

Impact case study (REF3)

Institution: University of Oxford		
Unit of Assessment: 14 – Geography and Environmental Studies		
Title of case study: Mainstreaming Net-Zero Emissions in Investment and Business Strategies		
Period when the underpinning research was undertaken: 2007-2019		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s): Cameron Hepburn Myles Allen	Role(s) (e.g. job title): Professor of Environmental Economics Professor of Geosystem Science	Period(s) employed by submitting HEI: Since 2005 Since 1997
Period when the claimed impact occurred: 2018- December 2020		
Is this case study continued from a case study submitted in 2014? N		
<p>1. Summary of the impact (indicative maximum 100 words) Research on the dynamics of climate change over time and their implications for net zero investment, led by Cameron Hepburn and Myles Allen, has underpinned three principles for climate-conscious investment in the fossil fuel industry: committing to net-zero emissions, developing a profitable net-zero emissions business plan, and setting quantitative mid-term targets. The adoption of these principles has so far resulted in changes in the investment strategies of three global investment managers and the business development strategies of two major fossil fuel companies (BP and Shell). It has also led to changes in the thinking and strategic action regarding institutional investment among several actors in the city of Oxford.</p>		
<p>2. Underpinning research (indicative maximum 500 words) Since its 5th Assessment Report (AR5) published in 2013, the Intergovernmental Panel on Climate Change (IPCC) has emphasised that stabilising global temperatures and remaining with the available global carbon budget requires net CO₂ emissions to fall to zero. The importance of 'netzero' was reinforced in the 2015 Paris Agreement, which stipulated a global target to 'achieve a balance between anthropogenic emissions by sources and removal by sinks of greenhouse gases' to limit global warming to 1.5°C above pre-industrial levels. Estimates of the remaining global carbon budget in AR5 were heavily influenced by research undertaken by Allen and colleagues [R1]. Nonetheless, subsequent work by Allen and team showed that AR5 had significantly underestimated the available carbon budget and provided more accurate estimates [R2]. These were included in the IPCC's Special Report on Global Warming of 1.5 °C from 2018.</p> <p>The revised estimates opened up greater opportunities for investors and businesses to contribute to 'netzero' through changes in long-term investment decisions. In R3, a research team led by Hepburn used AR5's estimated carbon budget to identify the '2°C capital stock' – the global stock of infrastructure which, if operated to the end of its regular economic life, implies global mean temperature increases of 2°C or more (with 50% probability) – for the electricity sector. This led them to argue that policymakers and investors should question the economics of new, long-lived energy infrastructure involving positive net emissions and adapt long-term investment accordingly. Subsequent research (2015-2016) that further integrated the strands of research led by Allen [R1, R2] and Hepburn [R3] set out to provide the fossil fuel industry, its investors and its customers with an agreed set of principles, guidelines and compliance protocols around net-zero investment. They sought to ensure that continued investment in the fossil fuel sector avoids both dangerous climate change and prohibitively expensive mitigation or remediation measures in the future. Three principles delineating financially prudent and ethically acceptable investment in fossil fuel assets were developed. Published as the Oxford Martin Principles for Climate-Conscious Investment, they were kept "as simple as possible, while remaining true to the underlying climate science" [R5]:</p>		

- 1) *Commit to net-zero emissions*: Compliant companies should commit to a date or magnitude of temperature increase by which they will eliminate the net emissions associated with their activities. The commitment also relates to upstream and downstream emissions, such as those resulting from fossil fuel products burned by customers.
- 2) *Develop a profitable net-zero business plan*: As a test of the plausibility of commitments, this principle encourages investors to weigh current and future capital expenditure against what would be needed to achieve the firm's net-zero business model. It also seeks to preclude recognition of emissions targets unsupported by formal plans to achieve them.
- 3) *Set quantitative mid-term targets*: This provides a means of external verification of a firm's progress towards their commitment. Differences in medium-term targets may reflect the relative challenges different industries face in decarbonisation, although all sectors must ultimately reach net-zero if temperatures are to be stabilised.

Following the publication of the Principles in January 2018, a working paper provided direction to investors wishing to apply the Principles to their investment portfolios [R5]. The Principles were also applied to 132 of the world's largest public coal mining, electricity and oil and gas companies to survey the state of alignment with the Paris Agreement in these industries [R6].

3. References to the research (indicative maximum of six references)

R1: Meinshausen, M., Meinshausen, N., Hare, W., Raper, S.C.B., Frieler, K., Knutti, R., Frame, D.J., **Allen, M.R.** (2009) Greenhouse-gas emission targets for limiting global warming to 2°C. *Nature* 458(7242), 1158-1162. <http://doi.org/10.1038/nature08017> [output type: D]

R2: Millar, R.J., Fuglestedt, J.S., Friedlingstein, P., Rogelj, J., Grubb, M.J., Matthews, H.D., Skeie, R.B., Forster, P.M., Frame, D.J., **Allen, M.R.** (2017) Emission budgets and pathways consistent with limiting warming to 1.5°C. *Nature Geosciences* 10, 741-747. DOI: 10.1038/ngeo3031. <http://doi.org/10.1038/ngeo3031> [output type: D]

R3: Pfeiffer, A., Millar, R., **Hepburn, C.**, Beinhocker, E. (2016) The '2°C capital stock for electricity generation: committed cumulative carbon emissions from the electricity generation sector and the transition to a green economy. *Applied Energy*, 179, 1395-1408. <http://doi.org/10.1016/j.apenergy.2016.02.093> . [output type: D]

R4: Millar, R.J., **Hepburn, C.J.**, Beddington, J., **Allen, M.R.** (2018) Principles to guide investment towards a stable climate. *Nature Climate Change* 8(1), 2-4. <http://doi.org/10.1038/s41558-017-0042-4> . [output type: D]

R5: Stuart-Smith, R.F., Ives, M.C., **Hepburn, C.J.**, **Allen, M.R.** (2018) Fossil Fuel Divestment and Engagement on Climate Change: advice for investors, Oxford, available at: [https://www.oxfordmartin.ox.ac.uk/downloads/briefings/Fossil Fuel Divestment and Engagement on Climate Change.pdf](https://www.oxfordmartin.ox.ac.uk/downloads/briefings/Fossil_Fuel_Divestment_and_Engagement_on_Climate_Change.pdf) [output type: U]

R6: Dietz, S., Jahn, V., Noels, J., Stuart-Smith, R.F., **Hepburn, C.J.** (2019) A survey of the net zero positions of the world's largest energy companies, London, UK and Oxford, UK, available at: <https://www.oxfordmartin.ox.ac.uk/downloads/reports/A-survey-of-the-net-zero-positions-of-the-worlds-largest-energy-companies.pdf> [output type: U]

Funding: The Oxford Martin Net-Zero Carbon Investment Initiative (PIs: Allen and Hepburn, GBP99,982; 2015-2016. Oxford Martin School – an institute within the University of Oxford that awards funding on the basis of competitive bidding)

4. Details of the impact (indicative maximum 750 words)

The publication of the three Principles of 'committing to net-zero', 'developing a profitable net-zero business plan' and 'setting quantitative mid-term targets' [R3] was accompanied by extensive engagement with many different stakeholders to ensure the Principles would be effective at shifting institutional investment practice. The research has so far resulted in changes in the investment strategies of three globally active investment managers and the business development strategies of two major fossil fuel companies (BP and Shell). It has also led to changes in the thinking and strategic action regarding institutional investment among the University of Oxford, the Oxford Colleges and the Bishop of Oxford.

A. National and international: investment management and the fossil fuel industry

Sarasin & Partners – a London-based global investment manager – was the first investment management firm to adopt the Principles [R4] and change their investment and engagement strategy. According to its website, Sarasin had GBP15,200,000,000 of assets under management in September 2020. In January 2019, Sarasin announced their ‘Climate Pledge’, which includes a commitment across the business to engagement, voting and divestment, informed by the Oxford Martin Principles [E1]. They have also launched a ‘Climate Active’ endowment fund based on the three Principles, and appointed R4 authors Hepburn and Beddington to its Climate Active Advisory Panel. A brochure on the Climate Active fund states that:

“[i]n our engagements with companies, Sarasin Climate Active is informed by the Oxford Martin ... Principles – seeking explicit commitments by boards of directors to align a company’s business strategy with the Paris Accord goals. This means that directors must commit to a 2050 to 2070 net-zero carbon emission pathway, and set out how they will get there in a way which enhances shareholder capital” [E2].

In a testimonial letter, Sarasin’s Head of Stewardship explains that [E3]:

“[t]he Principles [R4] were an integral element of the successful launch of the Climate Active strategy. They provide a key framework for determining ‘Paris-alignment’ and thus have provided a core underpin for our investment analysis and engagement strategy. In line with OMS Principles, the strategy aims to invest in companies that we determine will be profitable in a net-zero pathway world and that have a compelling plan to get there.

Investments linked to the Climate Active strategy are rapidly increasing. Launched in February 2018, assets following the strategy have increased from approximately GBP600,000,000 in June 2020 to more than GBP800,000,000 by mid-November 2020 [E3].

Moreover, as the Head of Stewardship explains, the influence of the Principles extends beyond the company’s investment strategy:

“[o]ur engagement strategy is also framed by the OMS Principles: we seek a commitment by the Board for Paris-alignment, and this needs to be backed up by a compelling (and profitable) strategy as well as explicit milestones for getting to net zero by 2050” [E3].

Lombard Odier Investment Managers (LOIM), a Swiss-based company with global assets under management of GBP42,800,000,000 at 31 December 2019, have also adopted the Oxford Martin Principles [R4] in the design of their new ‘Climate Transition strategy’. According to the press release [E4], the strategy, which was launched in early 2020, “invests in companies that are already generating superior returns and that we believe are well positioned to generate growth and gain market share, as the transition to a carbon-constrained and climate-damaged economy continues to accelerate”. The strategy has the “Oxford Martin Principles for Climate-Conscious Investment ... incorporated at the heart of the strategy’s stewardship approach, as well as in the overall stewardship activities of LOIM”.

A third global investment manager that took up the Principles [R4] is UK-based **P1 Investment Management**. They have developed a new standard for investment managers informed by discussions with the research team behind the Principles. This standard, the Net-Zero Carbon 10 target (NZC10), requires that 10% or more of fund managers’ portfolio assets are invested in firms with net-zero CO₂ emissions, realistic strategies to achieve this by 2030, or a fund manager who actively engages with firms to achieve this. As the company’s website explains, NZC10 “allows fund managers to better align their investment policies to the requirement for carbon neutrality, rather than just emissions reduction. This focuses on net-zero emissions, so firms can have some CO₂ emissions, providing these are reliably offset” [E5].

Two major fossil fuel companies have also drawn on the Principles to develop their business strategies: BP and Shell.

In February 2020, **BP** committed to becoming a net-zero emission company by 2050 or sooner. The company has developed a strategy that revolves around not only delivering on this ambition but also pivoting to low-carbon energy and delivering value to stakeholders. To this end the company will, according to its website, use integration, partnerships and (digital) innovation to

concentrate on 'low carbon electricity and energy', 'convenience and mobility' and 'resilient and focused hydrocarbons'. BP's Head of Group Strategy acknowledges [E6]:

"Oxford University's role in helping us to reach this position, in particular the impact of the Oxford Martin Principles for Climate-Conscious Investment on our thinking. These principles resonate with us and are an extremely useful example of how academic leadership can provide guidance for the energy transition. Our strategy now covers the three elements of the Oxford Martin Principles: we have committed to being a net zero company [R4's first principle], we intend to become a net zero company in a profitable manner [R4's second principle], and we will be measuring our progress at regular intervals [commensurate with R4's third principle]. Many of our investors and our University stakeholders have come to expect this of us, and we intend to continue to play a role as a leading and responsible business as we and the planet transition to net zero."

Shell is similarly aiming to become a net-zero emissions business by 2050 or sooner. Its focus is on the 'New Energies' of electricity, wind and solar, and on building an integrated lower-carbon power business. The company's Executive Vice President New Energies confirms that "in recent years Shell has significantly increased its investment into New Energies" because "[w]e listen carefully to our shareholders and other stakeholders, and an increasing number of them are asking that businesses like ours have a strategy that is aligned with the Paris climate goals, consistent with the Oxford Martin Principles for Climate-Conscious Investment" [E7].

B. Local: Institutional investment

The Principles have also influenced thinking and practice among institutional investors in the city of Oxford, in part because they have come under pressure to consider the consequences of their actions on climate change. These include the University of Oxford and the Oxford Colleges, which are financially independent from the University. The value of the endowment assets of the University and the Colleges together amounted to GBP6,100,000,000 in 2019. This is the second largest university endowment in the UK. For comparison, UK government statistics show that only 10 of 87 local government pension scheme funds in England and Wales had a larger market value in 2019.

In 2019, one of the Oxford Colleges – **St Hilda's** – redirected its long-term investments by joining Sarasin's Climate Active endowment fund. This reflected the College's [E8]:

"policy of active engagement ... informed by the Oxford Martin Principles for Climate-Conscious Investment [R4]. These Principles provide a framework for engagement with targeted firms and for divestment after reasonable engagement efforts have been made and responses found wanting. The College believes that this active ownership approach will ensure it is doing what it can to support the aims of the Paris Agreement while at the same time protecting the College's long-term financial interests".

Subsequently, the University's executive governing body formally adopted a new investment strategy for the investment assets under its control in April 2020 [E9]. The strategy consists of: 1) divestment from the fossil fuel industry, 2) engagement with investee fund managers per the Oxford Martin Principles [R4], and 3) oversight to monitor and evaluate progress regarding 1) and 2). On its website the University states that the:

"chosen approach is based on its own world-leading research on climate-conscious business practices, the Oxford Martin Principles for Climate Conscious Investment [R4]. These provide a framework for engagement between climate conscious investors and companies across the world, helping them to assess whether investments are compatible with transition to a more stable climate and the goals of the Paris Agreement on climate change" [E9].

The Principles have also been adopted by individuals in the city, empowering them to demand change. The **Bishop of Oxford** – whose seat is the city of Oxford's Christ Church Cathedral, (physically located within the University of Oxford's Christ Church College)– embraced the Principles [R4] in early 2018. With the research team behind the Principles, he developed a motion challenging the action on Climate Change and Investment (GS 2093) proposed by the Church of

England's National Investing Bodies (NIBs) to the Church's General Synod in June 2018. With the amendment, the Bishop urged "the NIBs to engage urgently and robustly with companies rated poorly by the Transition Pathway Initiative (TPI) and to divest from any fossil fuel company which is not on an unequivocal path by 2020 to aligning its business investment plan with the Paris Agreement to restrict global warming to well below 2°C" [E10]. TPI is a global initiative, set up by the NIBs and others in 2017, that assesses companies' preparedness for the transition to a low-carbon economy and provides an online tool to investors. The Bishop wanted the NIBs to work with the Oxford Martin Principles rather than rely on companies' insufficient disclosure of their emissions or focus on "disinvestment from laggards – a relative and imprecise term" [E10]. The Bishop "commend[ed] these Principles to the TPI and the NIBs in relation to their investments in fossil fuel companies" [E11] because they offer "a much more demanding set of criteria to guide engagement/divestment debates among shareholders and public bodies" [E11]. The Bishop's motion for a more stringent net-zero investment approach based on the Principles was rejected but did make the General Synod reconsider its investment decision-making.

5. Sources to corroborate the impact (indicative maximum of 10 references)

E1: Video: Sarasin and Partners (2019) Climate Pledge, available at:

<https://sarasinandpartners.com/think/sarasin-partners-climate-pledge/>

E2: Brochure: Sarasin & Partners (2020) Sarasin Climate Active: A Paris-aligned investment solution – Q1 2020.

E3: Testimonial letter from Head of Stewardship, Sarasin & Partners, 16 November 2020

E4: Press release: LOIM (2020) Lombard Odier Investment Managers launches Climate Transition strategy, 16 March 2020.

E5: Website article: P1 Investment Management (2019) Zero tolerance: net-zero carbon.

E6: Testimonial letter from Head of Group Strategy, BP, 21 December 2020.

E7: Testimonial letter from Executive Vice President New Energies, Shell, 9 November 2020.

E8: Website document: St Hilda's College (2019) St Hilda's College Investment Policy.

E9: Website document: University of Oxford (2020) Oxford University and fossil fuel divestment

E10: Document: Diocese of Oxford (2018) GS Misc 1196 - Intensifying engagement and divestment in fossil fuel companies.

E11: Blog post: Diocese of Oxford, Bishop Steven's Blog (2018) 'Should the Church of England continue to invest in fossil fuel companies in the light of the Paris Agreement on climate change?'