



TOWARDS THE NEW NORMAL 
**INCREASING INVESTMENT IN THE
UK'S GREEN INFRASTRUCTURE**

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ALDRSGATE GROUP

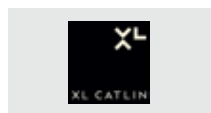
The Aldersgate Group is an alliance of leaders from business, politics and civil society that drives action for a sustainable economy in the UK and EU.

Our members include some of the largest businesses in the UK, leading NGOs, key professional institutes and politicians of all parties. We believe that economic success, both now and in the future, depends upon a political and economic framework that delivers a healthy environment and

sustainable use of resources, good environmental performance at the organisational level, growth, jobs and competitive advantage in rapidly growing environmental sectors.

Our policy proposals are formed collaboratively and benefit from the expertise of our members who span a wide range of industry sectors and public interests. Our breadth and collegiate approach allows us to formulate progressive policy positions to benefit all organisations and individuals.

MEMBERS



While members and contributors support this publication and provided extensive input, findings and recommendations cannot be attributed to any any individual or organisation and the Aldersgate Group takes full responsibility for the views expressed.



EXECUTIVE SUMMARY

Strategic government intervention can maximise opportunities for private green infrastructure investment.

Increasing private investment in green infrastructure presents huge opportunities for the UK. It offers a growing market for professional services and is a crucial way of reducing the cost of meeting the UK's strategic and environmental policy objectives, securing more jobs, economic growth and export potential. We need to catalyse action on green infrastructure investment now to move the financial system towards the new normal.

There is real urgency: **up to £693bn investment in low carbon infrastructure will be needed by 2031 in the UK¹ and \$90tn worldwide over the next 15 years.²** The ambitions within the government's recently published policy strategies, including the Industrial Strategy (IS), Clean Growth Strategy (CGS) and 25 Year Environment Plan (25YEP) will need to be met with new and resilient infrastructure. This includes new and retrofitted energy efficient homes, infrastructure to manage increased risk of flooding, sustainable water and wastewater management, a nationwide network of electric vehicle (EV) charging points, low carbon heating solutions and significant new low carbon power generation. **The majority of these needs will have to be met by private investment.**

In setting up a Green Finance Taskforce (GFT) which was announced within the CGS, the UK government has recognised that increasing the flows of private green finance is essential to deliver the UK's policy objectives and provides an opportunity to take a global leadership position. Coming a few weeks ahead of the Taskforce's recommendations this report, which is based on a wide range of interviews with investors and businesses, considers the main barriers that are limiting investment and **suggests key recommendations for government, business and investors to unlock greater volumes of private investment in green infrastructure.** These provide a baseline to measure the strength of the government's response to the Taskforce recommendations and long-term action on green finance.

The report's recommendations consider low carbon energy generation, energy efficiency, natural capital and resource efficiency – all key areas for delivering the UK's environmental and social goals. There are specific barriers to each type of green infrastructure investment, which we discuss in greater detail in **four separate briefings published alongside this report.³** This report tackles the common structural barriers across these different types of infrastructure, echoing several findings of the EU's High Level Expert Group on Sustainable Finance (HLEG) in the UK context.

Section I of the report first sets the scene for the UK's green infrastructure investment needs and opportunities, before providing a brief overview of the financial system and its major stakeholders. Section II looks at what government can do to increase investment in green infrastructure, in particular: building project pipelines through policy stability and regulation; addressing structural market barriers such as short-termism; using public spending to incentivise private investment; improving access to data and high quality financial disclosure to inform investment strategies; and supporting innovative financial products to maximise the UK's competitive advantage in green finance. Finally, we set out a full list of recommendations for government and industry to tackle as a priority.

¹: Vivid Economics (October 2011) *The economics of the Green Investment Bank: costs and benefits, rationale and value for money.*

²: New Climate Economy (2016) *The sustainable infrastructure imperative.*

³: See: *Increasing investment in commercial energy efficiency* (March 2018), *Increasing investment in domestic energy efficiency* (March 2018), *Increasing investment in low carbon power* (March 2018) and *Increasing investment in natural capital* (November 2017), all available on www.aldersgategroup.org.uk



Summary of policy recommendations

Ultimately, the speed and cost at which the private sector will invest in green infrastructure comes down to investors' perceptions of the risks and returns involved. These are influenced by the clarity of market signals and whether there are any regulatory barriers which stand in the way.

Whilst there are clear areas where investors and businesses can take a leadership role, the complexity of the financial system and urgency of the challenge means strategic government intervention is required. Government can encourage greater private green infrastructure investment by:

The essential role played by infrastructure means our investment decisions can have transformational effects on places, businesses and society

HM GOVERNMENT'S INDUSTRIAL STRATEGY⁴

Policy stability and market signals

1 Committing to support the growth of green investment over the long term through the Clean Growth Inter-Ministerial Group, with a stated remit to boost green finance up to and beyond the delivery of the fifth carbon budget

2 Setting long-term visibility and transparency on policy direction through multi-year, cross-party frameworks, such as with carbon budgets and the coal phase out, noting that after Brexit, EU-led policy drivers for investment may cease to apply. Government should build on the progress made in the CGS and 25YEP, by providing greater policy detail to deliver its ambitions, for example around improving energy efficiency in buildings through targets and regulation

3 Engaging a wider base of investors by establishing the potential size of the market for different infrastructure needs within the CGS, 25YEP and forthcoming Resources and Waste Strategy, such as expected spending on low carbon transport infrastructure, to help clarify the investment opportunity

4 Expanding UK mandatory carbon reporting to capture a larger set of reporting companies in the immediate term, and set a medium-term target for mandatory introduction of the TCFDs with government guidance on implementation

⁴ HM Government (November 2017) *Industrial Strategy: Building a Britain fit for the future*.



DEFINITIONS

The terms 'green' and 'sustainable' do not have standard definitions when applied to infrastructure or investment. For the purposes of this report, we use 'green infrastructure' to refer to projects with high environmental standards that will help deliver the UK's environmental policy goals. This includes more traditional infrastructure types like (low carbon) energy generation and buildings as well as investment in natural assets such as wetlands and peatlands, and smaller scale infrastructure projects such as the energy efficient retrofitting of existing buildings and novel low carbon technologies. We also consider projects which improve the resource

efficiency of the economy. Green finance refers to capital flows which support the above. Ultimately, to deliver the UK's environmental policy objectives and improve the resilience of its infrastructure, all future infrastructure investment should be designed to be low carbon, resource efficient and to enhance the natural environment.

The report largely refers to investors in the sense of large-scale institutional investors, debt providers like banks, and corporate project developers (companies) who invest in their own assets. A fuller discussion of the different types of investor is included in chapter three.

Regulatory drivers

- 5 Adjusting financial regulations to encourage long-term investment in infrastructure.** These include introducing a legal duty to consider ESG risks as part of fiduciary duty for pension fund trustees and considering a 'green supporting factor' to address prudential rules on capital weighting
- 6 Introducing flexible and smart regulations to create new markets and investment opportunities for infrastructure,** unlocking returns in less straightforward markets such as natural capital, energy efficiency and resource efficiency, including a legally binding environmental net gain approach as promised in the 25YEP, and reinstating a carbon price escalator from the 2020s
- 7 Introduce a 'green' test** to ensure sustainability considerations are meaningfully taken into account for all government infrastructure investment or grants, avoiding locked in emissions and maximising resilience against flooding and climate-related impacts in the future



Smarter public spending

8 Creating targeted funds with cornerstone public funding to tackle priority policy areas where there are clearly articulated market failures, such as domestic energy efficiency and natural capital, with a requirement to leverage in private capital and recycle funds for reinvestment

9 Strengthening public procurement standards, including supporting local government with standardised Power Purchase Agreements and energy management services contracts. Smart sustainability metrics must form a key pillar of delivered outcomes

10 Issuing a sovereign green bond and municipal green bonds to fund the delivery of the 25YEP and CGS

A full set of recommendations, including on education and innovation, can be found at the end of this report.

INTRODUCING CUSP

This report is produced as part of the Aldersgate Group’s work with the Centre for Understanding Sustainable Prosperity (CUSP).

Funded by the Economic and Social Research Council (ESRC), CUSP is an international research project, led by Professor Tim Jackson at the University of Surrey.



The research addresses not just the economic aspects of sustainable prosperity, but also its social, political and philosophical dimensions. Working closely with business, social enterprise, civil society and government, the Centre aims to develop pragmatic steps towards an inclusive economy that works for everyone. CUSP’s guiding vision is one in which people everywhere have the capability to flourish as human beings – within the constraints of a finite planet. Understanding people’s aspirations for the good life is as important as building the economic framework to deliver them.⁵

⁵ See more: www.cusp.ac.uk



ONE OUR INFRASTRUCTURE INVESTMENT NEEDS

Billions of private investment will be needed to meet the UK's environmental commitments.

The UK has numerous, critical environmental policies and commitments which it must meet in the coming decades. Doing so will require up to £693bn in investment between 2011 and 2031 in the green economy, including in power generation, electric vehicle (EV) infrastructure, upgrades to water systems, demand side response and flood defences.⁶

On the international stage, the UK is a signatory to the Paris Agreement and Sustainable Development Goals (SDGs). Domestically, the UK's 2008 Climate Change Act sets a target of at least 80% greenhouse gas (GHG) reductions on 1990 levels by 2050. In the past 12 months the government has also published several key policy packages relating to the environment: the 2017 Industrial Strategy (IS) sets Clean Growth as one of four Grand Challenges, with a clear intent to put the UK at the forefront of this "industry of the future". The recently published Clean Growth Strategy (CGS) and 25 Year Environment Plan (25YEP) set out targets to reduce emissions and improve our natural environment. The Resource and Waste Strategy to improve the UK's resource efficiency is expected in the autumn of 2018.

How much do we need to invest?

The Committee on Climate Change (CCC) has estimated the total investment needed to meet the UK's fifth carbon budget alone **at approximately £22bn per year (1% GDP),⁷ with public investment of £2.2bn (0.1% GDP) needed annually alongside a much larger private investment programme.⁸** These figures do not capture the investment needed in natural assets to protect and improve biodiversity, air quality and carbon sequestration. Consultancy eftec estimated potential investments across peatland, saltmarsh, wetland, woodland and marine improvements in England at approximately £4.4bn over 50 years.⁹

Government should commission an up to date evaluation on total investment, public and private, needed to deliver the CGS and 25YEP, publishing findings promptly for full transparency. This would help measure progress in delivery over time and clarify the size of the investment opportunity for the private sector.

Crucially, all future investments in infrastructure must be 'green' in the sense of being resilient to future climate change impacts, like increased flood risk, and avoid locking in a high level of emissions due to poor energy efficiency or dependence upon high carbon forms of energy. For example, the 1m homes per year that are planned to be built in England by 2020 must be built to withstand flooding and overheating and with embodied carbon considerations in mind.

This problem is also one facing our global competitors: China needs a minimum of RMB3–4tn each year (approximately £400bn, or nearly 40% of its GDP) in green investments from 2015 to 2020, at least 85% of which needs to come from private capital.¹⁰ The global dimension of the challenge provides opportunities for the UK to develop exportable low carbon technology and expertise and a competitive green financial services industry if it moves quickly, as well as opportunities for greater international cooperation.

⁶ Vivid Economics (October 2011) *The economics of the Green Investment Bank*.

⁷ Based on GDP in 2015, World Bank national accounts data: <http://bit.ly/2BHRkxx>

⁸ Committee on Climate Change (March 2017) *The infrastructure needs of a low-carbon economy prepared for climate change*.

⁹ eftec (January 2015) *The economic case for investment in natural capital in England*.

¹⁰ UNEP Finance Inquiry (2017) *Establishing China's Green Financial System: Progress Report 2017*.



£22BN ANNUAL INVESTMENT

Investment needed to meet the fifth carbon budget

● Public ● Private



Source: Committee on Climate Change (March 2017)
The infrastructure needs of a low-carbon economy prepared for climate change

Progress to date

Global momentum on green finance is gathering rapidly. **Over \$1tn of private climate finance has been mobilised to date**¹¹ and the global green bonds market in 2017 reached \$155.4bn, compared to \$81.6bn in 2016.¹² As of February 2018, 256 international investors with more than \$30tn of assets under management have pledged to engage with the most polluting corporates to step up climate action.¹³ The EU is expected to publish a sustainable finance plan in March 2018, and the UK government set up a Green Finance Taskforce (GFT), with recommendations expected in Spring 2018. The City of London's Green Finance Initiative and the UK's world-first Green Investment Bank (now the Green Investment Group), put the UK in a strong early position on green finance. This momentum is underpinned by an increase in green and innovative products from UK companies who seek to take advantage of new market opportunities.

But money still is not moving fast enough or at the scale needed for transformational change.

The world's 37 top banks lent \$87bn for fossil fuel extraction in 2016;¹⁴ the growing green bonds markets is still significantly less than 1% of the global \$9tn bond market. There is a long way to go.

¹¹ IFC (2017) *Creating Markets for Climate Business*.

¹² www.climatebonds.net

¹³ www.climateaction100.org [accessed 5 February 2018].

¹⁴ Rainforest Action Network, Oil Change International (June 2017) *Banking on Climate Change*.



TWO OPPORTUNITIES ARISING FROM GREEN INVESTMENT

There are huge economic benefits from growing green investment for UK plc.

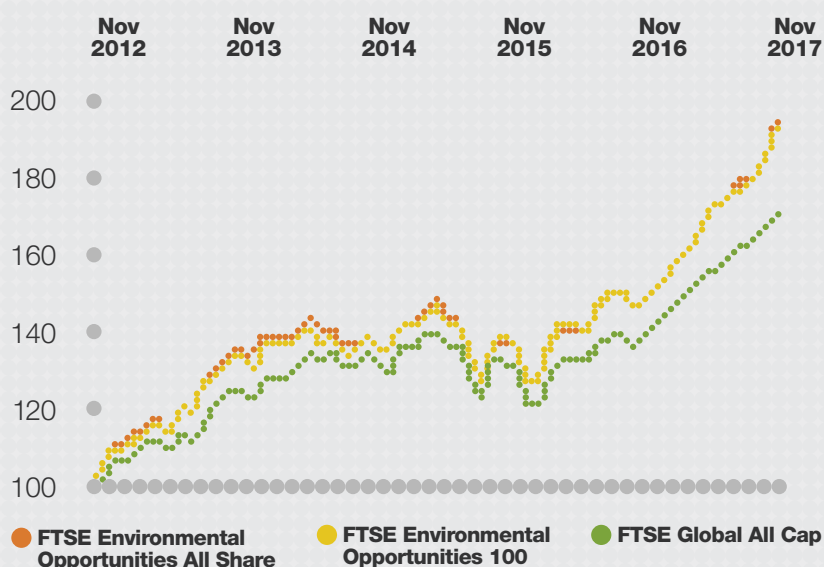
The UK can reap enormous opportunities by strengthening domestic green infrastructure investment, both as a growing and exportable financial service, and more importantly in its ability to cost effectively deliver the ambition of the CGS, 25YEP and future policy packages, maximising the benefits to UK plc from the low carbon transition.

Encouraging investment in UK green infrastructure will bring jobs, export opportunities and build greater resilience – both economic and physical – in a time of uncertainty. The UK's low carbon economy could grow from around 2% of the UK's GDP today to 8% by 2030 and 13% by 2050.¹⁵ Greener infrastructure can also deliver key societal benefits, including through better living standards, mobility and health benefits thanks to warmer homes, better transport connections and better air quality. What's more, the timing is right: the UK had the most attractive environment for infrastructure investment when compared to 25 international competitors in 2016.¹⁶

Green finance is a growing financial services market around the world, and brings with it ancillary service sector growth, including in legal and advisory services. A third of new clean energy projects worldwide from 2007 to 2012 had legal and financial advice from the UK.¹⁷

5 YEAR PERFORMANCE – TOTAL RETURN

Data as at end of month (USD)



Source: FTSE Environmental Opportunities Index Series 30 November 2017

¹⁵ Ricardo Energy & Environment (March 2017) *UK business opportunities of moving to a low carbon economy.*

¹⁶ CMS (5 January 2016) *Infrastructure Index: Bridging the gap.*

¹⁷ As quoted in Green Alliance (June 2016) *Will the UK economy succeed in a low carbon world?*



The challenge for government is therefore to ensure a pipeline of investible UK low carbon projects, and boost the flow of least cost capital, whilst building up exportable expertise in the financial and ancillary professional services industries.

There are also enormous opportunities for investors. FTSE Russell has found that taken as a whole, sectors generating green revenue show outperformance against ‘vanilla’ investments (see chart, left). Green investment can open up new markets and new revenue streams, such as through EV charging.

However, the UK risks slipping behind global competitors if it doesn’t accelerate its capacity to support investment in the necessary flow of green projects. France is enthusiastically embracing green finance, establishing the Paris ‘Finance for Tomorrow’ forum and launching a sovereign green bond of €7bn in 2016, whilst China and India are increasingly positioning themselves as centres of green finance. China was the first country in the world with clearly stated government policy support to create an all-encompassing green financial system and has established five green finance pilot zones across the country.¹⁸

INVESTING TO MITIGATE RISK

Most investors interested in Environmental, Social and Governance (ESG) investing view it as a way of reducing risk, rather than ‘doing the right thing’. Three quarters of institutional investors said that that risk mitigation is the main driver of their increased interest in ESG.¹⁹

Risks arising from climate change can be physical (natural and man-made disasters caused \$136bn of insured losses in 2017,²⁰ which in turn may push up the cost of borrowing),²¹ regulatory or transitional in nature (like the risk of ‘stranded assets’: fossil fuel assets that can no longer be sold due to existing or anticipated regulation banning their use). Short-term market shifts in response to climate risks could wipe \$35.4tn off the value of all global investment portfolios, equivalent to the GDP of the European Union (EU).²² 98% of companies have at least one climate change related hazard impacting their business, and 25% companies already experience climate change-related impacts on their value chains, with this expected to rise to 60% in 10 years.²³ These risks can therefore have a significant impact on an investment portfolio.

A recent Bank of America Merrill Lynch survey found that ESG-based investing would have offered long-term equity investors substantial benefits in mitigating price risk, earnings risk and even existential risk for US stocks, and helped investors avoid 90% of bankruptcies in the time frame it examined.²⁴

It is important to note that ESG investing and green investments are not the same thing. ESG by nature applies to a much larger universe of investments and considers a far wider range of risks. Where ESG investors seek to reduce risk, many green investors may be seeking positive performance through their green investments (e.g. new revenue streams). Nonetheless, framing green investment through the ESG-risk lens can motivate more traditional investors to consider how green infrastructure may be a sound investment.

¹⁸ UNEP FI (2017) *China Progress Report*.

¹⁹ The Actuary (7 July 2017) ‘Risk mitigation main driver of ESG considerations’.

²⁰ Swiss Re press release (20 December 2017) ‘Preliminary sigma estimates for 2017: global insured losses of USD 136 billion are third highest on sigma records’.

²¹ Bloomberg (23 January 2018) ‘Climate Change Could Make Borrowing More Expensive’.

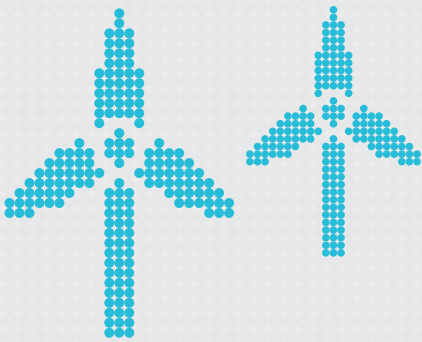
²² University of Cambridge Institute of Sustainability Leadership (2015), as quoted in Willis Tower Watson (2017) *Real Estate Climate Risk*.

²³ DNV GL (December 2017) *Are companies resilient enough to climate change?*

²⁴ Bank of America Merrill Lynch (15 June 2017) *ESG Part II: a deeper dive*.



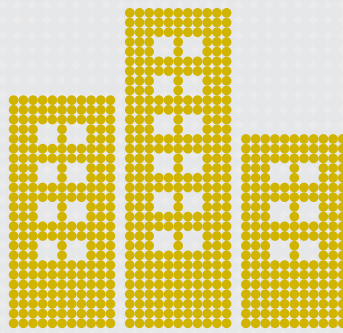
THE OPPORTUNITIES FOR GREEN INFRASTRUCTURE INVESTMENT



LOW CARBON POWER

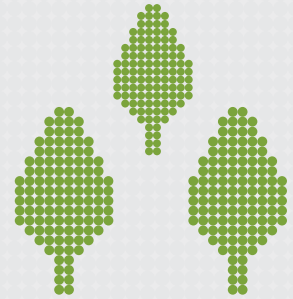
£11.5bn investment in offshore wind due between 2017 and 2021, making it one of the UK's largest infrastructure investment pipelines by value.²⁵

£41–81bn investment market for operational UK renewable assets.²⁶



BUILDINGS

£4.95bn annual energy bill savings by bringing all homes to an EPC Band C by 2035 and **108,000 net new jobs** across the country.²⁷



NATURAL CAPITAL

£1.5bn annual value provided by coastal wetlands in buffering the effects of storms and flood control.²⁸

£2.3bn annually from Britain's woodlands, through recreation, carbon sequestration, timber and air pollutant removal.²⁹

²⁵ HM Treasury (2016) *National Infrastructure and Construction Pipeline*

²⁶ Green Finance Initiative (2017) *The renewable energy infrastructure investment opportunity for UK pension funds.*

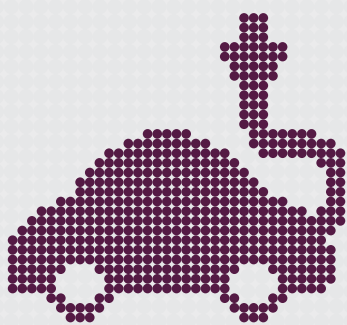
²⁷ Cambridge Econometrics and Verco (2014) *Building the Future: The economic and fiscal impacts of making homes energy efficient.*

²⁸ HM Government (June 2011) *The Natural Choice: securing the value of nature.*

²⁹ ONS (2017) *UK natural capital: ecosystem accounts for freshwater, farmland and woodland.*



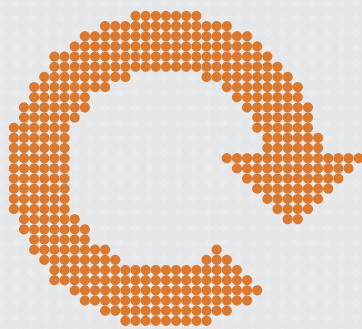
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ELECTRIC VEHICLES

Low emission vehicles accounted for 60% of total UK low carbon and renewable energy exports in 2016, worth **£2.42bn**.³⁰

UK potential global market size is **between £46–£95bn** per year in 2030.³¹



RESOURCE EFFICIENCY

Up to **£76.9bn** of additional GVA for the UK by 2030 from the circular economy.³²

54,000 net jobs and offset 11% of future losses in skilled employment by 2030 from greater resource efficiency.³³

CROSS-ECONOMY

The UK's low carbon businesses have a direct and indirect combined turnover of **£77.4bn**, employing **391,500** people.³⁴

The UK's low carbon sector will be responsible for **8% of UK Total Output** by 2030.³⁵

³⁰ ONS (2018) *UK environmental accounts: Low carbon and renewable energy economy survey, final estimates: 2016*.

³¹ Ricardo Energy & Environment (March 2017) *UK business opportunities of moving to a low carbon economy*.

³² Aldersgate Group (January 2017) *Amplifying Resource Efficiency*.

³³ Green Alliance (January 2015) *Employment and the Circular Economy*.

³⁴ ONS (2018) *UK environmental accounts: Low carbon and renewable energy economy survey, final estimates: 2016*.

³⁵ Ricardo Energy & Environment (March 2017) *UK business opportunities of moving to a low carbon economy*.



THREE: AN OVERVIEW OF THE FINANCIAL SYSTEM

A simple summary of the players and stages in the investment system.

'Investors' provide money and seek returns, but the term covers a number of different sources of capital, each with different risk appetites and seeking different levels and types of returns. Returns can take the form of increasing the initial value of an investment or annual income. For example, venture capitalists (VCs) typically invest in technologies or companies that are not yet revenue-generating and whose value is in their ability to generate future earnings. VCs invest over the short to medium term, seeking high returns on their initial capital to compensate for the risk of losing their investment.

Institutional investors, such as pension funds or insurance funds hold a vast amount of capital: the total value of assets under management held by institutional investors globally is \$100tn³⁶ and around £3tn in the UK.³⁷ They typically seek returns via stable and regular revenues as they must be able to pay out pensions or insurance reliably in the long term. Investment can take the form of equity (e.g. stock) or debt (e.g. loans, bonds).

Whatever the source of capital, investors make investment decisions based on their acceptable risk-return profile, relative to other investments available. There is a cost associated with investment (cost of capital), linked to risk. Typically, the riskier a project or project stage, the more expensive it is to invest relative to alternative investment.

Investing in infrastructure

'Infrastructure' has characteristics which determine who will invest and how they will approach their investment. It typically requires high upfront investment. It can produce stable, long-term yields which are relatively uncorrelated with the business cycle. It may involve complex contracts over a long time (25 years or more) and cash flows are often influenced by the regulatory regime.³⁸ It is regarded as a low liquidity asset, in that it cannot be easily traded in the market and converted to cash. Infrastructure may be one large piece of kit (e.g. a reservoir), or a portfolio of things which delivers a service (e.g. electricity networks).

An infrastructure project will likely have different investors at various stages from construction to operations, according to their risk preferences. This can be thought of as a finance 'escalator'.³⁹

The maturity of a market also impacts the best source of finance. At a formative stage of a new technology when it is at its riskiest, policy incentives and direct government or development bank support is required for proof of concept. Early adopters replicate this in the private market, making enhanced returns on the high risk. As a market becomes more mature and a database of actual projects builds up, project developers can bring down costs and risks through learnings and supply chain efficiencies, allowing the market to become a mainstream investment option.

³⁶ World Bank (18 June 2015) 'Institutional Investors: The Unfulfilled \$100 Trillion Promise'.

³⁷ FT (21 November 2017) 'UK life insurers can help boost infrastructure'.

³⁸ EY (2015) *Infrastructure Investments for Insurers*.

³⁹ Owen et al (2018, forthcoming) 'Enabling investment for the transition to a low carbon economy: Government policy to finance early stage green innovation'.



INVESTING IN AN OFFSHORE WIND FARM

The process of completing a new offshore wind farm is multi-stage and can involve multiple investors (see Catalytic Finance Initiative, pg 29).

DEVELOPMENT

The development phase carries the greatest risk. Risks include identifying appropriate sites and securing revenue guarantees through the Contract for Difference mechanism in the UK. The development phase is most likely to be funded by the project developer from their balance sheet or borrowing from a bank.

CONSTRUCTION

The construction stage is medium risk, with the possibility of going over time and budget, unexpected technical challenges, or difficulties with contractors for example. This may be financed by developers through project finance debt with more complex special finance vehicles, or with infrastructure funds or institutional investors as direct investors when they have the expertise to manage the risk.

OPERATIONS

The operations and maintenance stage carries the lowest risk and a steady return through electricity generation revenue. Investors with low risk appetites, such as infrastructure funds or institutional investors, may invest at this stage through a bond for example. This buys out the earlier, more expensive sources of capital, freeing it up to be recycled into new development and construction projects (refinancing).



The players

Most of the world's money – around \$300tn – flows through capital markets (e.g. stock markets).⁴⁰ Market participants can be largely divided into **asset owners** (like pension funds), **investment intermediaries** (consultants, investment banks, advisers and aggregators), and **asset/fund managers**. Asset owners give asset managers a mandate which dictates what they can and cannot invest in on their behalf. Often asset owners are somewhat removed from the investment process itself and contract intermediaries to advise them on choice of asset manager and to develop the investment mandate. As such, intermediaries are very powerful players within capital markets.⁴¹ There are many other influential players in the capital markets, like credit rating agencies and actuaries who calculate risk.

In addition to sources of private capital, there are **Multinational Development Banks** (MDBs) like the European Investment Bank (EIB), the International Finance Corporation (IFC) and public investment bodies, like the Green Investment Bank (GIB – now Green Investment Group, GIG) whilst it was under public ownership. MDBs have enormous reserves of capital and the ability to take on sub-market rate returns or higher risk than the private sector. As such they have traditionally been one of the biggest sources of investment for green infrastructure. The EIB has been the most important individual source of finance for UK infrastructure, investing £6.9bn in the UK in 2016 (although the future of EIB funding for the UK is uncertain. See pg 30).⁴²

There are debt providers like **commercial and retail banks** who offer loans and savings products. Currently most infrastructure and other assets such as electric cars and green mortgages are funded by bank loans.⁴³ Banks are limited by how much capital they hold and cannot scale up lending to the degree needed to finance the low carbon transition.

Increasingly, community finance and peer-to-peer lending are growing sources of retail investment, often with an explicit social or environmental purpose.

The most fitting investors in green infrastructure are project developers themselves (i.e. companies who invest in developing their own projects through capital expenditure as a core business investment), MDBs with a desired market outcome, or institutional investors who see alignment between their long-term liabilities and the long-term performance of investments, although **currently less than 1% of their assets are in green investments.**⁴⁴

⁴⁰ : UNEP FI blog (30 November 2015) 'Shifting the trillions'.

⁴¹ : B. Caldecott & D. Rook (August 2015) *Investment consultants and green investment: Risking stranded advice?*

⁴² : Chatham House (May 2017) *Staying Connected: Key Elements for UK-EU27 Energy Cooperation After Brexit*.

⁴³ : <http://bit.ly/2FaHv4Z>

⁴⁴ : OECD (September 2016) *Progress report on approaches to mobilising institutional investment for green infrastructure*.



The complexity and interconnectedness of the financial system means there is no silver bullet to increasing investment in green infrastructure. A holistic approach must be taken, targeting the major barriers simultaneously.

The private sector is already acting to move the market.⁴⁵ However the scale of the task, the transnational regulatory environment, inertia within much of the financial system and competition between investors means this effort must be supported by government to speed up progress.

The next section sets out some priority areas for government to stimulate greater green infrastructure investment.



The private sector holds the key to fighting climate change. We can help unlock more private sector investment, but this also requires government reforms as well as innovative business models, which together will create new markets and attract the necessary investment. This can fulfil the promises of Paris. ❖



PHILIPPE LE HOUÉROU
CHIEF EXECUTIVE OF THE IFC⁴⁶

⁴⁵ For example, Aviva has set out a sustainable finance toolkit to tackle barriers at each stage of the capital markets <http://bit.ly/2DMwpWZ>

⁴⁶ IFC (2017) *Creating Markets for Climate Business*.



FOUR BUILDING A PROJECT PIPELINE

Policy stability is at the heart of stimulating investment.

To increase investment in green infrastructure, there needs to be a viable pipeline of investible projects. The most common barrier to greater investment cited during the Aldersgate Group's conversations with investors and project developers is **not a lack of available money or willingness to invest, but a lack of opportunities to do so.**

Long-term commitment

Shifting the financial system towards a 1.5°C and at least 'well below' 2°C world is a significant, systemic challenge. It will require credible long-term commitment from government to send powerful investment signals to the market. The Green Finance Taskforce (GFT) announced by government as part of the CGS was set up with a six-month timeframe to agree a small number of pragmatic and rapidly implementable policy recommendations which will have

real impact on the market. After the GFT delivers its priority recommendations, **government should make an ongoing commitment to support the growth of green investment over the long term. This should include maintaining cross-Whitehall momentum on green finance through the recently reinstated Clean Growth Inter-Ministerial Group**, with a stated remit to boost green finance up to and beyond the delivery of the fifth carbon budget.

Policy stability to reduce risk

A clear and stable policy framework is vital to stimulate a project pipeline. Infrastructure projects can take decades to build and investment decisions have multi-year impacts – heat network assets last over 50 years⁴⁷ and water assets are designed to last over a century – so a project developer must have reasonable certainty that there will be a market for their infrastructure asset some

years into the future before they commit to investing.⁴⁸ Visibility of the regulatory environment drives greater volumes of investment in project development and in the supply chain as well as reducing the cost of capital, all of which drive down the cost of delivering infrastructure. A 2012 Crown Estate study found that if the cost of finance for offshore wind projects was cut by 1% then the cost of a project decreased by 6%.⁴⁹

The importance of policy certainty for supporting investment is demonstrated by the different approaches taken by the Landfill Tax and Feed-in-Tariffs (see table, right) and the more than halving of the strike price of offshore wind over just two years via the competitive auctions for Contracts for Difference (CfD), which guarantees price support for 15 years.

⁴⁷ The Association for Decentralised Energy (January 2018) *A heat network market that benefits customers, investors, and the environment.*

⁴⁸ UKERC, quoted in Energy and Climate Change Committee (February 2016) *Investor confidence in the UK energy sector inquiry.*

⁴⁹ The Crown Estate (2012) *Offshore Wind Cost Reduction Pathways Study.*



THE IMPACT OF POLICY UNCERTAINTY

POLICY UNCERTAINTY

Feed-in-Tariffs (FITs) for solar energy were unexpectedly reduced in 2015, resulting in significant drops in investment. Although the fall in the cost of the technology warranted a reduction in the levels of the FITs, the sudden and retroactive nature of the policy change undermined confidence in the clean energy sector in general, leading to a loss in investment confidence across the board.⁵⁰ Analysis by Green Alliance found that more than £1bn of future investment in renewable energy projects disappeared over the course of 2016 and investment between 2017 and 2020 will drop by 95%⁵¹ having already dropped by 56% in 2017.⁵²



POLICY CERTAINTY

The UK Landfill Tax is widely recognised as a very successful policy intervention. It was introduced in 1996 to prevent waste generation and recover value from more waste. By increasing the tax per tonne of waste sent to landfill from £7 per tonne to £86.10 from 1996 to 2017 with a clear escalator of costs, waste sent to landfill has declined by nearly three quarters. It has spawned new industries, extensive innovation, new skills and new jobs.⁵³



The UK is getting a reputation for a lack of deal flow, causing lenders to restructure their teams and move talent towards markets perceived as more active.⁵⁴ To reverse this, **government must provide long-term visibility and transparency on policy direction, through multi-year cross-party frameworks that are in line with infrastructure investment timelines.**

Transparent, forward-looking guidance on how policy will respond if circumstances change allows investors to plan ahead with reasonable confidence. Unpredictable and retrospective policy changes must be avoided as they increase the cost of financing projects and risk sending investors and capital overseas, where stability is perceived to be more tangible.

As investment drivers derived from EU Directives may cease to apply in the UK after Brexit, **protection or enhancement of those regulations that incentivise investment will be important for the green infrastructure market**, such as the Energy Performance of Buildings Directive.⁵⁵ In light of recent and upcoming political uncertainty in the UK, **cross-party consensus on green infrastructure policy would be particularly helpful to establish confidence that policy direction will not change between parliaments**, following the example of carbon budgets and the coal phase out which both have cross party support.

⁵⁰ Energy and Climate Change Committee (February 2016) *Investor confidence in the UK energy sector*.

⁵¹ Green Alliance (December 2016) *The UK's infrastructure pipeline*.

⁵² Bloomberg New Energy Finance (January 2018) *State of Clean Energy Investment*.

⁵³ BuroHappold for the Aldersgate Group (December 2017) *Help or Hindrance? Environmental regulations and competitiveness*.

⁵⁴ British Banking Association (2015) *Financing the UK's infrastructure needs*.

⁵⁵ See accompanying policy paper: Aldersgate Group (March 2018) *Increasing investment in commercial energy efficiency*.



Notably, the CGS does not put the UK on track to meet its fourth and fifth carbon budgets.⁵⁶ In order to be 'bankable' and stimulate the necessary investment, **the CGS and 25YEP must urgently be backed up by greater policy detail.** This should include greater granularity on the £557m CfD pot announced, clarity on the scope for subsidy-free CfDs, a raft of measures to ensure all existing homes are EPC band 'C' by 2035, ways to close the emissions gap⁵⁷ and a detailed transport decarbonisation plan. Detailed measures to stabilise and secure predictable cash flows will greatly improve chances to attract private investment as this is a key driver for Final Investment Decisions.

Government should engage a wider set of investors by establishing the potential size of the market to deliver the CGS and 25YEP (and forthcoming Resources and Waste Strategy) and consider setting investment goals (both public and private) in priority infrastructure areas, such as low carbon transport or habitat restoration. This would increase visibility of the investment opportunity and signal regulatory stability to the private market, helping to lower the cost of capital. It will also be important in setting the investment agenda and building the case for financiers to invest in expertise, which is crucial to bringing down the cost of capital and reducing transaction costs.

We can't expect industry to make long-term investment decisions if the government refuses to do the same. ❖



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AND INDUSTRIAL STRATEGY⁵⁸**

⁵⁶ ❖ Committee on Climate Change (January 2017) *An independent assessment of the UK's Clean Growth Strategy: from ambition to action.*

⁵⁷ ❖ For further recommendations see Aldersgate Group blog (18 October 2018) 'Clean Growth Strategy: How will it impact investment in the low carbon economy?'

⁵⁸ ❖ Secretary of State for BEIS, Greg Clark (22 March 2017) <http://bit.ly/2E92RjR>



Unlocking new markets through smart regulation

A crucial condition for investment is that of reasonably reliable returns, usually through a clear and steady revenue stream. Where the market does not place sufficient financial value on social goods to create a revenue stream, **outcomes-focussed regulatory intervention can create the conditions to generate cash flow.**

For example, the services provided by nature have historically been accessed for free, so there may be no returns on creating new wetlands though they often provide quantifiable financial benefits, particularly in terms of avoided costs (such as healthcare and damage to infrastructure from flooding) and unquantified benefits like wellbeing.⁵⁹ Similarly, the benefits of energy efficiency are experienced as savings rather than income. Unless an investor is able to monetise those savings, the investment case is limited.

WAITING FOR PATIENT CAPITAL

In the future we are likely to use infrastructure that isn't currently being developed commercially, such as carbon capture and storage, tidal energy or hydrogen networks. The UK should be an incubator of these novel products to maximise global leadership and export opportunities. However, this requires 'patient' investment that does not seek immediate returns. Without patient capital, a pipeline of scalable investments will not be possible.

In the UK there is significant financial support at the earliest stage of starting a business, such as the Enterprise Investment Scheme (EIS) and Venture Capital Trusts (VCTs) but support to scale up is lacking, partly due to a lack of available patient capital.⁶⁰ As a result, innovation and first-mover advantage in the UK is stalled, lost or bought up by overseas investors. Currently, most companies looking for scale-up finance look abroad, taking benefits out of the UK. According to investment company Octopus, 60% of all funding rounds in Britain above £10m involve an American investor.⁶¹ To retain the economic benefits that the low carbon transition can offer, the UK will need to address this so-called 'valley of death'.

Several suggestions for funding vehicles have arisen from government's recent Patient Capital Review, including a National Investment Fund to help cutting-edge British companies become 'world-leading unicorns' – innovative firms valued over US\$1bn.⁶² It would be remiss to develop a National Investment Fund that does not provide finance for innovative low carbon technology, considering the growth potential of the industry and its central role in delivering the Industrial Strategy.

⁵⁹ See more: Aldersgate Group (November 2017) *Increasing investment in natural capital.*

⁶⁰ Patient Capital Review Industry Panel (October 2017).

⁶¹ The Economist (6 April 2017) 'British tech firms suffer from impatient investors'.

⁶² Gov.uk press release (1 August 2017) 'New National Investment Fund to back innovative UK firms'.



Government should introduce flexible and smart regulations or standards to redress market failures and create new markets and investment opportunities for infrastructure,

unlocking returns in less straightforward markets such as natural capital, energy efficiency and resource efficiency. A 2017 BuroHappold report commissioned by the Aldersgate Group demonstrated the value of well-designed environmental regulations. For example, passenger car CO₂ emission regulations have provided certainty, scale and a clear framework to meet targets when properly enforced, resulting in an innovative, competitive and highly collaborative industry, with UK automotive companies now ranking third in R&D investments globally.⁶³ Similarly, the highly regulated nature of the water industry means water companies have allocated £6bn to reduce surface water flood risk over the next five years⁶⁴ and the Association of Decentralised Energy has shown how a regulatory model assuring demand (Demand Assurance) for heat networks is required to secure investment.⁶⁵

Fiscal regulations can help to redress market failures, where social costs are not factored in. **Government should resume the carbon price escalator, taking effect as coal is phased out in the early 2020s,** with prices rising over time along the lines of the Landfill Tax. This will improve the economics of investing in low carbon power generation but may require an appropriate compensation mechanism for energy intensive companies where justified.⁶⁶ Government should also consider introducing tax incentives like the Enterprise Investment Scheme (EIS) which have been successful in supporting the solar market in the past, to incentivise further investment in early stage commercial products, for example in battery storage.

New requirements for planning regulations to capitalise on existing infrastructure investment plans and create a secondary investment market in green infrastructure are needed,

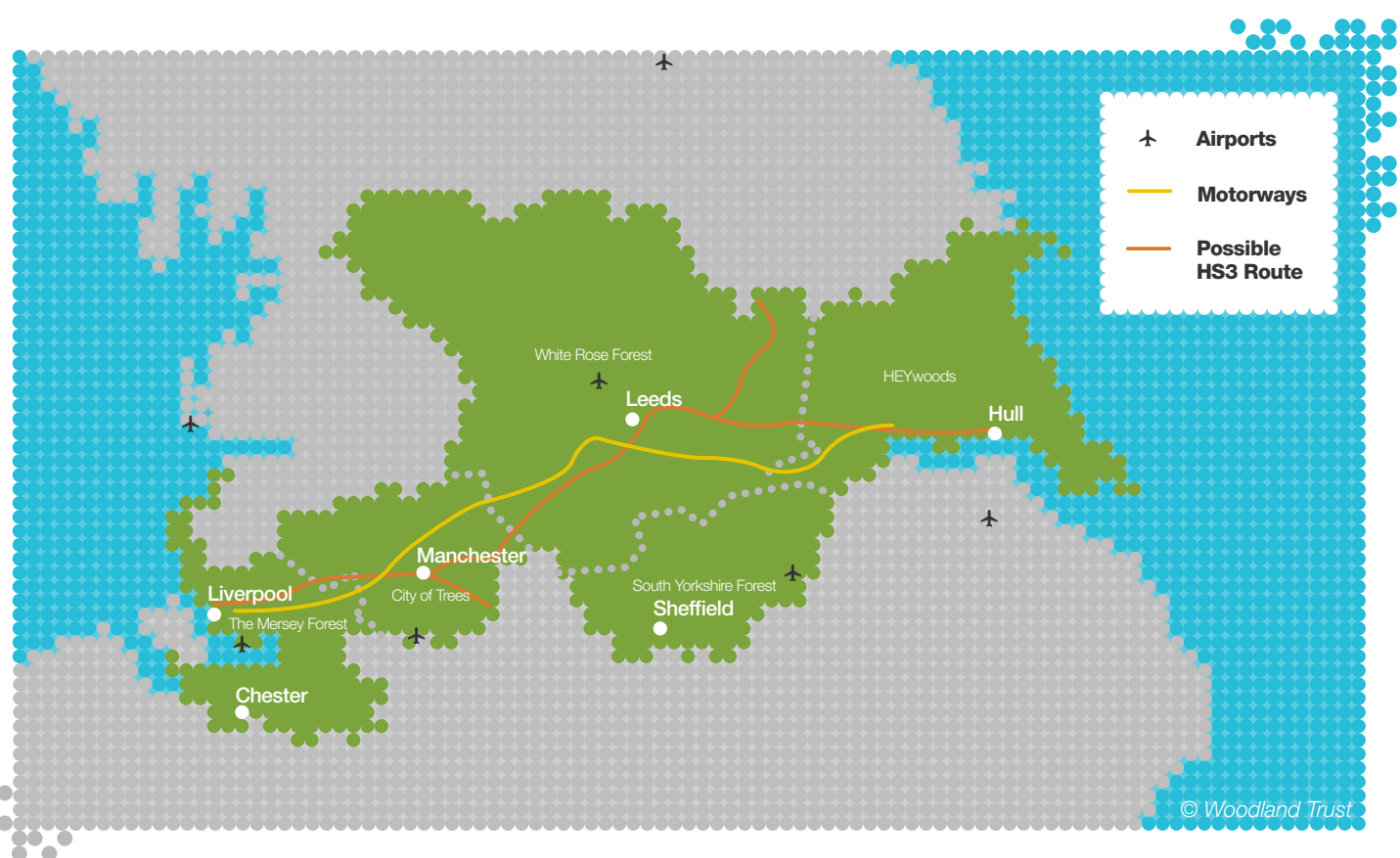
for example in improving resilience through natural flood management and sustainable urban drainage systems (SUDs) when building the 1m planned new homes by 2020. The environmental net gain principle for new developments set out in the 25YEP is welcome as one such driver and we await further detail on how this will be delivered. The £500m planned investment in the Northern Forest to complement the projected £75bn of hard infrastructure investment across the M62 corridor is a good example of how this can work.

⁶³ BuroHappold (December 2017) *Help or Hindrance? Environmental regulations and competitiveness.*

⁶⁴ Committee on Climate Change Adaptation Sub-Committee (June 2017) *2017 Report to Parliament - Progress in preparing for climate change.*

⁶⁵ The Association of Decentralised Energy (January 2018) *Shared Warmth: A heat network market that benefits customers, investors, and the environment.*

⁶⁶ UCL (February 2018) *UK industrial electricity prices: competitiveness in a low carbon world.*





FIVE REFOCUSING MARKET PRIORITIES

Current market structure disincentivises long-term infrastructure investment.

The global financial market is geared towards short-term, highly liquid and large volume investments, which limits the ability or motivation to commit to infrastructure. Many investors only hold investments for less than two years on average, so have little interest in longer-term performance.⁶⁷ Restrictions apply across the investment chain, from investment fiduciaries, to intermediaries and institutional investors alike.

Climate change risks, which are inherently long term, are likely to be missed by financial analysis due to the short term focus of current risk and valuation models, and the lack of adequate information to assess risks (see chapter 7). This favours investments with short-term returns rather than infrastructure and exposes long-term equity investors to under-priced risks.

Over two decades the average time for holding equities has fallen from eight years, to just eight months today.⁶⁸ This is beginning to change. A 2017 Boston Consulting Group survey found that the majority of investors want company management to focus on sustained value creation, with fewer than 10% considering short-term earnings a key investment criterion.⁶⁹ Nonetheless, there are strategic points where government and regulators should step in to address barriers in the market structure.

Fiduciary duty

Fiduciary duty requires those entrusted with managing money (fiduciaries) to act prudently in their protection of beneficiaries' (those whose money they are managing, e.g. savers') interests.⁷⁰ However, the duties are not clearly defined in law. Many fiduciaries believe that their duty is to maximise short-term returns, and that taking Environment, Social and Governance (ESG) considerations into account is at odds with their duties – for example 53% of pension trustees did not see climate change as a financially material risk to pensions⁷¹ – but pensions are multi-decadal and this approach may be mismatched with long-term value and beneficiary preference, especially for younger savers. Moreover, taking longer-term risks into account can result in better investments, such as infrastructure that is resilient to extreme weather events and assets less at risk from future policy direction. **There is a need to align investment strategies with the timelines of savers' interests and future risks.** This can be supported by better access to information and clearer fiduciary duties.

⁶⁷ Institutional investor stock holding periods are 1.4 years on average. Generation Foundation & 2i (February 2017) *All Swans are Black in the Dark*.

⁶⁸ EU High Level Expert Group on Sustainable Finance (HLEG) (February 2018) *Final Report*.

⁶⁹ Boston Consulting Group (14 December 2017) 'Increasingly Bearish Investors Seek Long-Term Value Creation'.

⁷⁰ ShareAction (October 2014) *Fiduciary duty explained*.

⁷¹ Professional Pensions (24 August 2016) 'Climate change is 'overblown nonsense' and not a material risk, says industry'.



Clarifying that ESG risk should be incorporated into investment strategies via fiduciary duty would shift the £2tn of capital in UK pensions⁷² towards investments likely to demonstrate better long-term performance. **Government and the Financial Conduct Authority (FCA) should introduce a legal duty for fiduciaries to consider financially material ESG risks**, building on the findings of the Law Commission's 2014 review.⁷³ This should extend to all investors, including asset managers and intermediaries, in line with the findings of the EU's HLEG on sustainable finance.⁷⁴ Trustees should consult with beneficiaries on non-financial factors they may want to have taken into account to ensure that they are acting in their interests, connecting end investors with the investment chain. This may require further financial literacy education and guidance at a grassroots level. Regulations from the Financial Reporting Council (FRC) should also integrate best practice guidance on fiduciary duty and consideration of ESG factors.

DEFINED CONTRIBUTION PENSION SCHEMES

Following the introduction of government-mandated pension auto-enrolment, 11m UK pensions are in Defined Contribution (DC) schemes.⁷⁵ The value of DC schemes is expected to rise six-fold to £1.7tn by 2030.⁷⁶

92% of DC savers are in default schemes,⁷⁷ as DC funds are subject to a charge cap of 0.75%. Most default funds are run as passive funds which track a standard index like the FTSE 100, essentially following the general trend of the economy. Taking 'active' investment decisions to favour certain investments over others often conveys additional cost and therefore higher management fees. If pension providers shift default investment strategies to align with the Paris Agreement and the SDGs this will mobilise a huge volume of capital for green or social investments. This may be achieved by using 'tilted' passive funds like the Future World Fund (see pg 40).

There is also a tendency in DC schemes towards daily trading, which creates severe restrictions on liquidity and prevents investments in infrastructure. Estimates suggest that over 40 years, DC savers could have 5% additional pension for a diversified portfolio including illiquid assets.⁷⁸ **Government should work with industry to encourage a move towards monthly trading and maximise value for savers**, mobilising huge pots of funding for green infrastructure.

⁷² USD\$2,868bn in 2016. Source: Willis Towers Watson (January 2017) *Global Pension Assets Study 2017*.

⁷³ Law Commission (July 2014) *Fiduciary Duties of Investment Intermediaries*.

⁷⁴ HLEG on Sustainable Finance (January 2018) *Final report*.

⁷⁵ The Pensions Regulator (2017) *DC trust: presentation of scheme return data 2016–2017*.

⁷⁶ DCMS & DWP (December 2017) *Pension funds and social investment: the government's interim response*.

⁷⁷ The Pensions Regulator (2017) *DC trust: presentation of scheme return data 2016–2017*.

⁷⁸ Towers Watson (October 2012) *The DC trend towards daily pricing and trading: Towers Watson asks "Has it gone too far"?*



Incentives

Asset managers are expected to report earnings on a quarterly basis, with evaluation linked to performance against short-term benchmarks and profit rather than longer-term value creation.⁷⁹ Incentives should be introduced across the investment chain to link performance to sustainability. For example, every member of HSBC's Management Board has sustainability metrics built into their annual and long-term performance scorecard, used to determine any variable pay awarded.⁸⁰

Asset owners should work with intermediaries to develop mandates for asset managers to improve the long-term value of their investments. The HLEG on sustainable finance sets out further detail on how incentives can work across the chain, including moving away from short-term industry benchmarks.⁸¹

Investment intermediaries

Investment consultants tend not to integrate ESG considerations into their advisory services as standard. **ESG is still seen as a niche service and comes at additional cost**, only at the request of the asset owner.⁸² Asset owners have a responsibility to demonstrate demand, **but intermediaries must systematically engage with long-term considerations to ensure they give sound advice.**

For example, credit rating agencies (CRAs) are important market intermediaries and only look at credit risk within a three to five-year window,⁸³ leading to inaccurate valuations of companies facing risks beyond that timeframe. CRAs are starting to incorporate climate mitigation and adaptation strategies into their credit factor valuations,^{84,85} which should drive up the cost of capital and borrowing on non-resilient or non-climate aligned investments and level the playing field. However, new low carbon technologies or sectors are still penalised by standard valuation methodology which uses historical data in valuation, and where that is not available it uses industry benchmarks,⁸⁶ which limits accuracy of valuations in novel areas. Anecdotally, low carbon project developers believe CRAs to be a few years behind the market curve on green infrastructure in terms of understanding and acceptance.

Many investors, including institutional investors, can only invest in assets above a certain credit rating, so a lower credit rating may eliminate entire layers of potential investment in addition to acting as a red flag. On the other hand, an infrastructure project classified as 'investment grade' can unlock

huge volumes of finance. **CRAs must invest in greater ESG expertise and should be required to reassess valuation methods to incorporate longer-term risks** in the interest of giving sound advice (remaining clear about the uncertainties associated with long horizon projections) to guard against the risk of offering poor advice. Clients of CRAs also share responsibility to demonstrate demand and exert greater pressure for them to build in-house expertise on emerging green/ESG sectors and technologies.

Capital weighting

The UK's financial markets are focussed around highly tradeable secondary investment products like securities rather than real economy investment which delivers infrastructure. This is partly due to the regulatory environment: international and European rules designed to ensure prudence in the financial system include 'capital weighting' requirements, which require financial institutions to hold money against their investments in reserve in case of financial downturn leading to significant losses. This **restricts investment and lending, particularly for illiquid infrastructure investments** which cannot be sold easily to raise cash. There is much more infrastructure investment in Canada, where regulations allow for a lower degree of capital reserves.⁸⁷

Whilst greater prudence is to be encouraged, investing over the long term in infrastructure

⁷⁹ : Al Gore & David Blood (December 2011) *A Manifesto for Sustainable Capitalism*.

⁸⁰ : HSBC (November 2017) *Environmental, Social and Governance (ESG) Supplement Supporting sustainable growth*.

⁸¹ : Recommendation 7, HLEG on Sustainable Finance (January 2018) *Final report*.

⁸² : UN PRI (2017) *Investment consultant services review*.

⁸³ : Generation Foundation & iif (February 2017) *All Swans are Black in the Dark*.

⁸⁴ : Moody's (28 November 2017) 'Climate change is forecast to heighten US exposure to economic loss placing short- and long-term credit pressure on US states and local governments'.

⁸⁵ : <http://bit.ly/2n9c44z>

⁸⁶ : S&P Global (February 2011) *Principles of credit ratings*.

⁸⁷ : FT (21 November 2017) 'UK life insurers can help boost infrastructure'.



as a means of increasing financial stability should be supported by prudential rules and their interpretation. The London Stock Exchange has listed 13 infrastructure funds worth \$7bn that give institutional investors access to infrastructure in a way that is compatible with prudential rules like Solvency II. This is an area where the UK has unique expertise and track record.⁸⁸ The EU is considering introducing a 'green supporting factor' to reduce perceived risk and lower capital requirements for banks to direct capital towards green investments.⁸⁹

Government should consider how a green supporting factor in the UK could help to address market barriers arising from capital weighting requirements and level the playing field for green infrastructure investment.

International cooperation

As the market structure is global, UK government cannot create this change alone. As such **it will be important to remain engaged with international efforts to shift market structures**, such as the Taskforce on Climate-related Financial Disclosures (TCFDs, see pg 37) and the EU's sustainable finance action plan.



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⁸⁸ Sustainable Stock Exchanges Initiative (2017) How Stock Exchanges can Grow Green Finance

⁸⁹ FT (2 January 2018) 'Brussels looks at easing bank capital rules to spur green investment'.



SIX STRATEGIC PUBLIC SPENDING

Public spending can maximise private investment by lowering risk and providing a market.

Public intervention can be particularly effective in expanding the pool of potential investors, improving economics of marginal projects and sharing information to reduce perception of risk for key sectors⁹⁰ through measures such as direct investment, guarantees and procurement.

Leverage and blended finance

Combining sources of investment through 'blended finance' vehicles can lower risk and increase volume. In the UK, whilst still under public ownership the GIB's £3.4bn investment crowded in £12bn of additional investment.⁹¹ The UK Innovation Investment Fund (UKIIF), which provides long horizon investment targeting early stage enterprises, raised additional private investment of over 20 times the original public sector stake.⁹²

Where government makes strategic green infrastructure investments at the national or local scale, a requirement to leverage private capital should be introduced to maximise the impact and value for money of public spending.

Doing so ensures that the public sector is engaging with the private sector when choosing and structuring investments and can encourage greater partnership within the private sector. In turn, private sector investors can take advantage of the risk mitigation offered by blended finance models and therefore invest at lower cost⁹³ and build capacity in green investment. National government should offer local government support through guidance and standardised blended frameworks.

Targeted investment

In some less mature infrastructure areas, support may be vital to establish proof of concept and become viable markets for private investment at a commercial rate. **Government should set up targeted funds for priority policy areas in the CGS and 25YEP where there are clearly articulated market failures, like a habitat restoration fund or a domestic energy efficiency investment fund. This should include cornerstone government investment and a requirement to leverage private capital.** Initial funding could be drawn from the proceeds of the GIB sale, and from a portion of the c.£2bn of Dormant Assets in the insurance and investment industry.⁹⁴ Funds could be deployed through the Catapult network or the British Business Bank, building on existing experience and structures.

⁹⁰ Vivid Economics (2011) *Economics of the Green Investment Bank*.

⁹¹ <http://bit.ly/2nb1b1k>

⁹² BIS (May 2012) *Early Assessment of the UK Innovation Investment Fund*.

⁹³ Blended Finance Taskforce (January 2018) *Better finance, better world*.

⁹⁴ Commission on Dormant Assets (March 2017) *Tackling dormant assets: Recommendations to benefit investors and society*.



CATALYTIC FINANCE INITIATIVE (CFI)

Bank of America launched the CFI in 2014 with a \$1bn commitment and a goal to stimulate at least \$10bn in new investment into high-impact clean energy projects through partnerships. Partners who have joined the CFI include Crédit Agricole CIB, EIB, HSBC Group and IFC, pledging capital totalling \$8bn as of April 2016 and expertise to develop and advance innovative financing structures.⁹⁵

The partnership structure brings together expertise in a broad range of financial specialty areas, including clean energy infrastructure finance, green bonds, project finance, green asset-backed securities, emerging markets investment and advisory assistance, and approaches to blending public and private finance. **By working together, these partners can achieve greater collective impact.**

In January 2016 Bank of America Merrill Lynch structured and co-arranged a €978m offshore wind project bond in the North Sea, the largest ever renewable energy bond in Europe, alongside a \$44m loan provided separately to project developers. The deal included 43 different investors with different risk and return requirements and demonstrates how a complex structure can leverage investment.

It is important not to deploy public funding where it is not needed. Apart from adding unnecessary pressure to public finances, it may also deter private investors from entering markets by artificially lowering the price, increasing risk that investors cannot recover early investment costs, and may create a dependency culture among beneficiaries by undercutting market forces. This final point has contributed to the difficulty in setting up a market for investing in natural capital. A 2015 review of the GIB identified sectors with the greatest need for public intervention but is now out of date.⁹⁶ **Government should commission an up to date review to identify priority investment areas that require government intervention to deliver the CGS and 25YEP.**

Flexibility would be required within targeted funds to ensure public funding is only being deployed in areas where it is additional. Once a fund establishes a track record of success and opens the market up to private investment, the fund could be sold on and funds recycled to reinvest in ongoing or newly identified market failures, ensuring government funding continues to crowd in, rather than crowd out private capital.

⁹⁵ Bank of America press release (6 April 2016) 'Catalytic Finance Initiative Brings Together Banks and Investors, Directs \$8 Billion in Capital for High-Impact Sustainable Projects'.

⁹⁶ NERA Consulting (2015) *The Green Investment Bank – Examining the Case for Continued intervention*.



IS THERE A FUNDING GAP FOR GREEN INFRASTRUCTURE?

The Clean Growth Strategy offers over £2.5bn of government investment for low carbon technology, including £246m for next generation battery technology through the Faraday Challenge to 2021; £1bn to support Ultra Low Emission Vehicles (ULEV) uptake, including on upfront cost and £80m to support charging infrastructure deployment; and a £505m Energy Innovation Programme to accelerate commercialisation of innovative clean technologies and processes, with £184m for innovative low carbon heat and energy efficiency and £20m for cleantech early stage funding. Government has also pledged £4.5bn to support low carbon heat technologies to 2021 through the Renewable Heat Incentive.⁹⁷ If deployed effectively, this funding could be instrumental in boosting investment across the green infrastructure market.

As one of the biggest UK investment bodies in novel green infrastructure, now the GIG has been privatised there are some questions over whether it leaves a gap in green infrastructure funding. The new owner Macquarie has committed to investing £3bn over three years but this is not ringfenced for investment in the UK. GIG may decide to take advantage of its expertise in the UK green investment market and continue to invest domestically for less mature projects, but this will depend to some extent on the attractiveness of the UK investment environment.

The EIB has been a significant source of infrastructure investment in the UK, providing €9.3bn for UK energy infrastructure alone (2012–16).⁹⁸ Since Article 50 was triggered, only three UK projects have had funding signed off and no projects have

been financed since June 2017⁹⁹ (though this may simply be due to uncertain investment conditions during ongoing negotiations to leave the EU). The UK's future relationship with the EIB is unclear, **but it seems likely that funding from the EIB will become scarcer**, resulting in a potential multi-billion pound investment gap. This will particularly be to the detriment of smaller and less mature green infrastructure areas.

Government must be proactive to make sure a large funding gap that undermines the UK's ability to meet its policy goals does not emerge, for example through the issuance of a sovereign green bond (see pg 34).

⁹⁷ > HM Government (October 2017) *Clean Growth Strategy*.

⁹⁸ > Chatham House (May 2017) *Staying Connected: Key Elements for UK-EU27 Energy Co-operation after Brexit*.

⁹⁹ > The Times (22 August 2017) 'European Investment Bank cuts off cash for British building projects due to Brexit'.



Guarantees

A direct way for government to reduce risk for private investors is to provide guarantees against potential financial loss, which transfers risk to government in the case of investment failure. HM Treasury launched the UK Guarantees Scheme (UKGS) in 2012 with the aim of guaranteeing 'nationally significant' infrastructure projects and avoiding delays to investment. The scheme can support £40bn of guarantees but had only supported nine guarantees totalling £1.8bn as of August 2017.¹⁰⁰

THAMES TUNNEL SUPPORT PACKAGE

The Thames Tideway Tunnel is a major sewer tunnel which will prevent storm sewage overflows from running into the Thames, to accommodate London's growth for at least the next 100 years. It is expected to become fully operational in 2024.

The project is being financed privately by Tideway, with a contingent support package from government to be deployed in specific and exceptional circumstances (e.g. providing compensation to investors if the project is discontinued). The support package has enabled the project to attract private sector finance at an acceptable cost for customers and will only be called upon if certain low-probability but high-impact risks arise during construction. If they do not materialise there will be no exposure for the taxpayer.¹⁰¹ As such the package does not materially reduce risk but allowed the project to go ahead. Government has built in assessments throughout the construction process to provide oversight of risks materialising and opportunities to intervene where necessary.¹⁰²



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¹⁰¹ ✧ Rory Stewart Written Statement HCWS175 on the Government contingent financial support package for the Thames Tideway Tunnel (7 September 2015).

¹⁰² ✧ Tideway (January 2018) *Tideway Green Bond Framework*.

¹⁰⁰ ✧ Gov.uk (24 August 2017) 'UK Guarantees Scheme'.



Government should establish green infrastructure to deliver the CGS and 25YEP as a priority area for the UKGS.

The National Audit Office (NAO) has questioned whether the scheme has been used for projects that really need guarantees and are likely to bring significant public value, as there are no objective tests to assess additionality.¹⁰³ A report from the British Banking Association suggests that tailored approaches covering refinancing or construction risk rather than 100% guarantees would better suit the private sector.¹⁰⁴ An additionality test should be introduced and government should consider the scheme's design to ensure it is as effective as possible.

Guarantees should also be expanded to support and establish market solutions for decarbonisation by mitigating commercial risk.

For example, building government guarantees into contractual arrangements (such as renewable Power Purchase Agreements or energy service contracts) would allow contracting companies and suppliers to limit losses if something goes wrong, such as one of the contracted parties ceasing trading, bridging the gap financially until a new contract is signed or a new provider is found. This provides companies with the security to venture into the relatively new market.

This model could also be applied to heat networks, through Demand Assurance guarantees to overcome the catch-22 of customers not signing up until there are heat networks, and investors not creating heat networks until there are customers¹⁰⁵ and to ensure network operators can receive revenue in the event of temporarily reduced demand. Such guarantees would increase familiarity with and confidence in new market solutions and would only be deployed in the short term to kick-start the market. In the case of PPAs, it could help the low carbon power industry transition from direct government subsidy to market solutions and establish conditions for a long-term tradeable contract market, as suggested in a recent UCL report commissioned by the Aldersgate Group.¹⁰⁶

¹⁰³ NAO (January 2015) *UK Guarantees scheme for infrastructure*.

¹⁰⁴ BBA (2015) *Financing the UK's infrastructure needs*.

¹⁰⁵ The Association of Decentralised Energy (January 2018) *Sharing warmth*.

¹⁰⁶ UCL (February 2018) *UK industrial electricity prices: competitiveness in a low carbon world*.



Finally, **government guarantees for retail banks to develop green products in the short term could facilitate green lending at a lower interest rate to kick-start the market**, for example on loans to improve home energy efficiency, purchase an electric car or install a new electric heat pump. By limiting guarantees to the near-term with the aim of supporting market growth government can maximise private investment whilst minimising long-term liability for HM Treasury.

Making use of existing public funding

Public investment in economic infrastructure will have doubled in a decade by 2022/23.¹⁰⁷ To deliver on the government's commitment to embed Industrial Strategy objectives in the strategic design stage of major investments,¹⁰⁸ **all infrastructure investment should be aligned with the UK's environmental goals. A 'green test' or similar should be introduced to ensure that sustainability considerations are meaningfully taken into account when awarding government grants** through the Housing Infrastructure Fund or the proposed National Investment Fund. **The British Business Bank (BBB) should include an explicit mandate to support green, resilient and particularly resource efficient businesses to boost innovative clean growth.** Leaving the Common Agricultural Policy (CAP) after Brexit will also allow reallocation of public funding towards agri-environment schemes that deliver environmental services.

Procurement

The Industrial Strategy acknowledged that procurement is amongst the government's most significant interventions in the economy. Public procurement makes up 14% of GDP per year, or £270bn¹⁰⁹ – a very significant source of public finance which is importantly not distributed through grants. **It can play a vital role in generating demand for green and innovative products and services, and create a pipeline of demand** that allows innovative SMEs and vital UK low carbon supply chains to upskill and invest. It is a powerful tool through which to send a clear market signal.¹¹⁰

¹⁰⁷ HM Government (November 2017) *Industrial Strategy: Building a Britain fit for the future*.

¹⁰⁸ HM Government (November 2017) *Industrial Strategy*.

¹⁰⁹ HM Government (November 2017) *Industrial Strategy*.

¹¹⁰ See more: Aldersgate Group (December 2017) *Beyond the Circular Economy Package: maintaining momentum on resource efficiency*.



Procurement standards must be strengthened to embed the government's intention to move towards a more resource efficient and low carbon economy.

Government has set the target of improving SME access to public procurement contracts and using a 'balanced scorecard' approach which requires procurers to consider relevant social and economic objectives.¹¹¹ As set out in the Industrial Strategy, public construction contracts must be based on whole life value rather than just initial capital costs, to enable better value and higher carbon savings to be achieved. Smart sustainability metrics, such as resource efficiency being measured by the reduced amount of virgin materials used in construction projects rather than the reduced amount of waste to landfill, must form a key pillar of delivered outcomes and not just bidding criteria.

Government can purchase 100% renewable energy through PPAs to support the subsidy-free renewable generation market.¹¹² Support is also needed for local authorities and other public sectors procurers, through templates or standardised renewable PPA contracts and energy service contracts. A separate Aldersgate Group report sets out how government can use procurement strategy to boost a more resource efficient economy.¹¹³

Bonds

The green bonds market has grown rapidly over recent years and seen strong demand for corporate-issued green bonds.¹¹⁴ Whilst green bonds will not be a panacea and will require increasing transparency and discipline to protect against the risk of greenwashing, they can play an important role in bringing in large-scale investment from institutional investors and providing opportunities for refinancing.

In spite of the London Stock Exchange being a world leading lister of green bonds with 59 green bonds listed worth \$20.2bn,¹¹⁵ only eight UK corporate green bonds had been issued as of January 2018. The UK also lags behind countries such as France, Poland, Fiji and Nigeria in issuing a sovereign green bond. **To raise funds to achieve the government's commitments in the CGS and 25YEP, government should issue a UK sovereign green bond.** This would send an impactful market signal and help to plug gaps in funding without the EIB and GIB. Use of proceeds could be decided by a government green investment committee with private sector expertise integrated to ensure green and profitable projects. UK government and financial regulators should remain aligned with the evolution of the EU Green Bond Standard (due to be published in 2018) to ensure the UK green bond market develops in line with international best practice.

¹¹¹ HM Government (2017) *Industrial Strategy*.

¹¹² Green Finance Initiative (November 2017) *The Renewable Energy Infrastructure Investment Opportunities for UK pension funds*.

¹¹³ Aldersgate Group (January 2017) *Amplifying action on resource efficiency: UK edition*.

¹¹⁴ Schroders (July 2015) *Green Bonds – A Primer*.

¹¹⁵ London Stock Exchange (5 December 2017) 'A Stellar Month for Green Bonds in November'.



WATER GREEN BONDS

A package of green bonds has been issued in the water sector, starting with Anglian Water which issued a £250m green bond in July 2017, the first UK public utility to do so. Proceeds from the bond provide institutional investors with the opportunity to invest and will finance or refinance new and existing green projects such as water recycling and drought and flood resilience schemes, including a £25m water-preservation scheme at Grafham Water, a £28m initiative to secure water supplies for Norwich and £6m towards improving bathing water at Southend.

This was followed in January 2018 by Tideway, whose green bond and placement amounted to £450m, becoming the largest corporate issuer of green bonds in sterling at the time of issuance. Bond proceeds will form part of the financing for the construction of the Thames Tideway Tunnel.¹¹⁶

Thames Water has recently priced a Green US Private Placement which will be used to refinance existing projects. The success of the issue is a demonstration of investor demand for infrastructure investment with proceeds used to refinance a number of green projects including metering, sewage treatment works upgrades and replacing water mains.

Municipal green bonds could be a useful tool to invest in local green infrastructure and resilience, a low cost new source of finance at a time of limited resources for local authorities. They have been used successfully elsewhere: the State of California has issued over \$5bn of municipal green bonds,¹¹⁷ including a \$500m bond from the San Francisco Public Utilities Commission for clean water projects.¹¹⁸ Central government should **encourage the development of municipal bonds, offering required support and guidance such as standardised frameworks and contracts.**



¹¹⁶ ➤ Tideway press release (February 2018) 'Tideway becomes largest corporate issuer of Green Bonds in sterling'.

¹¹⁷ ➤ Climate Bonds Initiative (30 November 2017) 'California Municipal Green Bond Issuance Passes \$5 Billion: New US Green Finance Record'.

¹¹⁸ ➤ CALED (19 January 2017) 'California Green Muni Bonds Top \$1.3 Billion in 2016'.

SEVEN: IMPROVING ACCESS TO INFORMATION

Quality information is key to driving additional green investment.

High quality data is used to measure performance and potential for new revenue, improve or clarify the business case for CAPEX investments and help to make sound investment decisions. It is critical for intermediary financial players like actuaries and credit rating agencies to be able to calculate levels of risk as accurately as possible, particularly in new sectors or technologies. **Better access to high quality data is needed to direct capital towards green investments.** It can do this in the long term by clarifying the risks of non-green investments and highlighting the returns from green investment, helping to move the market away from the short-term bias.

Currently, information available on green factors, such as green revenue and the impacts of climate-related risks and opportunities are not sufficiently well captured by financial reporting. This makes it difficult to demonstrate whether green investments convey lower risk or are more profitable, and to identify climate-related risks in portfolios accurately, obstructing investors from shifting their investment strategies efficiently. "The most valuable currency in financial markets is reliable information. Without it, investors are unable to make informed decisions about where to allocate their capital, which hurts companies' ability to attract it and puts a drag on economic growth. **Transparency is an economic engine.**"¹¹⁹ Greater evidence is therefore needed to facilitate green investments across the board.



The climate-related risks and opportunities businesses face are currently shrouded in secrecy. Having information on such risks would allow investors to back their convictions with their capital. ❖



MARK CARNEY
GOVERNOR OF THE BANK OF ENGLAND¹²⁰

¹¹⁹ ❖ Michael Bloomberg & Mary Schapiro in the FT (19 May 2014) 'Give investors access to all the information they need'.

¹²⁰ ❖ FT (28 June 2017) 'Better market information can help combat climate change'.



Reporting frameworks

The Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) recommendations seek to go further than existing reporting practice like the UK's Mandatory Carbon Reporting (MCR) and improve the availability of data for the markets, more explicitly linking climate factors with financial impacts. The recommendations set out a forward-looking approach to physical, transitional and regulatory risks, including undertaking scenario planning for relevant potential future climate conditions.¹²¹ The UK government has endorsed the recommendations and committed to encourage publicly-listed companies to implement them.¹²²

In the immediate term, government should extend existing MCR regulations on to all large companies, as defined by the Companies Act 2006, to increase reporting practice.

Implementation of the TCFDs is nascent. In a recent survey, 76% of businesses had not yet (or did not know if they had) created scenarios to assess climate risks.¹²³ As noted by the HLEG Final Report, companies need a safe way to engage and experiment with TCFD disclosure. To help businesses get to grips with the new recommendations and ensure a smooth implementation, the **TCFD recommendations should be made mandatory in the medium-term, replacing rather than adding to existing reporting requirements.** Setting an intention to make TCFDs mandatory will fire the starting gun on compliance.

Working closely with early adopters, government should provide guidance to help companies start their TCFD reporting process, with a particular focus on scenario planning and a view to becoming more stringent and ambitious over time, noting that the TCFD recommendations themselves are expected to do so. Companies **must also start work now to implement TCFD recommendations:** in the case of corporations, considering and communicating forward-looking risks and opportunities, cooperating within sectors; in the case of investors, commit to making use of the information in investment analysis and sharing best practice.

Asset-level investment data

The focus of the vast majority of current reporting practice is at the corporate or portfolio level, whilst there is limited granularity to be able to understand green performance or impact at an asset level. As an increasing body of investors exhibit a positive preference for green assets, the ability to differentiate the tangible green impact of real assets will become much more important in building credibility and confidence. In particular, the availability of verified, 'bottom-up' data will give investors and investment managers deeper confidence in the performance and impact of their investments.

The GIG demonstrated the viability and value of this approach for principal investments by developing a pioneering green impact rating methodology,¹²⁴ with monitoring and reporting protocols, to meet their statutory green reporting obligations. This rigorous quantification brings greater confidence and transparency to the market to demonstrate delivery of both financial and green returns. **Investors should start to measure their asset-level performance,** using a suitably robust methodology like that developed by the GIG.

¹²¹ > www.fsb-tcfd.org

¹²² > HM Government (October 2017) *Clean Growth Strategy*.

¹²³ > South Pole (January 2018) *TCFD drivers, preparedness and planning among corporates*.

¹²⁴ > Green Investment Group (2017) *Annual Report 2016–17*.



Natural resource monitoring

Beyond climate-related data, more information on the benefits and risks of natural capital is vital to build an investment case, but data around natural capital investment outcomes and tools for interpreting it are insufficiently mature. The TCFDs currently do not incorporate natural capital risks and revenues (although they may evolve to do so in the future). The Woodland Carbon Code and the UK Forestry Standard are robust standards that provide natural capital data, and a Peatland Code was launched in March 2017. However, there is considerable scope to improve the monitoring and reporting against these standards to provide the evidence to justify future investment in natural capital. **The Environment Agency must be given sufficient resources to collect and evaluate this data.** Investors should engage with natural capital data through the Natural Capital Protocol Finance Supplement to identify their portfolio dependencies on natural capital and use this to inform their investment strategies.



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MAPPING CLIMATE INVESTMENT RISKS

Deutsche Asset Management is using a detailed map to determine where natural disasters spawned by climate change may pose the greatest risks to its investment portfolios. The firm is using data that maps the locations of more than 1m corporate, manufacturing and retail sites globally to gauge companies' exposure to hazards such as hurricanes, heat waves, floods, droughts and wildfires. The bank hopes to use the maps to encourage more disclosure from companies on asset and supply chain risks tied to climate change.

We were feeling that all of the assets and energy going into carbon footprinting were not addressing the immediate risks to us.



MICHAEL LEWIS
HEAD OF ESG THEMATIC RESEARCH¹²⁵

Resource sharing and capacity building

Cooperation is key to helping increase the availability of information and to normalise green investment. The EU's Circular Economy Finance Support Platform aims to raise awareness of circular economy investment opportunities and promote best practice, analysing projects and their financial needs and providing advice on structuring and bankability.¹²⁶ It may go further by potentially developing financial instruments for circular economy projects, bringing together the Commission, the EIB, National Promotional Banks, institutional investors and other stakeholders.

The World Benchmarking Alliance (WBA) is exploring publishing free to access, publicly available benchmarks ranking companies on their sustainability performance and contributions towards achieving the SDGs. The aim is to improve comparability and recognition of companies' efforts, whilst identifying strategic gaps and market opportunities. The WBA hopes to motivate a race to the top. It is estimated that greater information could result in a \$12tn economic opportunity and the creation of 380m jobs by 2030 for companies that pursue sustainable and inclusive business models.¹²⁷

Government should support capacity-building initiatives and build on the work of existing platforms at the domestic and international level.

¹²⁵ Bloomberg (8 November 2017) 'Deutsche Bank Deploys Tool to Map Climate Investment Risks'.

¹²⁶ European Commission (26 January 2017) 'Circular Economy: Commission delivers on its promises, offers guidance on recovery of energy from waste and works with EIB to boost investment'.

¹²⁷ www.worldbenchmarkingalliance.org



Sharing success stories

There is still an (often inaccurate) perception that green means higher risk. Beyond formal reporting, **corporates and the financial industry should publicise business and investment successes arising from green investments to drive demand and capitalise on reputational benefits.**

Arguably the greatest success of the GIB was to demonstrate that green investment is profitable. Through ongoing communications and strategic focus points, like Climate Week New York and the upcoming inaugural Green Great Britain Week, there is an opportunity to spotlight green success stories in the UK. The UK can also use its strong diplomatic tradition to share best practice internationally.

For example, FTSE Russell is developing innovative stock market indices to direct more capital towards green investments through passive funds like the Future World Fund. **Five of its climate indexes outperformed their parent benchmarks by 0.1% to 28.4% over the last five years.**¹²⁸

FUTURE WORLD FUND

Legal & General Investment Management (LGIM) launched a global equities index fund to address investment risks associated with climate change in November 2016. It tracks a climate 'tilted' FTSE index which outperformed the FTSE All World Index between September 2011 and October 2016 demonstrating that green can be more profitable than brown. The fund is suitable for a conservative asset owner with low risk appetite and delivers a 44% reduction in emissions and a 78% reduction in carbon reserves, compared to a market cap-based index without any climate tilt.¹²⁹

The Fund weights investments based on exposure to climate risk: it reduces exposure to companies with worse-than-average carbon emissions and increases exposure to companies with green revenue. LGIM has also committed to engage with companies to adapt their business models to meet global climate change goals. If the company fails to meet the minimum criteria following a 12 month period of engagement, the fund will divest.

HSBC Bank UK Pension scheme, worth £1.85bn has selected the fund for its equity default option. Legal & General will also be investing its own capital in the fund. It is currently seen as 'best in practice', and a success story for the UK. In January 2018 LGIM launched a similar fund for retail investors.

 We believe this fund will offer our members a better risk-adjusted return, incorporate greater climate change protection and deliver improved company engagement. This is a mainstream fund, the new normal. 



MARK THOMPSON
CHIEF INVESTMENT OFFICER AT HSBC
BANK UK PENSION SCHEME¹³⁰

¹²⁹ > As of January 2018.

¹³⁰ > Legal and General press release (7 November 2016) 'LGIM launches multi-factor fund that also addresses climate change risk; HSBC bank UK pension scheme first to adopt'.

¹²⁸ > FTSE Russell, as of October 31, 2017.



Education

Financial advisors should ensure that ESG risk is discussed with clients when providing investment advice, noting that financial education has the greatest impact when linked to a relevant financial decision.¹³¹ More broadly, sustainability should be embedded in the curricula of professional investment, finance, and business qualifications, which would ensure that more of the business and finance world have at least a basic understanding of how sustainability interacts with investment. The financial industry should also commit to greater staff and management training.

At a grassroots level, greater financial literacy is important to empower citizens to better understand their pensions and investments and feel confident voicing preferences to ensure their savings are invested in line with their desired outcomes. **Government should introduce a national financial literacy programme in secondary and tertiary education**¹³² funded by a portion of the Dormant Assets in the insurance and investment industries.

HSBC EMPLOYEE TRAINING

In 2017, approximately 9,000 HSBC employees completed an e-learning module on sustainability risk. HSBC also launched its Sustainability Leadership Programme in 2009, a hands-on training programme focused on the impact of climate change and opportunities to drive sustainable change in business. The programme has allowed it to engage over 1,500 senior managers, clients and suppliers. Through its Living Business Programme, HSBC also supports SMEs to learn from corporate best practice.¹³³

¹³¹ World Bank (August 2017) *Does Financial Education Impact Financial Literacy and Financial Behavior, and If So, When?*

¹³² Aviva (2017) *Delivering the Sustainable Financial System the World Needs*.

¹³³ HSBC (November 2017) *ESG supplement*.



EIGHT SUPPORTING INNOVATION

The UK must support financial innovation to maximise competitive opportunities.

To maximise the UK's competitiveness in the global race on green finance, government should focus on developing markets for innovative green products, both financial and technological. The UK has an historical strength in innovation and it is aligned with the aims of the Industrial Strategy. However, while initial innovation is developed in the UK, it is often furthered by competitors.¹³⁴ Whole stage innovation should be better supported by government to ensure benefits are retained for UK plc.

Securitisation

Mainstream investors with long-term interests typically favour large-scale projects to maximise value for money, given the high transaction costs (e.g. identifying projects (search), evaluating (due diligence) and completing). However, the greatest gap in green infrastructure investment is at the smaller scale end of the market, like house-by-house energy efficiency retrofits, or town-by-town drainage management. Institutional investors have minimum investment amounts of €25-€50m¹³⁵ whereas the cost of retrofitting cavity wall insulation in a small semi-detached home costs between £480 and £660.¹³⁶ This can partially account for the difficulty low carbon entrepreneurs have faced in attracting affordable capital. Aggregating smaller projects into larger, tradeable investment products may help to address the issue of scale.

Investments funded through bank loans can be bundled into an asset-backed investment vehicle, known as securitisation. Securitisation allows banks to transfer risk, for example to institutional investors, and free up additional lending. Securitisation of mortgages was partially to blame for the US financial crash in 2007, so the market has remained subdued since then. However, **when structured soundly, securitisation can play a very important role to free up investment.**¹³⁷

The OECD estimates that annual issuance of green asset-backed securities could reach between US\$280-380bn by 2035 for renewable energy, energy efficiency and low emission vehicles financing.¹³⁸

Government guidelines on green securitisation are needed to promote the market whilst safeguarding fiscal prudence. The EU agreed new regulations on securitisation in May 2017 to re-establish a safe securitisation market in Europe through more simplicity, transparency and standardisation as part of the Capital Markets Union. It is expected that this could unlock up to €150bn of additional funding to the real economy.¹³⁹ The UK should seek to uphold or build on these regulations after leaving the EU to ensure the UK remains competitive with its European counterparts. Uptake of asset-level disclosure by investors as discussed above can help to structure securities more soundly and increase confidence. Government and industry must be careful to ensure that overly-rigid standardisation does not curtail the market.

Fintech and community finance

The UK's online alternative finance industry grew 43% in 2016 to £4.6bn annually, becoming an increasingly important source of finance for smaller businesses and start-ups.¹⁴⁰ Innovative technologies like blockchain and other forms of fintech have the potential to change the market radically, tackling issues like scale by aggregating smaller investment projects, increasing transparency, impact measurement and facilitating securitisation.¹⁴¹ Automated processes can simplify due diligence, reduce transaction costs and lower the barrier to entry. The UK has a strong footing in fintech thanks to the creation of an "innovation sandbox".¹⁴² **Government should work with industry to retain and promote our competitive advantage in this area,** noting that it is a rapidly growing global industry.¹⁴³

¹³⁴ UNEP FI (January 2016) *UK: Global Hub Local Dynamics*.

¹³⁵ HMG (August 2017) *Financing Growth in Innovative Firms*.

¹³⁶ BEIS (April 2017) *What does it cost to retrofit homes?*

¹³⁷ Michael Sheren for Thomson Reuters (6 December 2017) 'A Powerful New Engine for Green Finance'.

¹³⁸ Climate Bonds Initiative (4 April 2017) 'Green Securitisation: Part of the climate finance suite: Can the EU lead the way?'

¹³⁹ European Commission press release (30 May 2017) 'Capital Markets Union: EU reaches agreement on reviving securitisation market'.

¹⁴⁰ Cambridge Centre for Alternative Finance (8 December 2017) 'Growing UK alternative finance'.

¹⁴¹ European Commission (8 June 2017) *Financing Sustainability*.

¹⁴² AltFi news (11 December 2017) 'UK positioned to win in fintech, despite Brexit uncertainty'.

¹⁴³ See CISL (October 2017) *Catalysing Fintech for Sustainability: Lessons from multi-sector innovation*.



UK'S ONLINE ALTERNATIVE FINANCE INDUSTRY GROWTH 2016

£2.6bn

+43%

£4.6bn



Most community finance is facilitated through fintech, like peer-to-peer lending platforms, crowdfunding and localised savings products. These products can be particularly impactful in natural capital markets by connecting small investors to local projects, where local citizens are not primarily seeking financial returns, but rather a positive outcome for their local area.¹⁴⁴ Many green community products are actually also delivering as good as – or better than – market returns. For example, Abundance Investment's Innovative Finance ISA allows regular investors to invest directly in green energy at an average annual rate of return of 6% over a 20-year term, and a minimum investment of only £5 which allows a wide range of people to invest.

Government should work with industry to facilitate the ongoing emergence of the innovative finance encouraging the industry to find applications with a bearing on increasing green investment. For example, government could support the development of a Green ISA market by extending tax-free allowance or offering cashback options for green retail products. This could help to raise greater volumes of finance and positively involve the British public in the low carbon transition.

BIG SOCIETY CAPITAL

Big Society Capital Limited (BSC) is an independent social investment institution. It was established by the Cabinet Office, launched with a £600m investment fund in April 2012 from dormant high street bank accounts and an independent Reclaim Fund. It invests in Social Investment Finance Intermediaries (SIFIs), not directly in organisations. The SIFIs then provide finance to support those organisations. It aims to increase awareness of and confidence in social investment through best practice, case studies and improving links with financial markets.

It has made over £1bn of new capital available to organisations with a social mission and has been widely credited with boosting the social investment market. **A similar organisation for green investment should be established, to provide resources to the financial infrastructure of for innovative green finance and green investment intermediaries.** Unspent Section 106 payments could be used to launch the fund.

¹⁴⁴ For example, a beach in New Zealand was bought by local residents to be run as a national park <http://bbc.in/2rzawoQ>



POLICY RECOMMENDATIONS

Full recommendations for government and industry.

Increasing flows of investment towards green infrastructure will require concerted interventions across the investment landscape. It will be particularly important for government and industry to work together to tackle the major structural barriers.

Recommendations for government

Policy stability and market signals

1 Commit to supporting the growth of green investment over the long term and maintain cross-Whitehall momentum on green finance through the recently reinstated Clean Growth Inter-Ministerial Group, with a stated remit to boost green finance up to and beyond the delivery of the fifth carbon budget

2 Provide long-term visibility and transparency on policy direction through multi-year, cross-party frameworks that are in line with infrastructure investment timelines. Frameworks that have won cross-party consensus, such as the carbon budgets and the coal phase out have been particularly helpful to establish confidence that policy direction will not change between parliaments. Protect and enhance investment drivers arising from the EU as these may cease to apply in the UK after Brexit

3 The CGS and 25YEP must urgently be backed up by greater policy detail, such as measures to ensure all existing homes are EPC band 'C' by 2035 and ways to close the emissions gap

4 Engage a wider set of investors by establishing the potential size of the market to deliver the CGS and 25YEP (and forthcoming Resources and Waste Strategy) and consider setting investment goals (both public and private) in priority infrastructure areas, such as low carbon transport or habitat restoration

5 Expand UK mandatory carbon reporting requirements to capture a larger set of reporting companies in the immediate term including in the public sector, and set a medium-term target for mandatory introduction of the TCFDs with government guidance on implementation

Regulatory barriers and drivers

6 Introduce flexible and smart regulations or standards to create new markets and investment opportunities for infrastructure, unlocking returns in less straightforward markets such as natural capital, energy efficiency and resource efficiency, including a legally binding environmental net gain approach as promised in the 25YEP

7 Resume the carbon price escalator, taking effect as coal is phased out in the early 2020s, with prices rising over time. This may require an appropriate compensation mechanism for energy intensive companies where justified. Consider introducing tax incentives to support investment in early stage commercial products

8 Introduce new requirements for planning regulations to capitalise on existing infrastructure investment plans and create a secondary investment market in green infrastructure, for example in improving resilience through natural flood management when building the 1m planned new homes by 2020

9 Introduce a legal duty for fiduciaries to consider financially material ESG risks, extending to all investors including asset managers and intermediaries and align investment strategies with the timelines of savers' or beneficiaries' interests. Regulations from the Financial Reporting Council (FRC) should also integrate best practice guidance on fiduciary duty and consideration of ESG factors

10 Work with the pension industry to encourage a move towards monthly trading and maximise value for savers, mobilising huge pots of funding for green infrastructure

11 Consider how a green supporting factor in the UK could help to address market barriers arising from capital weighting requirements and level the playing field for green infrastructure investment, considering the limitations requirements placed by prudential rules

12 Remain engaged with international efforts to shift market structures, such as the TCFDs and the EU's sustainable finance action plan



Smarter public spending

13 Where strategic green infrastructure investments are made at the national or local scale, introduce a requirement to leverage private capital to maximise the impact and value for money of public spending.

National government should offer local government support through guidance and standardised blended finance frameworks

14 Set up targeted funds for priority policy areas in the CGS and 25YEP where there are clearly articulated market failures, like a habitat restoration fund or a domestic energy efficiency investment fund. This should include cornerstone government investment and a requirement to leverage private investment. Recycle funds to reinvest in ongoing or newly identified market failures, ensuring government funding continues to crowd in, rather than crowd out private capital

15 Commission an up to date study on priority investment areas that require government intervention to deliver the CGS and 25YEP

16 Provide guarantee support for green infrastructure and for market solutions like PPAs, energy service agreements and heat network contracts. Consider providing guarantees on green loan products to kick-start the market and establish green infrastructure as a priority area for the UKGS

17 Introduce a 'green test' to ensure that sustainability considerations are meaningfully taken into account when awarding government grants through the BBB or Housing Infrastructure Fund, and throughout all infrastructure investment. Include an explicit mandate for the BBB to support green, resilient and resource efficient businesses

18 Strengthen procurement standards to embed the government's intention to move towards a more resource efficient and low carbon economy, including supporting local government with standardised PPA contracts and energy service contracts. Smart sustainability metrics must form a key pillar of delivered outcomes

19 Issue a sovereign green bond to fund delivery of the CGS and 25YEP. Central government should also support municipal bond issuance with guidance, standardised frameworks and contracts

20 Ensure the Environment Agency has sufficient resources to perform vital data monitoring functions on the natural environment



Awareness-raising and education

21 Support capacity-building initiatives and build on the work of existing platforms at the domestic and international level like the EU's Circular Economy Finance Support Platform for energy efficiency and the World Benchmarking Alliance

22 Spotlight success stories demonstrating the profitability of green infrastructure through ongoing communications and strategic focus points like Green Great Britain Week

23 Introduce a national financial literacy programme in secondary and tertiary education funded by a portion of the Dormant Assets in the insurance and investment industries

Innovation support

24 Issue guidelines on green securitisation to promote the market, upholding and building on EU regulations after leaving the EU

25 Work with industry to retain and promote our competitive advantage in fintech and community finance, encouraging the industry to find applications with a bearing on increasing green investment. For example, by supporting the development of a Green ISA market

26 Create a Big Society Capital-style fund for the environment to kickstart a bigger green intermediary and innovative green finance industry, making use of unspent Section 106 payments

Recommendations for business and investors

27 Address market short-termism throughout the investment chain. Asset owners should work with intermediaries to develop mandates around sustained value creation. Financial advisors and CRAs should invest in ESG expertise and ensure long-term risks are central to investment advice and valuation methods. Financial institutions should introduce staff sustainability training and increase use of research that takes a long-term view

28 Publicise business and investment successes arising from green investments to drive demand and capitalise on reputational benefits

29 Start work now to implement TCFD recommendations: in the case of corporations, consider and communicate forward-looking risks and opportunities, cooperating within sectors; in the case of investors, commit to making use of the information in investment analysis and sharing best practice

30 Investors should adopt asset-level data reporting and engage with natural capital data through the Natural Capital Protocol Finance Supplement to identify their portfolio dependencies on natural capital, and use these tools to inform investment strategies

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