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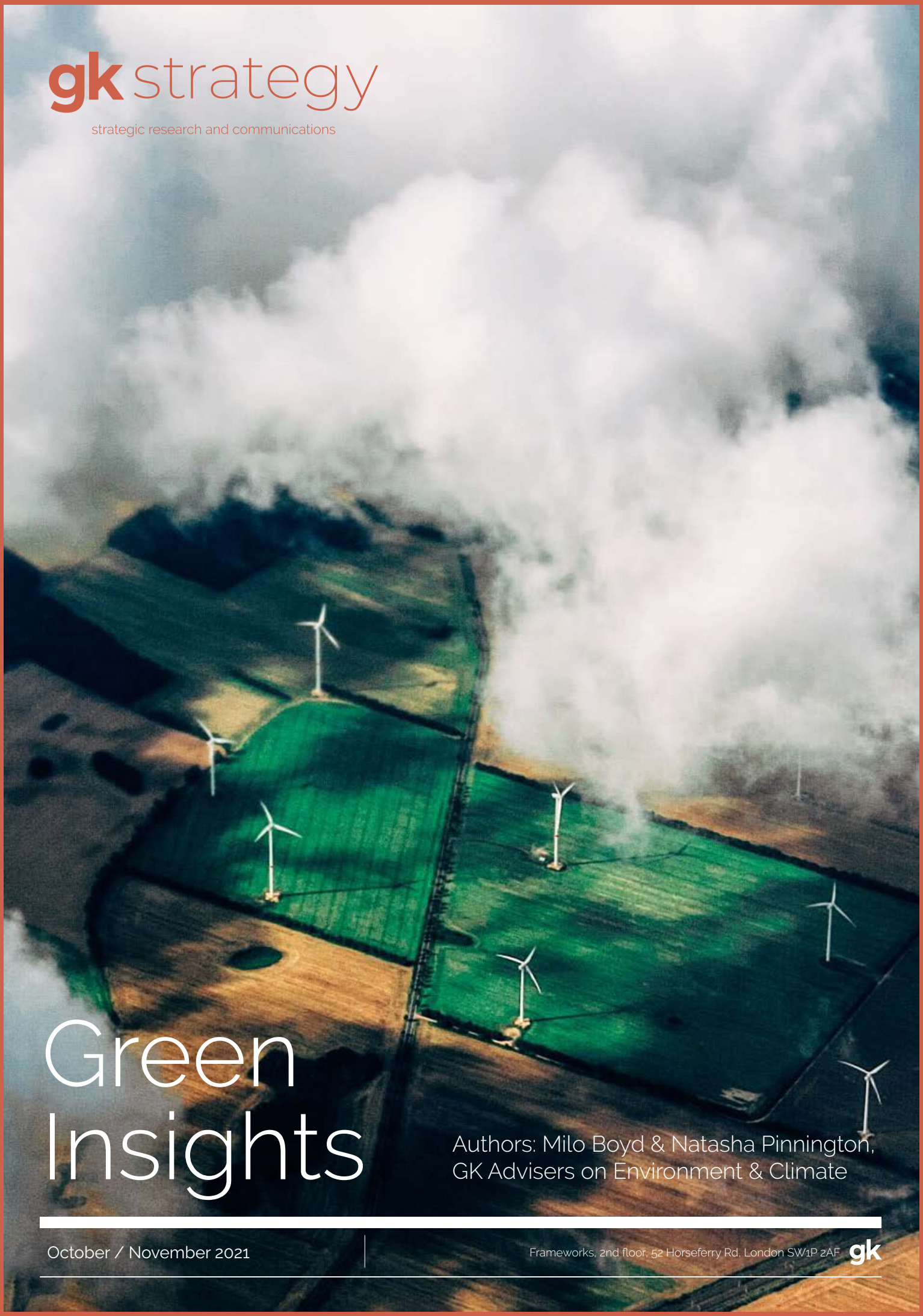

Green Insights

Authors: Milo Boyd & Natasha Pinnington,
GK Advisers on Environment & Climate

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Frameworks, 2nd floor, 52 Horseferry Rd, London SW1P 2AF

Introduction

The publication of the Intergovernmental Panel on Climate Change's Sixth Assessment Report has confirmed all fears about the impact of humans upon the planet. With the 26th Conference of the Parties (COP) Summit starting this week in Glasgow, public opinion is beginning to see that the time for action is now – concern about the climate crisis is at a 30-year high. It is an immutable fact that the Earth's climate is changing, with physical risks from climate change typically translating into increased socioeconomic risks. These present policy makers and business leaders with a range of questions that may challenge existing assumptions about businesses' supply-chain resilience, risk models, and more.

Investors are increasingly considering the environment when making investment decisions, compelling greater consideration, and awareness of political, financial, and regulatory trends in areas such as energy and the built environment.

After all, without effective assessment of climate-related risks and opportunities, accurate financial impacts cannot be correctly determined. Indeed, many institutional investors are pushing companies for information on their how their assets will fare in a low-carbon economy. This focus is set to deepen in the years ahead.

GK Strategy has worked extensively with assets in the energy and built environment space. It is clear that:

- The pace and breadth of change will reward those companies that can best understand policy change and help users – be they government, business, or citizens – anticipate and comply with new regulations.
- The changes will hit some assets far harder than others. Companies that do not have sufficient capacity or capability (for example, around technical or legal issues) will suffer, as might companies with high levels of exposure to certain parts of the market.

This report details the key drivers in a UK context that companies and investors should be aware of, including:

- the decarbonisation of buildings
- the growth of wind power
- zero emissions transport; and
- carbon capture

The next decade will be critical, as policy-makers rethink the infrastructure and systems needed to safeguard the planet.

Green Insights:
Decarbonisation of buildings

Domestic, commercial, and public buildings account for around a quarter of total UK carbon emissions. This makes buildings the second largest contributor to UK emissions, ahead of industry and behind only transport. Homes are responsible for emitting around four fifths carbon from all UK buildings, making domestic decarbonisation a critical challenge for the Government. Overcoming this challenge will require significant and sustained commitment on the part of Government and will depend upon input from the private sector.

In order to meet Net Zero 2050, the UK must eliminate emissions from buildings fully – no small feat given that 90% of buildings currently rely on fossil fuels for heating, with around 1.7 million new gas boilers fitted annually. Overwhelming reliance on gas as the dominant power source, coupled with the poor energy performance of UK homes – 66% are Energy Performance Rating D or worse – demonstrates the scale of the task.

The Climate Change Committee (CCC) has warned that the Government's slow progress on reducing emissions from buildings is incompatible with its mandated climate objectives. In its 2020 report to Parliament, the CCC noted that emissions from buildings fell by just 14% in the decade leading up to 2018 and have even been slowly increasing in recent years. For the first time in a decade, it seems that the Government appreciates the need to go further and faster on this issue, presenting ample opportunities to engage and inform policymakers. The Energy White Paper published in December 2020 demonstrates that there is sufficient ambition.

Central to Government action is the long-awaited Heat and Buildings Strategy, which has now been published. The Strategy sets out a detailed roadmap to domestic decarbonisation, considerably fleshing out the commitments made in the energy white paper. Broadly, Government policy on reducing the carbon footprint of buildings relies on three elements:

1. Decarbonising sources of heat
2. Improving energy efficiency
3. Changing energy behaviour

Decarbonising heat

Moving towards renewable energy sources for domestic heating is a huge task, and one that will require close collaboration between Government and the private sector over the coming decades. There is no single technology that will replace natural gas in domestic heating. Rather, the solution will be a combination of several low-carbon heating technologies – including electrification, hydrogen, and biofuels.

Overall, the Government's rhetoric on decarbonising heat reflects an acceptance that phasing natural gas out of homes will be a drawn-out process, and that households and industry will need long lead times to prepare for the transition. The government is currently consulting on whether it is appropriate to end gas grid connections to new homes, in favour of clean energy alternatives. Ending gas dependency for existing homes will be a far trickier challenge.

Currently, fewer than one per cent of homes in England use a heat pump, and just 30,000 are fitted each year. If the government achieves its ambition of raising this number to 600,000 by 2028, that will only account for 2,3 million new homes powered by heat pumps in that period – a tenth of the total number. Scaling up demand should not be a tough sell, however – the recent volatility of energy prices in the UK and the rest of Europe serves as ample confirmation that adjustments are needed. It is quite simply in the interest of UK energy consumers to make this jump and protect themselves from unexpected price spikes.

Domestic heating is one area in which the Government is pinning a lot of its hopes on the public response to its proposals. Technology will play an important role in reducing energy use and bills, and the Government has placed a lot of faith in the judgment of the British public to encourage the shift power the transition to net zero domestic heating. The Heat and Buildings Strategy contains details of around £3.9 billion of funding to support low emissions homes, with £450 million of grants earmarked for the installation of heat pumps. This is only enough funding to install a maximum of 90,000 in homes across the UK at current prices indicating that the Government hopes the grants will get the ball rolling for uptake. In time, this should facilitate a considerable decline in cost and build a resilient low-carbon market for domestic heating.

Hydrogen has been touted by Boris Johnson as the fuel for the green industrial revolution, and the fuel will also have applications in the domestic context. Though villages in the North of England are currently trialling a hydrogen/gas blend for domestic use, this is likely to be a longer-term project. This has been confirmed in the Heat and Buildings Strategy, indicating that a decision on the widespread usage of hydrogen for domestic heating will not be made until 2026. The publication of the UK Hydrogen Strategy alongside an open consultation on a Net Zero Hydrogen Fund has shed light on the government's ambitions and signals where they match up with the optimistic rhetoric.

The documents present opportunities to outline the UK's vision for a hydrogen-powered housing stock and indicate that the Government aims to provide around 40 TWh of low carbon hydrogen for use across the economy, and for 5GW of low carbon hydrogen production capacity by 2030.

To put these figures in context, there is almost no low carbon production of hydrogen in the UK today, and if the government hopes to achieve its 2030 goals considerable effort will need to be made by all sectors to work to innovate, develop, and scale up UK domestic hydrogen production. The UK is well-placed to take the lead with production of clean hydrogen, with the potential to make use of the vast potential generation of renewable energy from offshore wind. Keeping this in mind, it is therefore crucial that the Net Zero Hydrogen Fund consultation sends the right signals to investment communities and hears from the right voices in this rapidly evolving policy area to generate the necessary investment to allow the UK to truly take the lead in this area.

Improving energy efficiency

Energy efficiency of the UK's existing housing stock has been a thorn in the side of successive governments and the scrapping of the Green Homes Grant demonstrates the difficulty of incentivising retrofit. The Environmental Audit Committee's inquiry into the subject found a chronic lack of skills in the home retrofit sector and concluded that the lack of a coherent and consistent government policy has led to inertia.

The high-profile demise of the flagship Green Homes Grant scheme will heap further pressure on the Government to develop a viable plan to upgrade the UK's poorly insulated homes. The long-awaited heat and buildings strategy has provided a roadmap for to meet this challenge, and this document is certain to open new opportunities for organisations to engage with the process.

For new homes the situation is clearer – the Government has presented its plans for the Future Homes Standard, which will ensure that all newly-built homes are net zero ready from 2025. Homes build under the Future Homes Standard should produce 75-80% less carbon emissions compared with current levels and become net zero as the electricity grid decarbonises. The intention is that homes built to the Future Homes Standard will not need to be retrofitted with any additional measures. DLUHC will now consult on the implementation of the policy, with legislation aimed for 2024, ahead of implementation in 2025.

Strikingly, the recently published Heat and Buildings Strategy does not include extensive details on how energy efficiency will be improved on a national scale. Despite being named as one of the key focus areas for decarbonising buildings, the document stops short of providing total clarity on what is available for consumers to improve their home's energy performance. A £950m Home Upgrade Grant Scheme is introduced in the Strategy, but as has been pointed out by external observers, this is less than half of the funding that was originally earmarked for the Green Homes Grant.

Improving behaviour

Incentivising better use of energy at home is the third prong of the Government's domestic decarbonisation agenda, and technology will play an important role in reducing energy use and bills. Electrification of homes presents opportunities for expansion in the use of smart meters, and the government and Ofgem will work together to deliver regulatory reforms that promote widespread roll-out. The use of meters also allows for 'smart tariffs' to be implemented, promoting consumer saving if energy is used at times of the day in which demand is low.

In the energy white paper, the government sets out several commitments to improve transparency and fairness for consumers about energy use. There will be a general call for evidence on seeking to begin a dialogue between government, consumers and industry on affordability and fairness. Government will also take steps to ensure that consumers have access to more transparent information on the carbon impact of their decisions.

Another area that will of critical importance to the UK's climate ambitions will be behaviour trends for mobility and transport. In a recently published – and swiftly deleted – BEIS Behavioural Insights Unit document (Net Zero: principles for successful behaviour change initiatives), there is full acknowledgement that behaviour change will need to occur for the UK to meet its climate ambitions. Crucially, the document accepts that the government holds significant influence in this area, through the signals it can send to populations through behaviour interventions. The document equally concedes the political difficulties that can arise when recommending a reduction in polluting travel activities.

Wind is a sector ripe for investment: Here's why

Amidst the society-upending tumult of COVID-19, it is easy to forget that the past 18 months saw something equally as abnormal happen to the UK's electricity supply. No coal was burned to generate any of it for nearly two months in the summer of 2020 (the last time this happened was 1882). During that period, wind power contributed nearly a fifth (15%) of all generation capacity – a proportion that is only expected to grow.

With coal on the way out, there has never been a better time to invest in wind. For a start, the UK's wind generation capacity has shown significant year-on-year growth for the past decade. In 2010, total capacity was 5.4 GW. By 2020 that figure had more than quadrupled to 24 GW, and at current rates the UK is well on track to achieve and exceed its target of 40GW of offshore wind generation capacity by 2030 – a target reaffirmed in the Net Zero Strategy.

Government policy in recent months has focused on offshore wind, due in large part to its superior generation potential relative to onshore – the sites for which tend to be smaller. The 2019 Offshore wind Sector Deal reported that subject to costs continuing to decrease, offshore wind could contribute up to 30 GW of the UK's electricity generation capacity by 2030. The signs so far are good, the Prime Minister recently announced that the UK has attracted more than £6 billion in green energy investment since the launch of his 10-point plan for green energy in

November 2020, but more needs to be done – the International Energy has recently recommended that spending on green energy trebles to keep climate change under control.

To make good on its lofty target, the Government has launched an offshore manufacturing investment support scheme. The programme – which requires the subsidised investment to be made in a deprived region – ties into the Government's broader vision of "Levelling Up". The new funding made available by the 2021 Budget for new offshore hubs in Teesside and the Humber underscores the extent to which these priorities are viewed as interlinked by policymakers. The UK is now seeing the benefits of this policy, with £260 million of public and private funding announced for the Humber region to produce high-tech turbines for the UK power grid.

That, however, is not to say onshore wind has been forgotten. Subsidies for onshore wind projects have been restored, alongside the opening of a new Contracts for Difference (CfD) auction round expected in December of this year, already backed by a ringfenced £265m of funding.

From the Government's perspective, backing onshore wind is a win-win policy. Not only does the measure help the UK meet its much-vaunted net zero target, but it is also having cross-cutting electoral appeal. A survey by the Department for Energy, Business and Industrial Strategy (BEIS), found that more than three-quarters of respondents (79%) supported the expansion of onshore developments. The pressure for this may well increase considering industry innovation around developments such as battery storage and smart grids.

This dynamic undoubtedly creates a fast-moving policy and fiscal environment, but one that provides an open forum of discussion. There can be little doubt that the Government will seek the views of external views. GK has extensive experience of advising governmental engagement and helping businesses navigate take advantage of existing opportunities within the policy landscape.

For more information, get in touch with joecormack@gkstrategy.com

What future for transport?

Another particularly tricky thorn in the Government's side is the issue of transportation, which is now the most polluting sector in the United Kingdom, accounting for roughly 27% of the UK's total GHG emissions in 2019. Emissions have stubbornly remained at this level over recent years despite the UK achieving an economy-wide 43% cut of emissions. Tackling this area will undoubtedly prove to be a real test for the Government, which needs to make real strides in this area having tackled the 'low hanging fruit' of domestic energy production. The Government will undoubtedly have one eye on the economic benefits that getting this issue right can bring. The UK has rightly thrown its weight behind the increased production and ownership of electric vehicles (EVs) to take advantage of the UK's existing manufacturing clusters. Critical to the success of this will be to continue working closely with the private sector to leverage investment and ensure that the UK does not fall behind the EV curve.

The Government has indicated a willingness to do this, as demonstrated by recently announced private sector investment from Nissan in the Northeast of England for an EV and battery hub – the UK's first Gigafactory. With industry figures stating that five new, high-volume gigafactories will be required by 2027 to keep up with demand for EVs, there will be considerable opportunities for engagement at all levels of the UK's developing supply chain. Failure to establish this supply chain could significantly hinder the Government's net zero ambitions and will absolutely be something the Government is focused on getting right.

The publication of the Government's Transport Decarbonisation Plan was an encouraging step in the right direction and included progressive plans to end the purchasing of diesel and petrol vehicles.

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This has been further strengthened by the recent Net Zero Strategy, with a commitment to end the sale of petrol and diesel cars by 2030 alongside an investment of £620 million in grants for electric vehicles and street charging points – but will it be sufficient? Currently, there is little detail in the Net Zero Strategy about the funding available to stimulate electrification of supply chains, and what is available through the Automotive Transformation Fund has been widely deemed as insufficient to cover the cost of supporting the transformation of supply chains. This should be an open goal for the Government, but as it stands much more attention is needed on to get the wheels turning on zero carbon transport.

Government policy has previously shied away from putting policies in place to tackle the not-insubstantial issue of aviation, and recent policy announcements have proved to be no different. The Government did not set any targets for an overall reduction in rising emissions from the aviation sector in the net zero-strategy, and the results of the jet zero strategy consultation are still yet to be published. For sure, the aviation sector will be one of the most technical to fully decarbonise, but with the countdown to COP 'on' and only £180 million announced for the expansion of sustainable aviation fuel, the race is on.

With the aviation sector alone predicted to grow by 700% by 2050 (according to the International Civil Aviation Organisation) the Government will need to make tough decisions soon.

Carbon capture: can we rely on it?

Perhaps the most uncertain aspect of the UK's route towards net zero is the role that carbon capture and storage will play. The technology is still very much in its infancy, and currently is not able to make up the emissions deficit. There is, however, significant mention of carbon capture and storage (CCS) in the government's Hydrogen Strategy, making it likely that an increasing reliance on hydrogen will be coupled to an increasing focus on CCS.

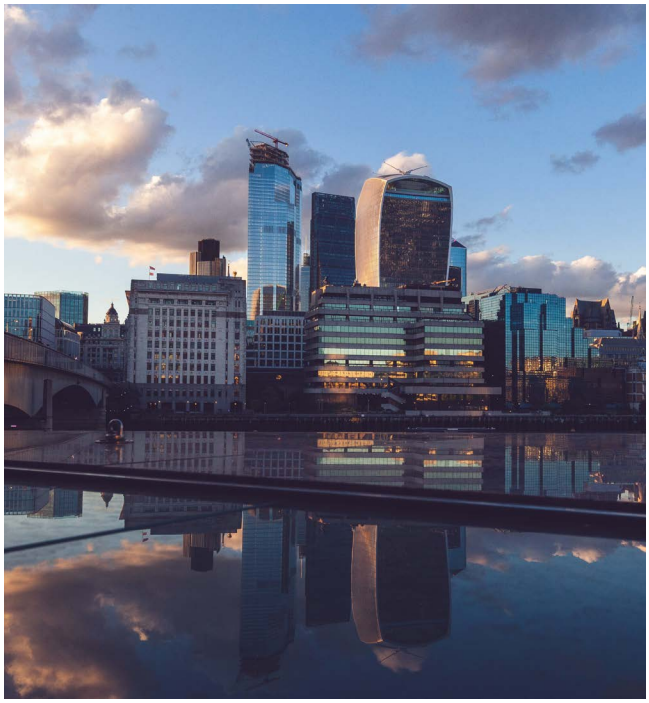
Global venture capital investment in CCS reached a record $230 million in 2020, up from a mere $550k in 2018. Paying to capture carbon is not currently cheaper than carbon offsetting, though it is significantly easier to quantify the amount of carbon saved in the process. Start-ups (Carbon Clean, Soletair Power) are currently trialling scalable technologies in both point-source carbon capture and DAC (direct air capture, sucking C02 from ventilators inside buildings). Shell's announcement of a carbon capture site in Canada in July this year follows similar announcements from global energy companies to build CCS storage facilities.

Most significant from the UK Government's perspective is the fact that carbon capture can be a by-product of hydrogen production: C02 is separated in the process, and then put in a fuel cell for energy use. The integration of carbon capture to hydrogen production makes the creation of hydrogen more efficient than it would otherwise be.

The Government's Hydrogen Strategy notes this along with the fact that 'blue' hydrogen production only becomes low carbon by virtue of its coupling to CCS. The Energy White Paper, moreover, sets out the plan for UK deployment and creation of CCS technology and infrastructure, announcing £1billion of support allocated up to 2025 and a commitment to a revenue mechanism to bring through early-stage private investment. It plans to do this through the creation of four industrial 'clusters' by 2030, aiming to capture 10MT/C02 per annum. Track 1, the first two clusters, were announced in October 2021.

What does all this mean for investment? As seen with the Contracts for Difference (CfD) scheme in offshore wind, it is likely PE and private investors will only enter into the CCS space once projects supported by Government funding are off the ground and have been shown to be successful. PE in particular is likely to only get involved with CCS projects once there is a minimum level of income for investors – as was the case with CfD in offshore wind. PE investors wanting to exit investments after a 6 month period are not likely to be attracted to CCS, at least initially – current investors in CCS tend to be oil and gas companies or pension funds with longer-term strategic aims.

It remains true, however, that UK geography, particularly the East Coast, is favourable for CCS – the Government's details of the CCS Infrastructure Fund stresses that its importance in meeting the net zero target 'should not be underestimated' and that the UK Continental Shelf could 'safely store 78 billion tonnes of C02, which is the equivalent of 200 years of the UK's annual CO2 emissions'. Lowest cost CCS can currently be achieved by combining large scale stores (over 3MT/a) with shared infrastructure and existing low risk technologies. Investment – PE and otherwise – in this space is likely to grow and grow over the coming years as the technology becomes scalable.



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What next?

All eyes will be firmly fixed on the events taking place in Glasgow and any changes or commitments that flow from it. The 26th Conference of the Parties will be a real test of the world's nations and their respective commitments to a sustainable future – comprehensive action will have to outpace the change in climate itself. It will be left to the stewardship of the UK and the global policymakers who attend to ensure that this Conference does not falter where others have previously.

Many businesses and investors are in the process of closely considering the Conference's implications for UK policy in the years to come. At a domestic level, the summit's lead-up has hastened the clarification of UK environmental policy, about which the UK has been in the dark for a while, with several key strategies long overdue through 2021. Clarification has come in the form of wide-ranging commitments to decarbonisation across some of the most difficult and technical aspects of the British economy, including domestic heating and heavy industry. Part of the government's bold and commitment-heavy strategy is surely to prompt businesses to make similar pledges in turn, either in the form of net zero planning or as investment in areas like offshore wind, electric vehicles, hydrogen power or CCS, thereby shoring up and making good on the Government's own preliminary investments in these areas.

Where implementation and infrastructure remain a long way off, the Government's gamble is at least as much about signalling seriousness as to the level of the ambition in the UK required to shift the economy towards renewables, as it is about following through these commitments to the letter. Should the Government follow through on even half of the climate commitments made this year, it will mean a whole host of changes to the UK regulatory system, in turn offering enticing opportunities for governmental engagement. These changes, though they start in the climate space, will inevitably ramify outwards into health, security and financial considerations as the global community looks beyond COP and towards 2050.

GK has extensive experience of advising investors and business leaders in this space and similarly fluid or regulated sectors on how best to leverage opportunities at local, regional, and national levels.

For more information on how to effectively navigate the shifting policy landscape, please contact milo@gkstrategy.com


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strategic research and communications
Frameworks, 2nd floor,
52 Horseferry Rd, London
SW1P 2AF
www.gkstrategy.com