innovation Fund



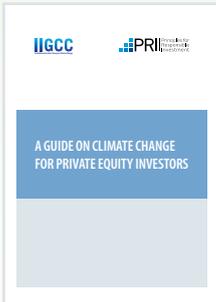
£118m

HEIF completed its investment period in December 2015 with £118 million committed across 11 funds and 10 co-investments (two now exited). While the sector has faced a number of challenges over the past five years, many of the fund's portfolio companies boast highly compelling offerings and are now growing extremely quickly. For instance, one portfolio company utilises a major waste stream to produce an advanced material in demand across several markets. Another provides innovative solutions that are designed to enable large industrial and commercial entities to dramatically improve water consumption efficiency while reducing waste water output. The adoption drivers, both economic and environmental, are highly compelling and likely to become more so as the impacts of climate change become increasingly pronounced.

Developing sector wide guidance

We acknowledge there is a need to support and increase the uptake of climate risk assessment, integration and disclosure in the private equity sector. In 2016 we contributed to the development of guidance on this area with the Principles for Responsible Investment (PRI) and the Institutional Investment Group on Climate Change (IIGCC).

The Guide on Climate Change for Private Equity Investors, published by IIGCC and the PRI, is aimed at institutional investors who are limited partners (LPs) in private equity funds or private equity fund general partners (GPs) managing such funds. The framework presents a series of questions that LPs can ask their GPs, and that GPs can ask current or potential portfolio companies. Each question is supported by guidance explaining the rationale of the question, along with examples of emerging practices. The questions address four key aspects of climate change and private equity investment.



A guide on climate change for private equity investors

 http://www.iigcc.org/files/publication-files/IIGCC_Private_Equity_v27.pdf

SECTION 4

Time to challenge economic and financial models

While there has been positive progress in the last couple of years on both the policy agenda and the action by investors to understand and define what and how a decarbonisation of investment can start to take place, much remains to be done.

We believe that to ignore carbon risk is to ignore valuation threats to portfolios. The challenge going forward is how to bring the issue more explicitly into the way we and the finance industry operate. Within an investment industry driven by market benchmarks, investment decisions tend to be short term and aligned with the mainstream average. In this context, it is challenging to incorporate longer-term climate externalities into today's investment models. What seem like attractive investment decisions or apparently sound capital expenditures in the short run might lead to stranded capital trapped in unviable assets in the longer-term. Similarly some investments which do not pass the short-term investment tests today, can deliver good performance in longer terms.

To enable an informed decision on assessing the risk to value is crucial, and requires relevant and accurate data. Improvements in the quality and quantity of data on carbon risks are needed to enable more finely-tuned integration and a better assessment of the risk to value. We are hopeful that in time the work of the G20 Financial Stability Board will contribute to overcoming some of these challenges.

More fundamentally, the question is how to review the benchmarks being used by the industry to account for a wider range of risks and opportunities within longer timeframes.

■ ■ Thus, we need to challenge the current economic and financial models used by the investment industry if we are to ensure that the world does not breach the scientifically guided objectives we have set for ourselves on climate change. ■ ■

**Tatiana Bosteels, Director Responsibility,
Hermes Investment Management**

Investor advocacy must become more forceful in order that momentum towards a two-degree-or-lower world is maintained and increased. Greater focus is needed in the future with more focus on opportunities and less on risk, and more focus on the demand side and less on the supply side: to reduce demand we must focus on opportunities in the high-demand sectors and turn our attention to less obvious sectors such as food producers' and retailers' supply chains. A step change in energy efficiency is possibly the biggest single opportunity to achieve emissions reduction. Finally, companies' lobbying as a positive force for change should be harnessed to generate new approaches to public policy engagement.

In the current political context many uncertainties remain. One should not underestimate that considerable uncertainty about policy implementation and the pace of technological innovation could affect the timing and magnitude of the transition to a low-carbon economy. This will be particularly important to follow in the coming years, including how the new US federal administration influences the climate policy agenda.

We will report again in December 2017 on our decarbonisation activities, but would be happy to discuss our approach further with clients and fellow investors in the meantime.

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Multi asset

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London | New York | Singapore

Contact information



Business Development

United Kingdom	+44 (0)20 7680 2121	Africa	+44 (0)20 7680 2205	Asia Pacific	+65 6850 0670
Australia	+44 (0)20 7680 2121	Canada	+44 (0)20 7680 2205	Europe	+44 (0)20 7680 2121
Middle East	+44 (0)20 7680 2205	United States	+44 (0)20 7680 2205		

Enquiries marketing@hermes-investment.com

