UNIVERSITY OF CAMBRIDGE
INSTITUTE FOR SUSTAINABILITY LEADERSHIP

Banking Environment Initiative

Bank 2030

Accelerating the transition to a low carbon economy

The Banking Environment Initiative

The Chief Executives of some of the world's largest banks created the Banking Environment Initiative (BEI) in 2010. Its mission is to lead the banking industry in collectively directing capital towards environmentally and socially sustainable economic development. The Banking Environment Initiative is convened by the University of Cambridge Institute for Sustainability Leadership (CISL), which also provides the Secretariat. Decisions and positions of the group do not represent the policies or positions of CISL or of the wider University of Cambridge.

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The University of Cambridge Institute for Sustainability Leadership (CISL) is a globally influential Institute developing leadership and solutions for a sustainable economy. For over three decades we have built the leadership capacity and capabilities of individuals and organisations, and created industry-leading collaborations, to catalyse change and accelerate the path to a sustainable economy.

Rewiring the Economy

Rewiring the Economy is our ten-year plan to lay the foundations for a sustainable economy, built on ten interdependent tasks, delivered by business, government, and finance leaders co-operatively over the next decade.

This CISL project was funded by the below eight banks from around the world.

BNP Paribas SA
Deutsche Bank AG
Landesbank Baden-Württemberg
Lloyds Banking Group PLC
Morgan Stanley
Santander Group Banco Santander SA
Standard Chartered Bank
Wells Fargo

Publication details

Acknowledgements

The authors of the report were Grant Rudgley, Jasminka Enderle and Dr Nina Seega at the CISL Centre for Sustainable Finance. The team was supported by Anna Lowe, Thomas Verhagen, Kajetan Czyz, Nick Villiers, Dr Jake Reynolds and Andrea Gangheri at CISL.

We are also very grateful to our Expert Group – Dr Paul Fisher (former Deputy Head of the UK Prudential Regulatory Authority), Sean Kidney (CEO of the Climate Bonds Initiative) and Mark Lewis (Head of Sustainability Research at BNP Paribas Asset Management) – for their guidance throughout and peer review.

Last but not least, we would like to thank the industry experts involved in this project, the participating members of the BEI; BNP Paribas, Deutsche Bank, Lloyds Banking Group, Santander and Standard Chartered, and the other contributing banks; LBBW, Morgan Stanley and Wells Fargo. Without their support, time and insights, this report would not have been possible.

Reference

Please refer to this report as University of Cambridge Institute for Sustainability Leadership (CISL 2020). Bank 2030: Accelerating the transition to a low carbon economy. Cambridge: University of Cambridge Institute for Sustainability Leadership.

Copies

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1. Executive Summary

Moving to a sustainable economy is the challenge of our time. Ever-increasing greenhouse gas (GHG) emissions are warming the planet, changing the climate and threatening human life.

We are already at 1°C of warming above pre-industrial levels.[1] Seventy per cent of extreme weather events studied since 2012 can be attributed to climate change[2] and insured losses from natural disasters were US$134 billion in 2017, the second-costliest year on record.[3] Such exceptions are set to become the norm. Without decisive action, we are on course to reach 2.0°C around 2050 and 3.2°C by 2100.[4] At 2.0°C, the population exposed to water scarcity would increase by an estimated 388 million and annual flood damage losses from sea level rise could be as much as US$11.7 trillion.[5]

Averting this requires deep and sustained cuts to greenhouse gas emissions. To keep warming to 1.5°C, cuts of 45 per cent are required by 2030 with global emissions reaching 'net zero'[6] by 2050.[7] This means emissions need to decline now. The transition to this low carbon economy requires a transformation of assets and behaviours, for which trillions of dollars in finance is required.[8]

To address this challenge, this project set out to understand 'how banks can accelerate the financing of the low carbon economy' and, by doing so, develop a vision for a bank of 2030.

This question emerged from the Banking Environment Initiative (BEI) of the University of Cambridge Institute for Sustainability Leadership (CISL); specifically, from conversations with chief executives and chairs of the banks in the BEI. The research was based on 100 interviews, including with 88 senior bankers. It is their voices, complemented by independent CISL analysis of academic and practitioner literature, that form the research base for this report. This research found that:

1. Many banks continue to take a short-term risk-based (responsive) or CSR (Corporate Social Responsibility)-based approach to climate change.[9] Regarding themselves as "client led"[10], bankers in 'banking-as-usual' were more comfortable taking a passive approach that responds to client demand.

2. The key characteristic of a bank enabling its clients to transition to a low carbon economy is an 'active mindset' – one that prioritises relationships over transactions and which is underpinned by a forward-looking attitude that sees a low carbon future as inevitable.

3. Innovation and collaboration by empowered bank employees is essential if a bank is to accelerate the transition to a low carbon economy and secure the successful clients of the future.

4. Measuring the financial risks stemming from climate change will enhance a bank's appetite to support clients aligned with a low carbon economy.

With an active mindset the banker, or bank as a whole, actively seeks opportunities to finance low carbon assets and transition client business models. These bankers take action because they think it is essential to their business – to generate future returns, manage the risk of the transition and maintain their social license to operate. As such, long-term success is associated with the ability to (1) help clients secure capital at a rate that makes a low carbon investment more attractive and (2) connect clients with experts to develop a compelling low carbon investment case and provide ongoing assistance with its implementation.

Consequently, some banks can be said to be taking a strategic approach to the low carbon economy that unlocks latent demand for green investment by clients. Independent of regulatory or policy support, these banks channel capital into the low carbon economy by:

- Taking direct risk exposure with clients, e.g. green loans.
- Structuring via capital markets, e.g. transition bonds.
- Increasing their own lending capacity, e.g. green securitisation.
- Funding innovations, e.g. ring-fenced venture capital funds.

In its flagship *Rewiring the Economy* plan, CISL set out three tasks for finance through to 2030:

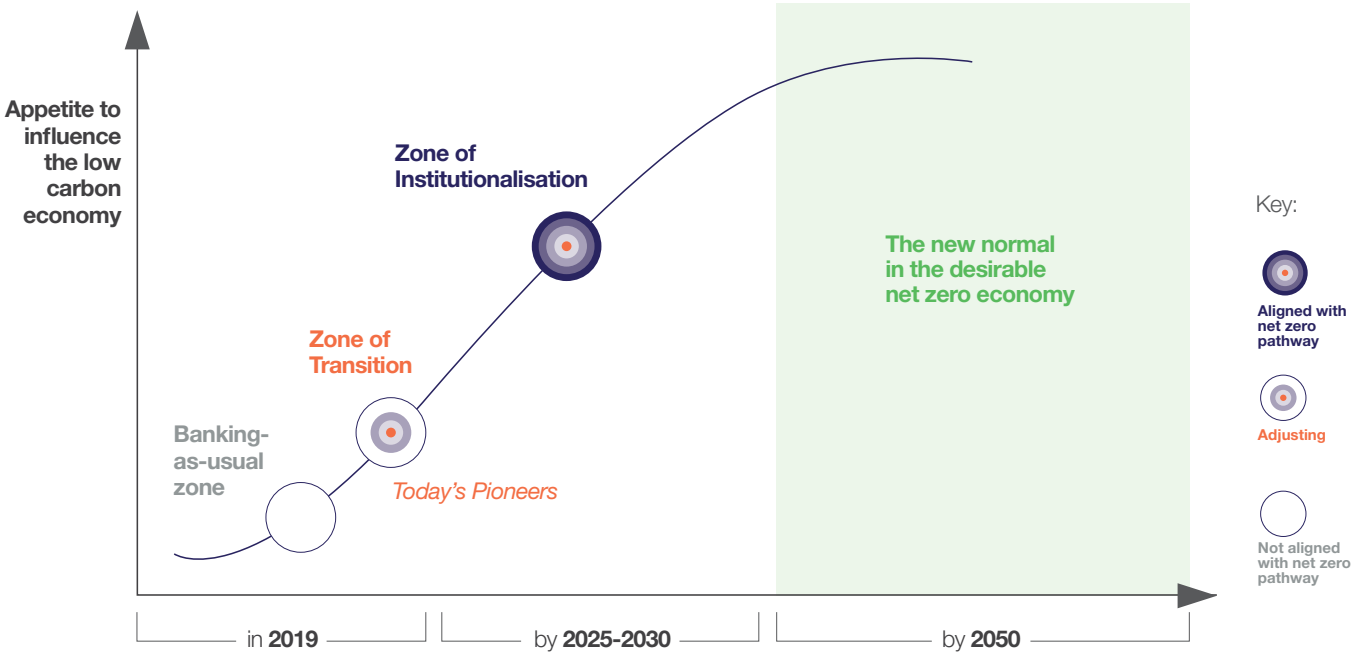
1. Ensure capital acts for the long term.
2. Price capital according to the true costs of business activities.
3. Innovate financial structures to better serve sustainable business.[11]

A bank in 2030 will have institutionalised the mindset, competencies and innovative practices needed to meet this challenge. It will regard the transition as a material risk as well as an opportunity, bringing it first into a 'zone of transition' (see Figure 1). Over time, the bank understands the impact of each dollar of financing on the net zero emissions goal, aligns its business model with net zero and presses policymakers for system change – e.g. the introduction carbon taxes – as such change will give it an edge over competitors. Such a bank will have accelerated the transition to a low carbon economy (the 'zone of institutionalisation').

After a bank reboots its strategy and moves along the curve outlined in Figure 1, the business and operating model adjusts. Employees are empowered with training and time to influence the transition and risk management supports them. The result should be ever-expanding coverage of the low carbon economy through the product offer and customer service model. See boxes on the opposite page for detail and examples.

By the end of this journey, the new business lines created by 'leaning in' to channel more capital to the low carbon economy have taken over the bank. It will have transformed its business and operating model.

Figure 1: Accelerating the financing of the low carbon economy – the curve of change and roadmap to a low carbon bank of 2030



Banking-as-usual zone

- Focus on efficiency, preventing the status-quo from changing
- Have a passive mindset, where the bank is waiting for others to move first
- See sustainability as a reputational matter

Zone of Transition

- Have a forward-looking, active mindset that recognises low carbon opportunities
- Collaborate with others to create shared visions of a low carbon future and its attractiveness
- Create innovative, pioneering practices

Zone of Institutionalisation

- Incorporated forward-looking analysis of climate-related physical and transition risk into the risk framework
- Have stimulated the low carbon pipeline at scale
- Scaled pioneering practices
- Aligned the business and operating model with net zero

Figure 2: Result of an adjusted business and operating model

A bank adjusting its business and operating model to influence the low carbon transition can...

...evolve the product offer

Transition finance

- Create and mainstream transition finance offerings (i.e. KPI bonds, KPI loans, conditional debt) that will encourage clients to transition to a low carbon economy
- Find ways to offer lending with preferential terms, e.g. blended finance for de-risking
- Broaden the leasing offer to deepen penetration of green assets (e.g. electric vehicles)
- Structure instruments to aggregate smaller ticket size projects (e.g. small-scale renewable generation)
- Securitise the assets or future cash flows of service companies offering individuals and SMEs access to the low carbon economy of the future, e.g. ESCOs (energy service companies)
- Increase the bank's lending capacity for new green opportunities
- Create instruments for carbon offsetting and carbon sequestration

Collaborative finance

- Connect sector experts with corporates to stimulate demand for low-carbon
- Strive to create and realise a shared vision of the future with others (i.e. clients, experts, capital)
- Engage with DFIs, regulators and policymakers to create an enabling environment for collaborative finance
- Directly support early stage innovations
- Facilitate crowd funding to help make funding of smaller projects possible

...expand coverage

Low carbon economy for all customers

- Broaden investment in renewable power generation and in the energy efficiency of industry and buildings
- Encourage the transition of agricultural practices
- Help hard-to-abate sectors be a part of a low-carbon transition (e.g. cement or shipping)
- Improve the extent to which individuals and SMEs are supported to transition

Our research centred on how banks can help accelerate the low carbon transition, meaning it focused on how to mitigate climate change. However, the environmental and social challenges we face are interconnected. The above roadmap to a low carbon bank of 2030 could also represent a preliminary sketch for the journey to a sustainable bank – a bank with the appetite and ability to quicken the pace at which the full range of UN Sustainable Development Goals (SDGs) are met.

2. The business case for banks to shift to a low carbon economy

2.1 The climate challenge

We are already at 1°C of warming above pre-industrial levels.[12] Of extreme weather events studied since 2012, 70 per cent can be attributed to climate change,[13] and insured losses from natural disasters were US$134 billion in 2017, the second-costliest year on record.[14] These exceptions are set to become the norm. We are on course to reach 2.0°C around 2050,[15] the impacts of which include an increase of the average drought length by four months,[16] the population exposed to water scarcity by 388 million[17] and the annual flood damage losses from sea level rises to US$11.7 trillion.[18]

To limit the damage, the Paris Agreement of 2015 between 196 national governments aspired to limit the level of global warming to 1.5°C. The difference in environmental impact between this level of warming and 2°C is stark.[19] At 1.5°C versus 2.0°C, there are decreases in the number of people exposed to the impact of sea level rise by ten million, drought by 61 million and extreme heat by 11 million.[20] To keep warming to 1.5°C, cuts of 45 per cent are required by 2030, with emissions reaching 'net zero'[21] by 2050.[22] Put simply, the decarbonisation of our economy needs to take place now.

2.2 The possibility of limiting global warming to 1.5°C

The current policies of governments around the world mean that we are likely to reach 3.2°C by the end of the century.[23]

However, the core assumption of this project is that with ambitious action a pathway consistent with 1.5°C is possible. There are numerous ways this can happen, of which three are noteworthy:

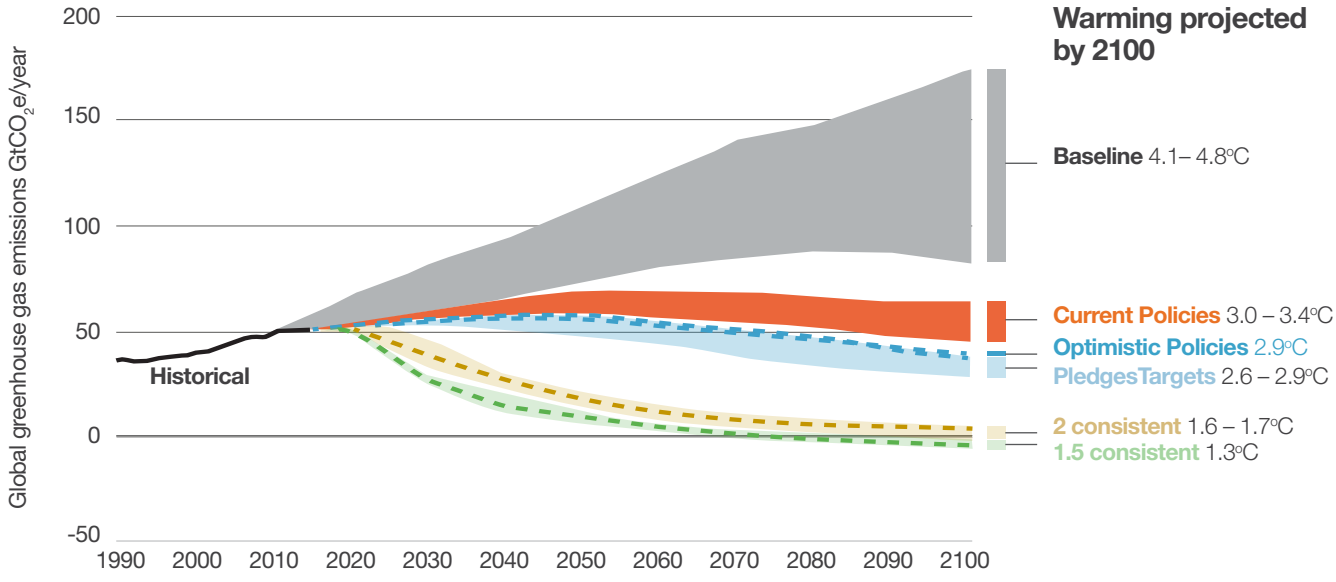
1. A quicker than expected evolution and/or deployment of technologies.
2. Policy or regulatory change.
3. Capital providers unlocking latent supply of, or demand for, 'low carbon measures'[25] by adjusting their financing or investment approach.

All three can help us reach net zero sooner, whether they happen together or in isolation.

Our research focused on the third option. Within this option, there are three primary ways in which emissions can be mitigated:

1. Reduce demand for resources required by the global economy and our current behavioural norms, such as stimulating investment in energy efficiency or maximising asset utilisation (e.g. sharing vehicles).
2. Change how the demand for resources, such as food, energy or building materials like steel are met. For banks, decarbonising the steel industry could mean financing electric arc furnaces so that steel can be produced with fewer by-product emissions.
3. Sequester CO_2 already in the atmosphere using available techniques or existing carbon sinks such as soil, which holds 50–70 per cent less carbon than it once did.[26] Afforestation, reforestation and soil carbon sequestration are all methods that can tap into and reverse the cumulative emissions of land use change. Finding ways to unlock capital for these sequestration methods will be crucial to meet a 'net zero' goal.

Figure 3: Possible carbon emissions pathways[24]



2.3 The banking industry response

Climate change is moving from a reputational risk issue to a strategic concern for banks. A 2018 Bank of England (BoE) report, Transition in thinking: The impact of climate change on the UK banking sector,[27] classified firms' approach to climate change into three categories:

1. The 'Strategic' approach (ten per cent of firms), characterised as "integrating climate-related factors into today's financial risk management, having a board level agreed, firm-wide, strategic response and leveraging disclosure and scenario analysis to deepen understanding of their own portfolio".[28]
2. The 'Responsive' approach (60 per cent of firms), characterised as "assessing climate change as a financial risk with a three to five year time horizon".[29]
3. The 'Responsible' approach (30 per cent of firms), characterised as "viewing climate change through a CSR lens".[30]

Although this BoE report was UK focused, the classification is useful globally. Indeed, bankers from around the world interviewed for this study confirmed that in the last two years they have seen rapid changes in internal agendas. These include:

- Enquiries for sustainable finance knowledge and expertise increasing daily.[31]
- Departments with responsibility for the sustainability agenda moving to the Strategy function of the bank.[32]
- Sustainability knowledge is increasingly being distributed across business and risk units.
- New roles and teams being resourced to meet client demand for sustainable finance, and to spread knowledge about market and industry trends.

2.3.1 The opportunity of the low carbon transition – 'pull factors'

Two main opportunities exist for banks looking to accelerate the low carbon transition. By grasping both, banks are more likely to secure clients who will thrive in a low carbon economy.

1. Finance segments of the low carbon economy that are growing faster than incumbents.

The growth rate of the low carbon economy is at the expense of the status quo. For example, the UK Committee on Climate Change (CCC) forecasted that the UK low carbon economy could grow by 11 per cent every year between 2015 and 2030; this contrasts with overall GDP growth, which in 2018 was 1.4 per cent.[33]

Prominent demand shifts can at the moment be observed within the power and automotive industries. By 2040, electric vehicles are estimated to increase global demand for electricity by 6.8 per cent.[34] Meanwhile, because renewables can produce power at a near zero marginal cost, the management of demand and grid balancing becomes more valuable, relatively speaking. Categorised as 'smart grid' opportunities by the International Energy Agency (IEA), the most promising segment is currently high voltage direct current (HVDC) transmission.[35] Whilst in the automotive industry, the trend towards Electrical Vehicles (EVs) is causing a spike in demand for batteries. In Europe, "projected battery demand from EVs produced [on the continent] is more than five times the volume of currently confirmed [battery production plants]."[36] By growing expertise in the low carbon economy, the bank can make the most of these market trends.

2. Grow the low carbon pipeline and derive commercial benefit from doing so.

Beyond financing existing market trends, the bank can take steps to accelerate them and derive further commercial benefit (explored by Sections 5 and 6). Although a number of products have been developed to channel capital to renewable power and energy efficiency, they are already factored into the current forecasts that global warming of 1.5°C will occur as early as 2030. They are therefore not enough. Yet economic gains of US$26 trillion are possible between 2018 and 2030 if "bold action" on climate change is taken, according to the Global Commission on the Economy and Climate.[37] This requires further investment and financing of low carbon sectors, usually referred to as the green finance or investment gap. For example, the European Commission has conservatively estimated that "achieving the current 2030 climate and energy targets will require €260 billion of additional annual investment [or] about 1.5% of 2018 GDP"[38].

By filling this financing gap and accelerating the transition, banks create more opportunities to generate revenue for themselves or improve the rating and resilience of their client base.

Example: Industrial Bank in China

By positioning itself as a green finance leader, Industrial Bank in China (IBC) was best placed to take advantage of Chinese Government policy and shifting technological trends over the past 15 years.[39]

In 2005, the bank developed, with the International Finance Corporation (IFC), an energy-efficiency project financing offer for SMEs using future cash flow savings as collateral rather than assets.[40] The purpose was simple; to differentiate the bank' in its expansion efforts – a strategy that the bank's chairman personally championed.[41]

As a result, IBC went from a small regional player in 2005 to the seventh largest bank in China, by total assets, by 2016.[42] IBC became synonymous with green banking, developed in-house expertise on the low carbon economy and has been able to exert "more influence in making the rules shaping the green finance market." [43]

2.3.2 The cost of inaction – 'push factors'

'Push factors' provide banks with the motivation to construct a business case internally for accelerating the transition to net zero emissions. Three push factors exist:

1. Risk of carrying unmeasured and unmanaged physical and transition risk in the portfolio.[44]

In the "process of adjustment towards a low carbon economy... changes in policy, technology and sentiment could prompt a reassessment of the value of a large range of assets."[45] The starkest example thus far of this 'transition risk' crystallising is in the coal sector. The IEA estimates that losses stemming from thermal coal asset write-downs could be as high as US$8.3 trillion by 2060.[46] CISL has developed a Transition Risk Framework for the identification of such risks.[47]

Meanwhile, as the climate changes, historic patterns of drought, flooding, crop yields etc. become less reliable as predictors of the future and an increased frequency of extreme weather events begins to have financial impacts. The financial implications of these acute and chronic climate-related 'physical risks' are yet to be priced in.

Acknowledging the materiality of physical and transition risks, some central banks are moving towards the inclusion of climate change in bank stress tests.[48] The Bank of England (BoE) will be the "first regulator to [mandatorily] stress test its financial system against different climate pathways."[49] Their approach to climate stress testing is not isolated having been developed in consultation with the Network for Greening the Financial System (NGFS), which is composed of 54 central banks and supervisory authorities from around the world.[50] At the same time, the Task Force on Climate-related Financial Disclosures (TCFD) aims to develop more effective climate-related financial disclosures. These disclosures will help companies better understand the implications of climate change and provide data on which regulators can act.[51]

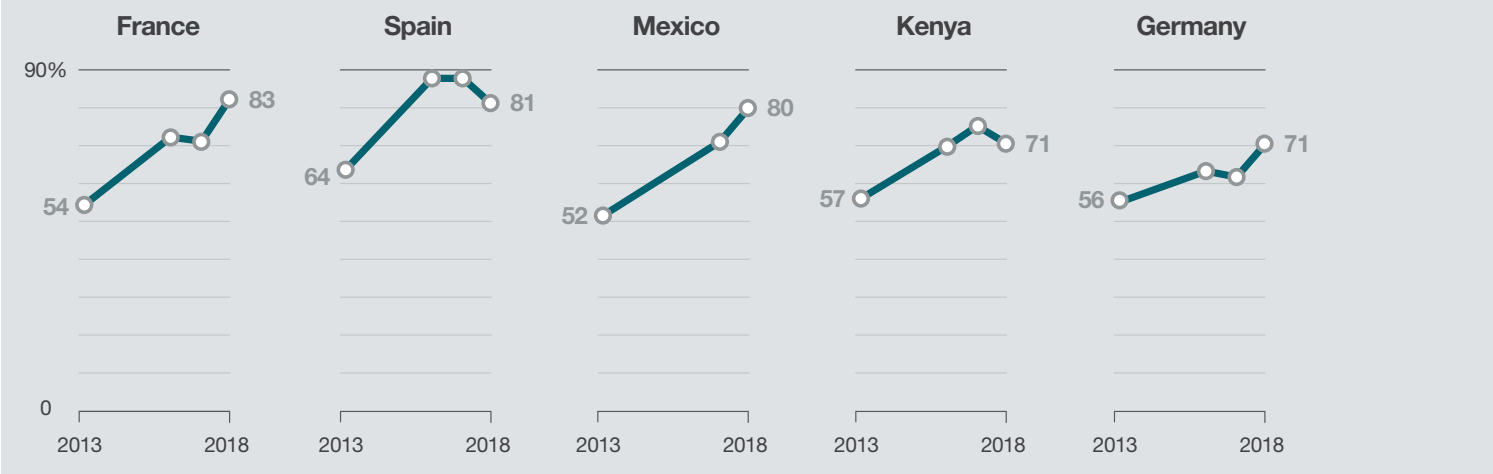
In brief, "as the realities of climate change become increasingly apparent, it is inevitable that governments will be forced to act more decisively than they have so far."[52] This will have an impact on all participants in the economy – hence the Principles for Responsible Investment (PRI) collaboration, 'The Inevitable Policy Response'.[53]

2. Pressure from investors, employees and civil society

In addition to pressure from regulators such as the BoE, there is also pressure from the investment community to respond to the climate challenge.[54] In September 2017, for example, 100 investors, with nearly US$2 trillion in assets under management, sent a letter to 60 banking CEOs "calling for enhanced disclosure of banks' climate-related risks and opportunities and of how these are being managed by banks' boards and senior executives."[55]

These shareholders are empowered by those reporting on the performance of banks on climate issues, such as BankTrack or Sustainalytics. Investor action is becoming increasingly commonplace. For example, in May 2019 an investor resolution proposed by Climate Action 100+, a coalition of investors with US$32 trillion of assets, was passed. This called for BP to enhance its disclosures on emissions and explain how it will meet the Paris climate goals.

Figure 4: Percentage of people that see climate change as a 'major threat' to their country [57]



Civil society pressure also continues to grow. September 2019 saw the most Google searches for 'climate change' on record, coinciding with New York Climate Week and another round of global protests calling for more action.[56] Since 2013, the public around the world has trended towards viewing climate change as a major threat (Figure 4). With voter concern rising, politicians are implementing increasingly assertive policy responses.

Furthermore, as the climate challenge moves up the consumer agenda, it can affect what investment products are preferred. For example, a recent paper by CISL demonstrated that individuals want more from their invested capital than just returns. With the right information, they will exchange returns of up to 2–3 per cent per year to avoid investing in unsustainable funds.[58]

Keenly aware of this context, Bank 2030 interviewees linked their 'licence to operate' with being a part of the solution to the climate challenge. One banker noted that: "In the short term [leading in sustainable finance] is a cost, but in the long term it will buy us trust and our licence to operate."[59]

Bankers that we spoke to also harboured concerns about access to talent unless the bank has a positive impact on climate change. "Quality people want to work for an organisation that has the right kind of approach in this territory,"[60] one remarked. Employee/employer priority misalignment is demonstrated by an annual survey of millennials, conducted by Deloitte (Figure 5).

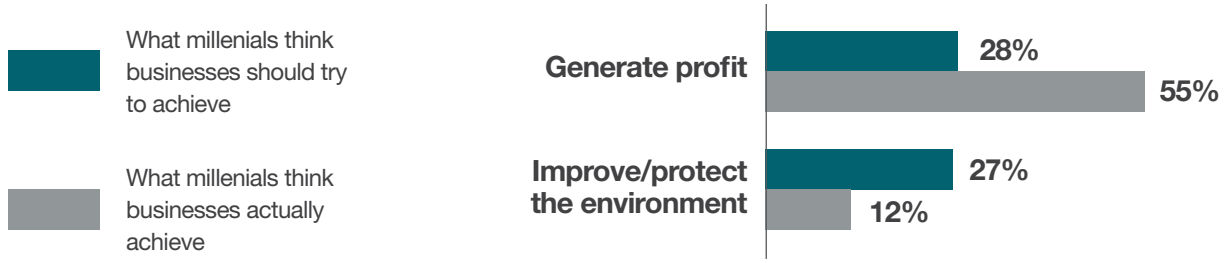
3. Legal liability

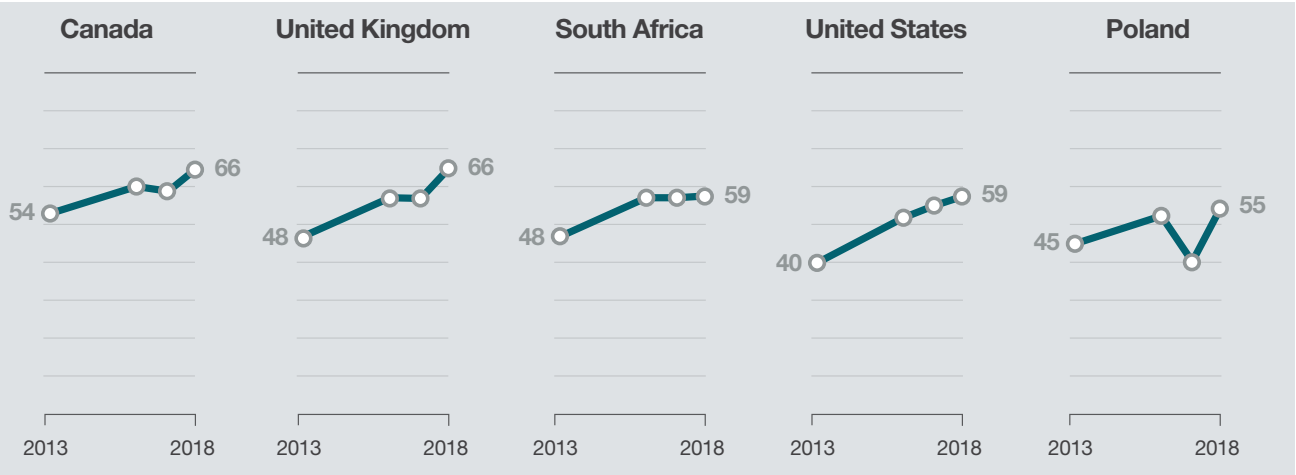
Another risk to banks comes from parties seeking damages as a result of losses incurred when climate risk materialises, or because of the risk that they could. Allegations that climate-related risks were inadequately disclosed were part of the reason that a 2017 Kinder Morgan IPO in Canada was delayed – until the prospectus was updated – and a 2017 Commonwealth Bank of Australia Annual Report was altered.[62]

Climate action lawsuits also help to amplify civic pressure. In December 2019, the Dutch Supreme Court upheld a ruling that will see the Dutch Government obliged to accelerate the pace at which GHG emissions are cut.[63] Such landmark rulings mean litigation "is increasingly viewed as a tool to influence corporate behaviour."[64]

These 'push factors' are moving climate up the C-suite agenda. Senior management attention allows firms not only to address those risks, but also to explore ways to expand the pipeline of investment in low carbon projects by clients. This is slowly growing the suite of products and case studies for how banks can accelerate the transition to a low carbon economy. As a result, "most [banks and financial institutions] (roughly 80 per cent) have board oversight of climate-related risks and opportunities,"[65] according to 2019 research by the Global Association of Risk Professionals. Sections 4, 5 and 6 of this report tackle how this board engagement can be used to accelerate the low carbon transition.

Figure 5: Millennials view of business priorities versus what they think business should aim to achieve [61]





3. The research method

To answer the core research question of this project – 'how can banks accelerate the financing of the low carbon economy?' – the following steps were taken:

1. Literature review

Academic and practitioner literature was reviewed to understand what low carbon opportunities in the 'real economy' look like and what banking products or solutions have moved capital to these opportunities. Findings were used to design interview questions for bankers, corporate leaders and industry experts.

2. Interviews with bankers, corporate leaders and industry experts

This report is based largely on 100 interviews with those working in the banking industry. It is their voice that has been used as the research base for CISL analysis.

Interviews with bankers provided insight into what enables financing of low carbon opportunities, as well as offering individuals the chance to articulate their vision for a low carbon bank of the future. 84 interviewees were sourced from eight commercial banks[66] that participated in the project. Between eight and 15 individuals in the following types of roles were interviewed at each bank:

1. Those with a strategic responsibility for advancing the 'sustainable finance'[67] agenda within their firm (at least two per bank).
2. Sector coverage roles with industry expertise (at least one per sector). The following sectors were covered: steel, cement, shipping, power, agriculture, automotive, real estate and oil & gas.
3. Those familiar with relevant products/solutions (at least two per bank). Products covered included green bonds development, asset-based, project, public and trade finance, leasing, green mortgages, microfinance, sustainability-linked and green loans and green securitisation.
4. A senior member of the risk function with a familiarity of the approach to climate risk (at least one per bank).

Each expertise type received a common set of questions, but the goal of the interviews was to gather unique insights rather than compile an exhaustive list of current practice or comparable data for use in a benchmarking study. For this reason, our interviews prioritised the individual strengths of banks, rather than direct comparability of all questions and roles. Interviews were semi-structured. The structured portion was based on the common set of questions, with time allocated to evolve the interview based on the experience and vision of the individual. As such, the interviews suffered from a selection bias, in that they reflect the variety of expertise available at each institution.

Further interviews to validate the findings were conducted with senior bankers from outside the eight participating banks (two interviews with other commercial bankers and two interviews with development bankers), as well as 12 interviews with leading corporates and industry experts. This brought the total number of interviewees to 100.

3. Peer review

Throughout the process, CISL was guided by an expert group of pioneers from the sustainable finance community – Dr Paul Fisher (former Deputy Head of the UK Prudential Regulatory Authority and BEI Vice-Chair), Sean Kidney (CEO of the Climate Bonds Initiative) and Mark Lewis (Head of Sustainability Research at BNP Paribas Asset Management). Findings were also reviewed by a cross-department group at CISL and the primary contacts at the banks participating in the study – individuals with responsibility for advancing the sustainable finance agenda within their firm.

The environmental and social challenges we face are interconnected. This means that, although our research concentrated on climate change mitigation, the roadmap to a low carbon bank of 2030 developed by this project could represent a preliminary sketch for a bank capable of tackling the wider SDGs.

4. Evolution of banking to 2030

Being an active part of the transition to a low carbon economy is becoming a strategic imperative for some banks. This means that, at the board level, the bank views sustainability as a game changer for the industry and is allocating the resources to build the business case and competence for sustainable finance. This pairs closely with findings from the BoE that ten per cent of UK firms have a 'strategic approach' to climate change, with the remaining 90 per cent being either responsive or responsible.[68] Our research underscored the key difference between these three approaches; namely whether banks are active or passive about the low carbon transition. Those with a 'strategic approach' would be active, whilst being 'responsive' or 'responsible' can both be associated with passivity.

It is the active mindset of some bankers that marks them out from their peers – a mindset that prioritises relationships over transactions and which is underpinned by a forward-looking attitude that sees a low carbon future as inevitable. It can be said that such bankers have a 'make the future possible' mindset – one seeking to expand the pipeline for green finance – rather than a 'serve the market' mindset. Bankers with this active mindset take action because they think it is essential to their business – that it will help them serve the successful clients of the future, avoid risks, generate returns and maintain their social license to operate.

Despite a selection bias that prioritised speaking to bankers with insight about how to accelerate the financing of the low carbon economy, only slightly more than 50 per cent of bankers interviewed exhibited the active mindset.

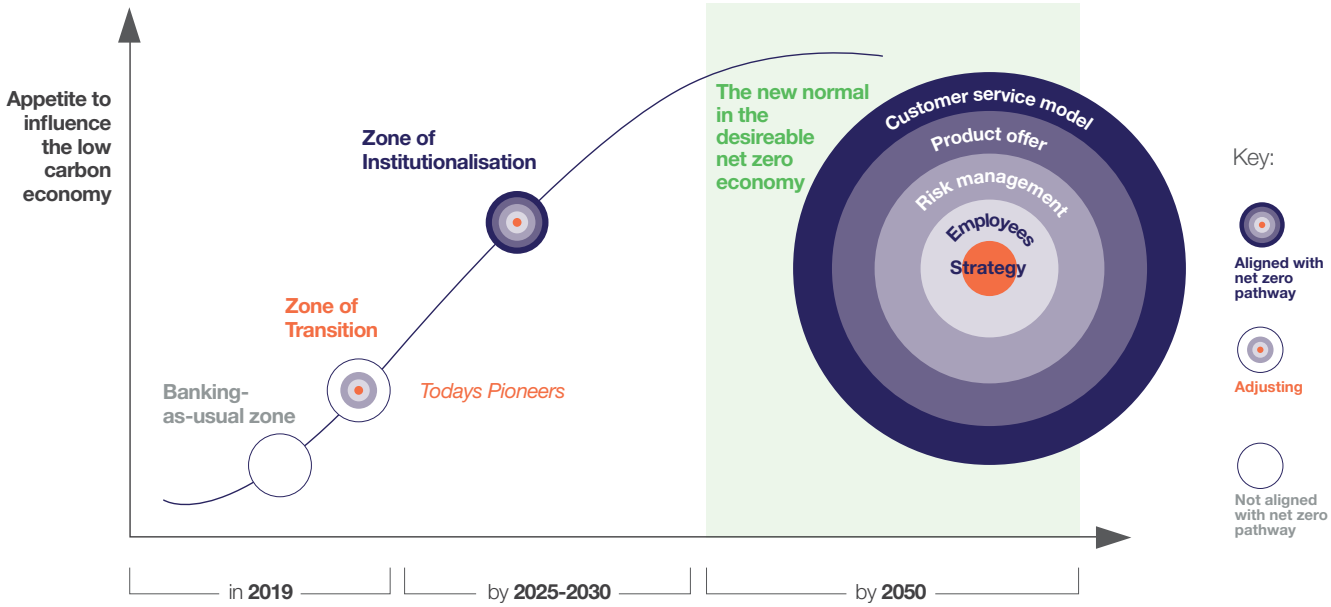
- A banker with a 'make the future possible' mindset said: "We want to actively play a role in shaping the economy."[69]

- A banker with a 'serve the market' mindset said: "The way we operate is client led."[70]

An individual could have an active, forward-looking mindset at any bank. However, viewing the low carbon transition as a strategic imperative – as an opportunity – represented a manifestation of that mindset at an organisation-level. This promotes a strategic approach to climate change where the bank expends resource to enhance its ability to finance a transition to a low carbon economy. Instead of only responding to 'push' factors, such as action by regulators, grasping the opportunity of the transition is a priority – driven by a belief that the bank could secure a larger market position as the economy transitions.

As such, we observed differing appetites to influence the transition amongst the banks interviewed. If a strategic approach had been taken, the bank began to move from 'banking-as-usual' to a 'zone of transition' (Figure 6). Once in this transition zone, it begins to adjust its business and/or operating model, empowering employees to tackle the climate challenge and evolving the risk management function to quantify climate risk. Creating more pioneering products that channel capital to the low carbon economy then becomes possible and coverage of the low carbon economy could expand. Over time, as these practices come to redefine the credit portfolio (and are institutionalised) a bank of 2030 should theoretically emerge that only finances assets and clients aligned with a pathway to net zero.

Figure 6: Growing the appetite to influence the low carbon economy by 2030 and adjusting the banks' business and operating model



4.1 Banking-as-usual: what holds banks back from accelerating the transition?

A responsive or CSR-led approach means that the bank has less appetite to influence the transition to a low carbon economy, tending to finance low carbon assets where there is strong regulatory or market support (e.g. renewable energy). These banks may implement exclusion policies or make public commitments to finance low carbon – from the existing pipeline – but shy away from stimulating low carbon investments by clients.

We observed that there are three factors within the control of banks that prevent them from channelling further capital into the low carbon economy:

1. A focus on efficiency – transaction volume or size – means that the amount of time available for innovation or collaboration to unlock low carbon financing opportunities is limited

In 2018, more than US$150 billion of green bonds were issued, but from the point of view of a bank they remain less attractive to execute than conventional bonds. This is partly due to the additional time involved. For example, one interviewee noted that:

"A green bond takes so much longer: you have to write the framework, get second party approval; you might have to do a roadshow. So a green bond could take three weeks, whilst a normal bond could take a few days. And you get the same commission... [As a result], people on the markets side see it as a constraint."[71]

Organisations with an excessive focus on efficiency – doing more with less – can run the risk of reducing the resilience of their business and their industry.[72] One reason is that standardised processes and decisions are, by definition, more rigid and reactive. There is less tolerance in the system for unanticipated change (e.g. climate risks). Furthermore, whilst efficiency can improve the bottom line in the short-term by streamlining and focusing on transaction size or volume, it means there is less slack available for employees to cultivate opportunities with longer and less tangible payback horizons. This makes it harder for employees to curate ways to channel capital to low carbon opportunities. The transaction focus of a bank is one manifestation of this kind of efficiency logic, reducing the bank's capacity to grasp the opportunities of a low carbon transition.[73]

"[We are] happy to jump on deals and get short-term revenues, as opposed to identifying which clients are the survivors and winners in a dramatically changed business environment."[74]

Some of our interviewees criticised regulators for creating this environment – one where pricing is too often the determinant of success:[75, 76, 77]

"It is about cost/income ratios and efficiencies. We compete on price and speed – that's it. There is very little value-add. A mortgage is a mortgage. Products have to be standardised and transparent."[78]

However, waiting for others to take the lead cannot accelerate the transition. Allowing others to develop a vision for a low carbon future might reduce risk and cost, but it also reduces opportunities to build a strong market position in that future.

2. A passive mindset

Demonstrating the materiality of a low carbon transition to clients requires not only time investment by the banker, but also initiative. It runs counter to an approach in which "the way [the bank] operate[s] is client led"[79] and where, "if a client is not asking for it, then [why] would we be involved?"[80] As a result, the bank has less opportunity to stimulate latent low carbon investment by those clients. Instead, the client takes the lead and the bank has lost the opportunity to accelerate. In their own words, bankers typically:

"Do not have a role to incentivise or motivate clients into a particular business model."[81]

"Are not pushers."[82]

"Do not put themselves in a position to guide customer decisions."[83]

3. Treating sustainability as a reputational concern[84]

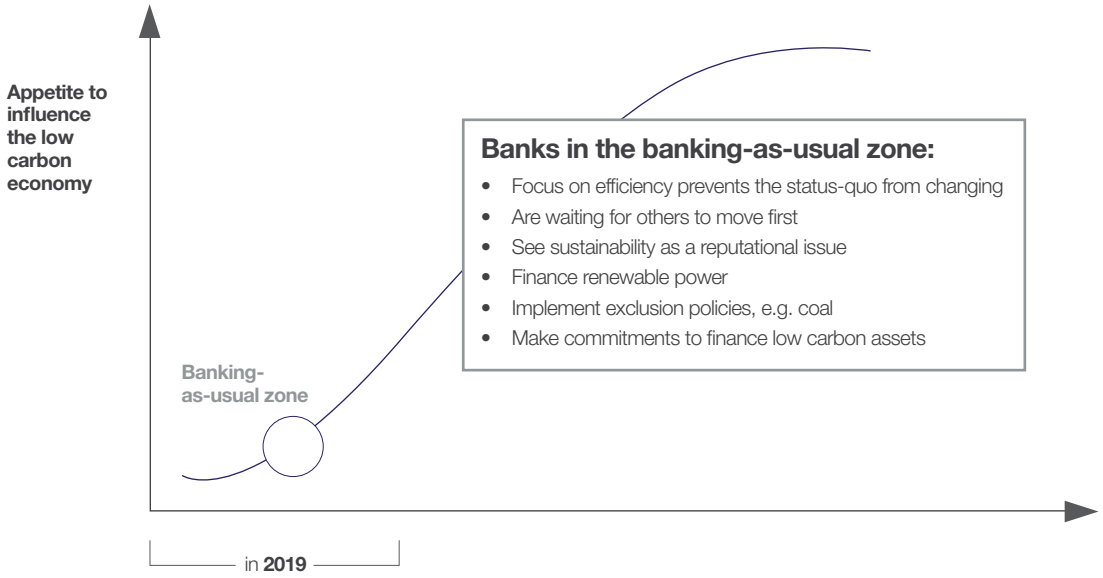
We heard that "nothing is coming in the next five years that can be a game-changer"[85]and so the motivation for low carbon finance and portfolio change is either a positive or negative reputational outcome. The bank "[does not] want to get criticised for loans on [their] books"[86] and the financing of electric vehicle charging points, for instance, happens because "[my bank] gets a marketing benefit from it."[87]

In summary, **when a bank does not consider the low carbon transition a business-critical priority, it endorses a passive approach to clients that may invest in low carbon assets**. This passive mindset limits the extent to which a bank can influence the transition, since it by definition means that the individual or organisation will not seek or carve out opportunities to finance low carbon business cases. Instead, it waits for clients to request financing.[88]

Breaking free from passivity is further challenged by a strong focus on efficiency in order to compete in the short term. Established businesses strive for efficiency, but those stimulating new demand, including for low carbon investment by clients, need to invest time making those options visible and attractive.

A focus on efficiency also undermines time investment in an evidence base that could expand the appetite to spend time on this promotion; for example, the development of industry transition pathways by an individual bank could, in themselves, help to justify more appetite by highlighting opportunities for the bank through the low carbon transition. Instead, others are expected to lead – either clients, regulators, policymakers or other stakeholders.

Figure 7: Accelerating the financing of the low carbon economy – the roadmap to the low carbon bank of 2030 (Stage 1: Banking-as-usual)



4.2 Banking industry leaders: what makes it possible for banks to accelerate the transition?

We observed that some banks are taking a strategic approach to the low carbon economy that moves them out of 'banking-as-usual'. This strategic approach is underpinned by a forward-looking mindset that recognises the opportunity and materiality of a low carbon transition to the bank. This is a "long-term vision"[89] – a belief in a different future not based on historic data – and is a fundamental shift in method for banks whose DNA is "to back test"[90]:

"Most people already have the analytical skills. What is missing is the ability to have vision and to recognise that what we are doing today is not necessarily what is going to be happening tomorrow."[91]

Underpinning this forward-looking vision is the belief that the bank's future revenues will depend on clients aligned with the transition. Therefore, it needs to be winning the trust of these clients today:

The bank "need[s] to have gained the trust of the winning clients over a long period of time [because] the banks rely on the trust the clients have in it and trust takes time to earn."[92]

Having this trust allows banks to act as an advisor – as a "critical friend"[93] – allowing them to collaborate with the client to help them transition. More than a quarter of bankers interviewed emphasised how deepening relationships with clients was essential for overcoming the climate challenge or grasping any opportunities associated with sector transitions. By focusing on building relationships and trust, the time-horizon of what effects the profitability of a bank is extended. Consequently, bankers interviewed could justify the cost of becoming a sustainable finance leader:

"In the short term [leading in sustainable finance] is a cost, but in the long term it will buy us trust."[94]

One example that is illustrative was the time invested by one interviewee to finance an electric vehicle manufacturer. For this individual, "it was clear in 2005/2006 that the electric vehicle was an inevitability."[95] With this forward-looking vision in place, a great deal of effort was made to help the client despite a lack of reliable historic data points. Having pioneered the finance of a client in this sector, the bank developed the credibility, data and competence to win new clients in the electric vehicle value chain (as well as gaining that individual client's long-term trust). What is more, because returns are hard to achieve in the current low interest environment, any differentiation is valuable for the bank. As this example demonstrates, expertise in the low carbon economy is one example of differentiation.[96, 97]

Seeing a low carbon future as a strategic opportunity also creates appetite – in the form of resources – to adjust the business and operating model of the bank. The first way this is done is by empowering employees and resourcing the risk management function to identify climate-related sources of risk. By doing so, employees are better positioned to innovate and collaborate in order to encourage clients to transition. It also makes pioneering products and broader coverage of the low carbon economy possible (discussed in Sections 5 and 6), building a sustainable finance track record to differentiate the bank from its peers.

To empower its employees, the bank can provide training, incentives and time. It also moves sustainability out of a silo, ensuring the champions it trains are dispersed through various parts of the bank engendering collaboration across business units.

4.2.1 Steps to empower employees

1. Capacity building

The critical first step is building capacity and knowledge across the bank. This can focus on the climate challenge, sustainable finance or sector pathways through a low carbon transition.[98]

"The whole of the relationship manager population needs an understanding of climate change and its implications because it will impact [their clients]."[99]

Indeed, seven of eight banks interviewed as part of this study saw the provision of knowledge about climate change and how a transition to a low carbon economy will impact clients as essential.[100] Such education begins to institutionalise what, to this point, has likely been an informal network of sustainable finance champions.[101]

2. Introducing contractual obligations

To incentivise employees to think differently about what they spend time on, inductions and contracts can be updated so that appraisals are linked to the ESG (Environmental, Social and Governance) impact of employee choices.[102,103] This could also apply to executive compensation.

3. Creating slack

By creating slack interviewees argued that staff are afforded the time to:

- Innovate products – there is not the scale in the products teams that there once was, so there is a need to be ruthless about the development of products.[104]
- Establish organisation-wide networks – it is where trends converge and/or industries are disrupted that the opportunity to accelerate is most likely to be available.[105]
- Forge partnerships – the Tropical Landscapes Finance Facility (TLFF), detailed in Section 5.1, provides a great example of "an amalgamation of partnership thinking."[106] Without this collaborative approach, it would not have been possible to finance the restoration of degraded land.
- Keep up with the pace of change – product innovation, industry shifts and regulatory backdrops are moving extremely quickly.[107, 108]

At the same time, resourcing the risk management function to understand and quantify climate risk further empowers employees in business units. This would involve incorporating forward-looking analysis of climate-related sources of physical and transition risk into the mainstream risk framework.

It was suggested that the bank can also "develop industry transition plans"[109] to help answer, for instance, what it "would mean to be the biggest power company by 2030"[110] and support those clients to "place the right bets".[111] Bankers argued that this is critical for refining "what a transition could look like for [the] customer base [and] based on this what kind of offers [the bank] can bring."[112] Altered thresholds and institutionalised views about how sectors will transition justify a further expansion of the appetite to influence the low carbon economy.

We also observed that some coverage bankers have already developed a view of how the industry they cover should ideally transition. These views – internal metrics – are being used to benchmark how aligned clients are with the transition to a low carbon future.[113] The metrics are then used to discuss the viability of continuing to bank clients who do not factor a transition into their strategy.[114] Coverage bankers taking this approach aim to avoid future pain as the economy transitions, which for some is a recent experience. For example, those that cover energy saw write downs of €150 billion of assets between 2010 and 2016 by European utilities as the power generation mix became less carbon intensive.[115]

4.2.2 Creating a shared vision with others

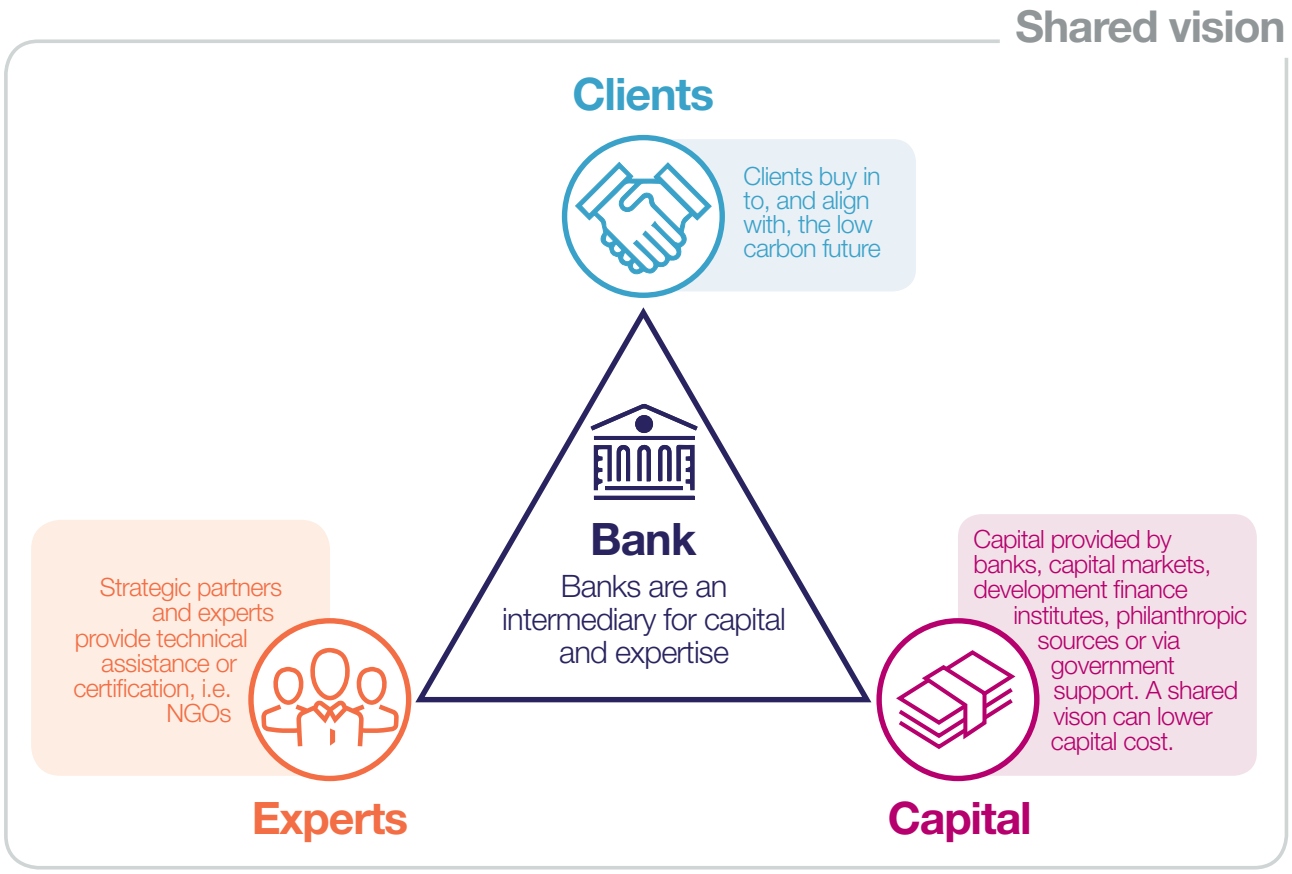
With these foundations in place, we observed that it becomes possible for the bank to bring counterparties together to promote and then realise visions of a low carbon future – to connect clients with experts and capital that improve the visibility and attractiveness of low carbon business cases.

It begins with a deep, trusting client relationship, where the bank is a "critical friend".[116] This makes it possible to have difficult, but business-critical conversations about the transition. In these conversations the bank can share a vision of a low carbon future with clients. If it has also spent time cultivating relationships with experts, it can then connect the client with the experts or tools needed to realise that vision.[117] These partnerships with experts provide the client(s) with confidence and/or technical assistance.

At the same time, the bank can be finding or innovating ways to secure capital at a rate that makes investment in low carbon assets or operating models more attractive to the client. A capital cost that is more preferable to the client could come from a variety of sources; the development finance community, philanthropic sources, international aid, domestic government support (i.e. subsidies) or capital markets. This process utilises banks understanding of clients, its unique position in the network of the economy as an intermediary and its ability to design financial instruments. Additionally, capital could also come from the bank's balance sheet, should risk/return align with the strategic approach and sector tolerances.

Through a deep client relationship, strategic partnerships with experts and the deployment of its capital markets access and expertise, our research suggests that a bank can enable a shared low carbon vision. As one interviewee commented, "who are all the actors that could contribute to accelerate the transition and how do we work with them?"[118] Figure 8 sketches this highly collaborative approach.

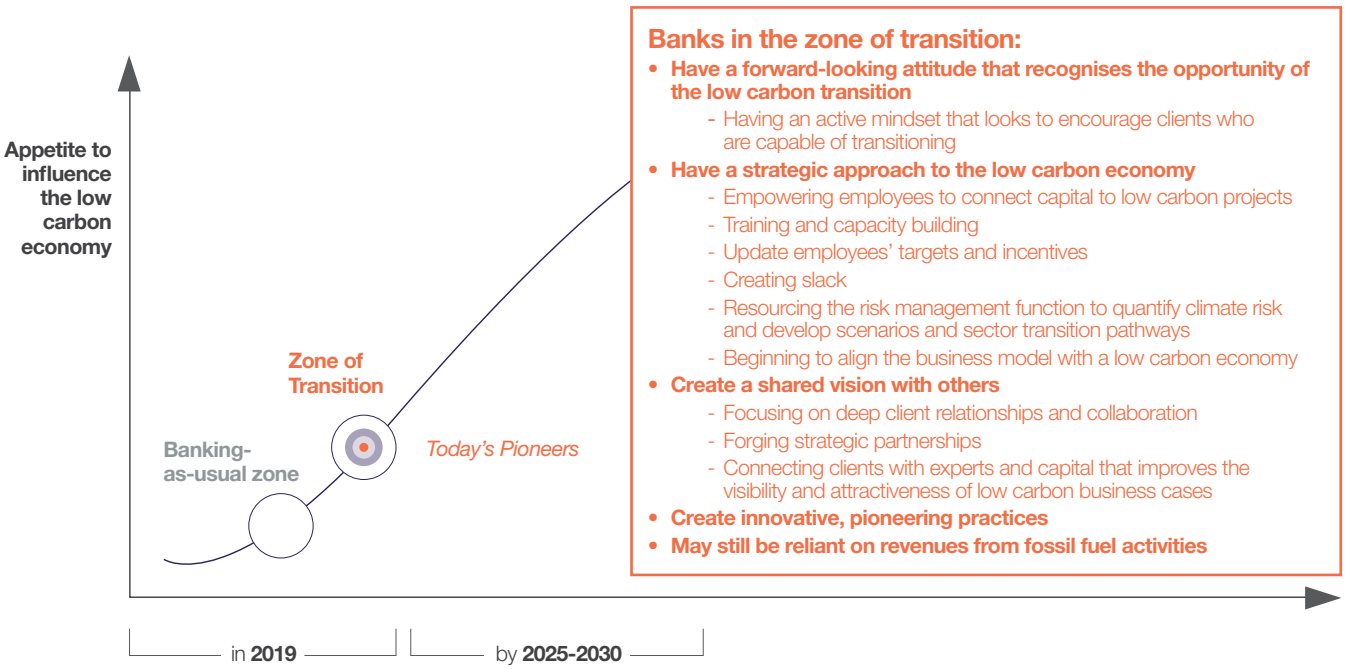
Figure 8: Banks creating a shared vision with clients, experts and sources of capital



In other words, **bankers 'lean in' with clients and capital markets, and this unlocks demand for low carbon investment by clients and creates new business lines for the bank. As such, the pipeline of low carbon projects has been stimulated and expanded – accelerating the transition.**

Importantly, this action can be taken without policymakers. For, although policy and regulation have major roles to play in enhancing the attractiveness of investment in low carbon assets by clients of banks, bankers taking a strategic approach can enable change themselves and come into what we call a 'zone of transition' (Figure 9).

Figure 9: Accelerating the financing of the low carbon economy – the roadmap to the low carbon bank of 2030 (Stage 2: Zone of transition)



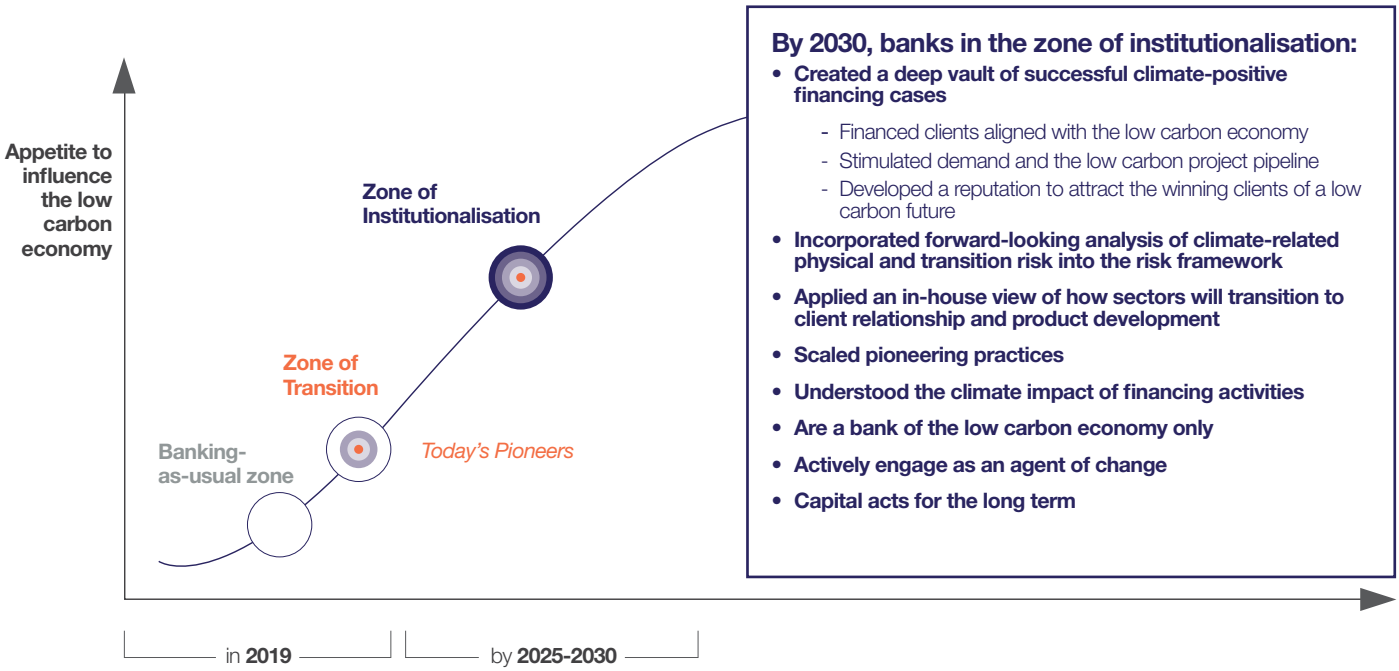
4.3 The next steps: innovate, expand coverage and institutionalise

By taking a strategic approach to the climate challenge, banks position themselves in a 'zone of transition' that is observably different from 'banking-as-usual'. This empowers employees to be highly collaborative and resources business units to innovate products. Empowered employees create a vault of successful case studies which, in turn, justify a greater allocation of resources, thereby driving expanded coverage. This creates a track record in sustainable finance that the bank can use to attract successful clients of a low carbon future.

Meanwhile, if resourced appropriately, the risk management function integrates scenario analysis and a forward-looking view of the portfolio that recognises climate-related sources of risk. This forward-looking view creates the evidence base that further enhances the commercial case to adjust the bank's business model and for business units to find pathways to help transition clients, enabling pioneering practices to scale.

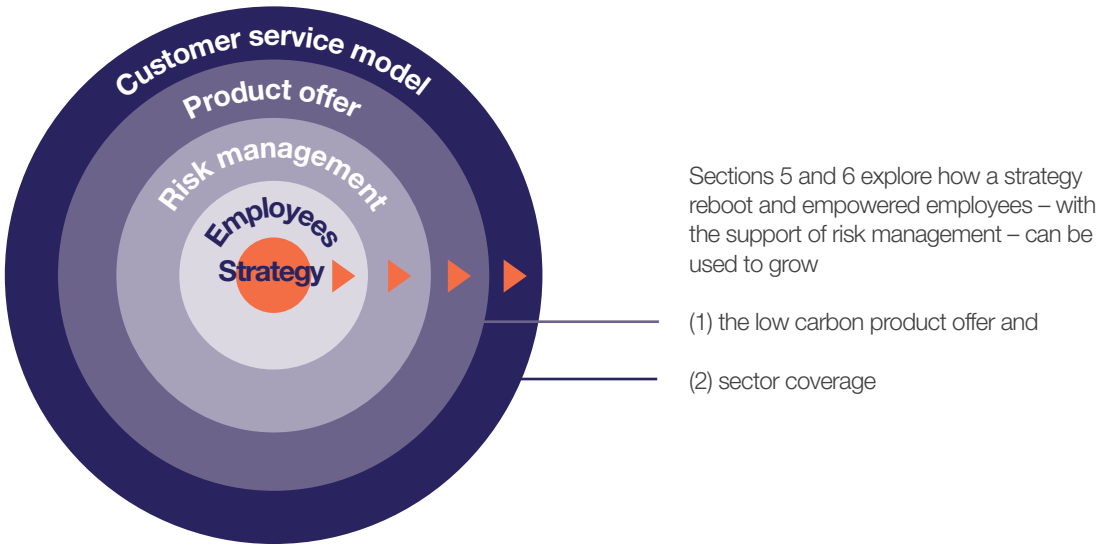
As institutionalisation occurs, environmental and social risks are understood, assessed and managed within the mainstream risk frameworks, and the impact of every dollar of financing is understood. As such, the portfolio becomes aligned with net zero and capital begins to act for the long term.

Figure 10: Accelerating the financing of the low carbon economy – the roadmap to the low carbon bank of 2030 (Stage 3: Zone of Institutionalisation)



Moving along this curve begins with a strategy reboot, empowering employees and evolving the risk management function. This enables the bank to begin to offer new products and attract clients aligned with the low carbon economy. As the bank moves along the above represented curve of change, reaching the 'zone of institutionalisation, new business lines created by 'leaning in' to stimulate demand for low carbon investments by clients should have taken over the bank. The bank will thus have accelerated the transition and transformed its business and operating model (Figure 11).

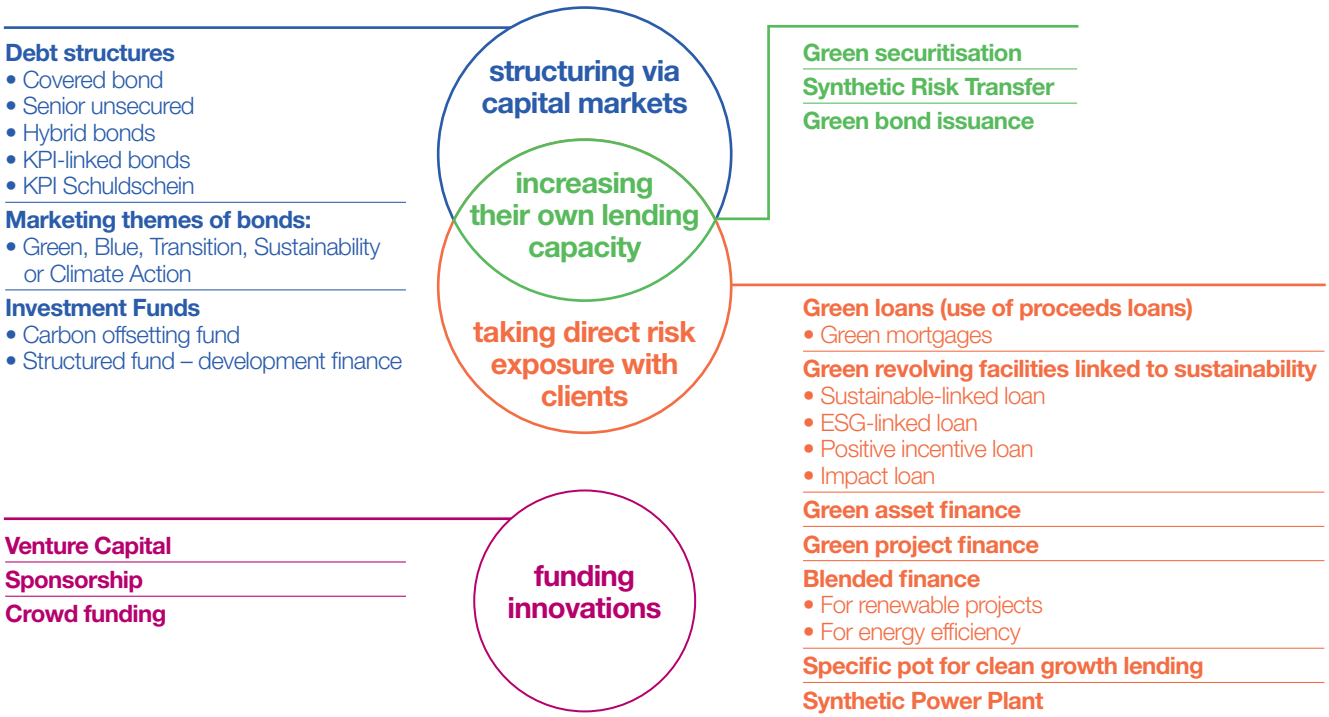
Figure 11: Adjusted business and operating model – the roadmap to the low carbon bank of 2030



5. Financial instruments to channel capital to the low carbon economy

Four methods exist for channelling capital into the low carbon economy (Figure 12): (1) capital markets activities, (2) lending activities, (3) securitisation and/or (4) equity stakes and sponsorship.

Figure 12: How banks channel capital into the low carbon economy

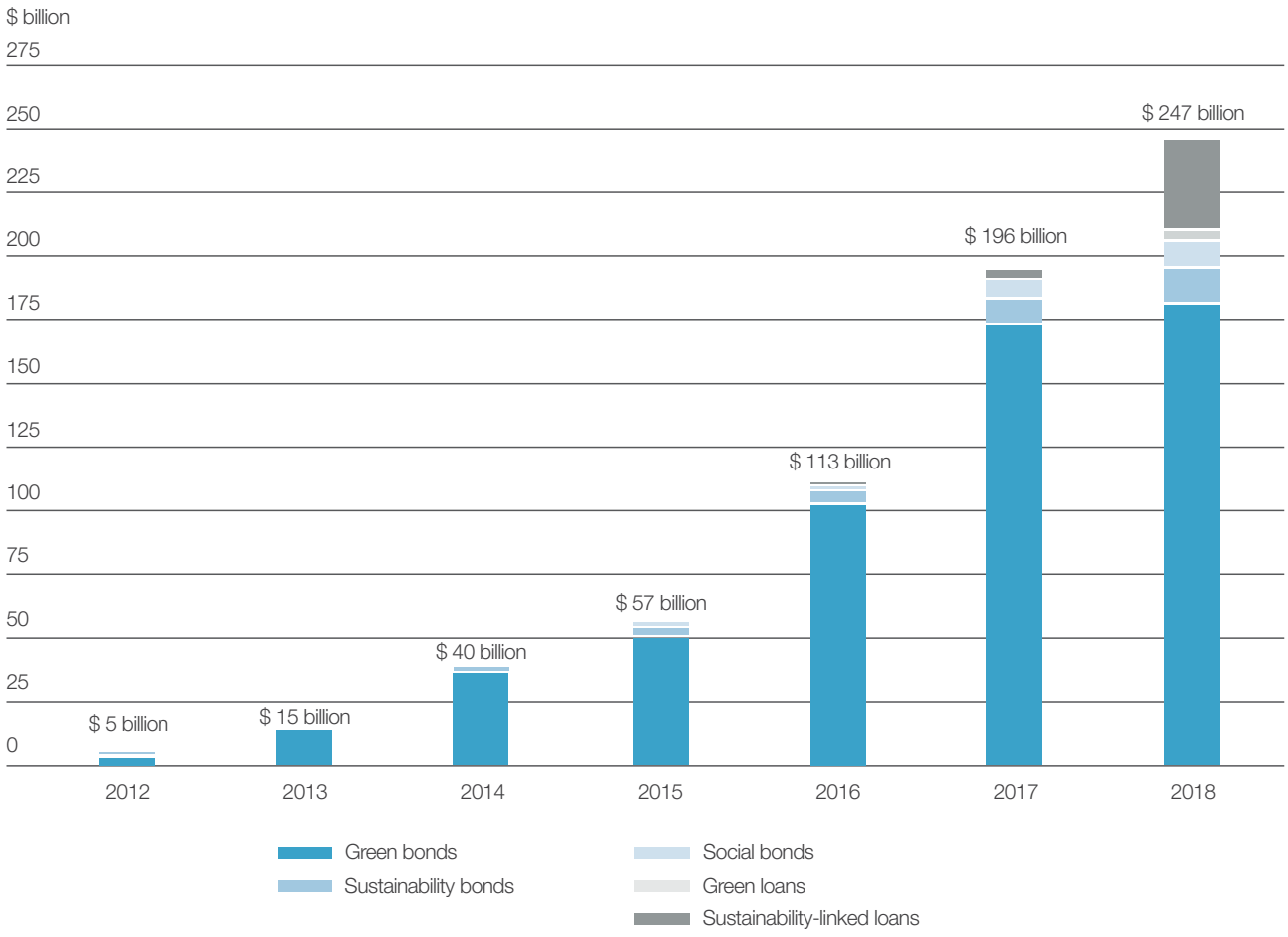


5.1 Structuring via capital markets

Capital markets dominate the financing of the low carbon economy using green-labelled financial products. Figure 13 shows that ca. 80 per cent of green finance activities in 2018 were bond structuring, with sustainability-linked loans and green loans emerging more recently.[119] By 2019, banks issued their own green bonds in a volume of US$145 billion.[120] These are for refinancing of existing projects with the proceeds used for further green lending activities by the bank. Banks own green bond issuance represents around 20% of all green bonds issuances worldwide and is indicative of how direct lending by banks for low carbon projects remains less prevalent.

Green bonds have dominated the green finance market since 2012. They are debt securities issued to raise capital specifically to support climate-related or environmental projects.[122] Given that our research focused on accelerating the low carbon transition, it looked to move beyond what is today considered an established product – seeking to highlight and understand emergent financing instruments with the potential to accelerate the low carbon transition.

Figure 13: Sustainable debt issued by instrument type (US$ billon, 2012–18) [121]



Transition bonds, which are about helping heavy carbon emitting industries reduce their GHG footprint, are becoming increasingly popular. One recent landmark financial innovation in this area was a general corporate purpose debt linked with pre-determined sustainability performance targets. This SDG-linked bond for the energy company ENEL linked a KPI about future installed renewable capacity to the coupon rate, which would increase should the company not meet the stated target.[123] The innovation echoed an earlier 'ESG-linked Schuldschein' issuance by Dürr.[124] Investor appetite for these 'finance for transition' offerings is strong, with one banker telling us: "investors are willing to re-evaluate the risk factor of that company based on how they are performing against what [ESG targets] they promised."[125] This demand from investors demonstrates a desire to find a way to help existing clients transition. Indeed, where non-financial conditions are attached to the financing, they could be a useful instrument to encourage behavioural change and help 'hard-to-abate' sectors be part of the transition (see Section 6.3 for further details).

A highly collaborative approach is also critical for product innovation. 'Collaborative financing', as one bank participating in this research refers to it, is emerging as a way to make low carbon finance possible. The Tropical Landscape Finance Facility (TLFF)[126] is the prime example. Facilitated by BNP Paribas, the bank connected diverse stakeholders together to collaboratively finance a rubber plantation on degraded land, restoring 88,000 hectares and creating 16,000 fair wage jobs at maturity. The facility was traded as a sustainability bond on capital markets. As appetite and experience grows, as well as standardisation and securitisation, it could become possible to facilitate more transactions such as this. Figure 14 shows the parties involved to make this business case and shared environmental and social vision possible.

The facility was possible because the bank had a deep, long-standing and commercially material client relationship with Michelin and was supported by NGOs and Development Finance Institutions (DFIs), who provided technical assistance and impact measurement.

'Collaborative financing' is evidence of a bank's capability to use its network and structuring expertise to make low carbon projects viable.

5.2 Taking direct exposure with clients

A fast-growing segment of low carbon lending are *sustainability-linked loans* (Figure 13). These are typical revolving working credit facilities that are known by a variety of names such as sustainability-linked loans, ESG-linked loans or positive-incentive loans. However, they are all similar in that the

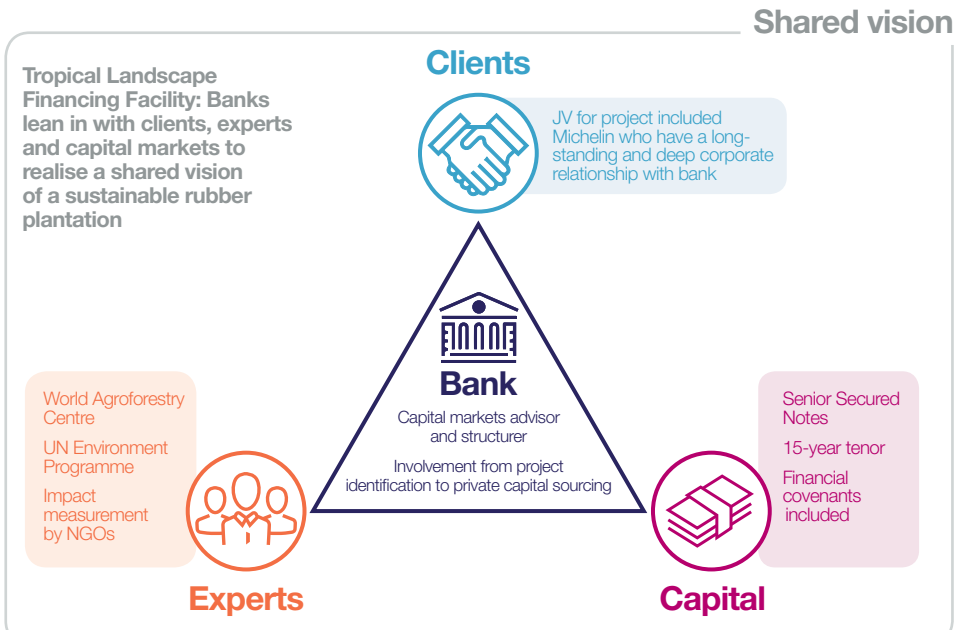
payment rate will be adjusted based on performance against a pre-determined non-financial KPI, or an external sustainability score.[127] This adjustment can impact the interest rate by 3–5 basis points (bps) and is currently financed by the internal CSR budget. Therefore, it is a cost for the bank, but is used to build a stronger client relationship and to open a dialogue with clients on sustainability-related topics – the first step of 'leaning in' to unlock low carbon financing opportunities.

Green mortgages are another debt instrument used for particular measures, such as energy efficiency retrofits or domestic solar power generation. A very prominent example of green mortgages can be found in the German market where development bank Kreditanstalt für Wiederaufbau (KfW) offers individuals discounted finance (preferential lending that meets certain climate-positive eligibility criteria).[128] The funds are used to discount commercial bank lending, including mortgages.

To do this, KfW directs funds through private banks, allowing the development bank access to customers and increasing the visibility and attractiveness of investments in, for instance, renewable power generation.[129] The eligibility criteria also act as a taxonomy, standardising what assets can be financed and therefore reducing the transaction costs. In turn, this creates a standardised book of green mortgages on commercial banks balance sheets, which could be tagged and securitised.

Figure 14: Key stakeholders in the TLFF transaction and the role of the bank

Case Study: Investment banking



Mobilising long term international capital to finance commercial projects with positive environmental and social impact like preventing deforestation and reducing forest burning.

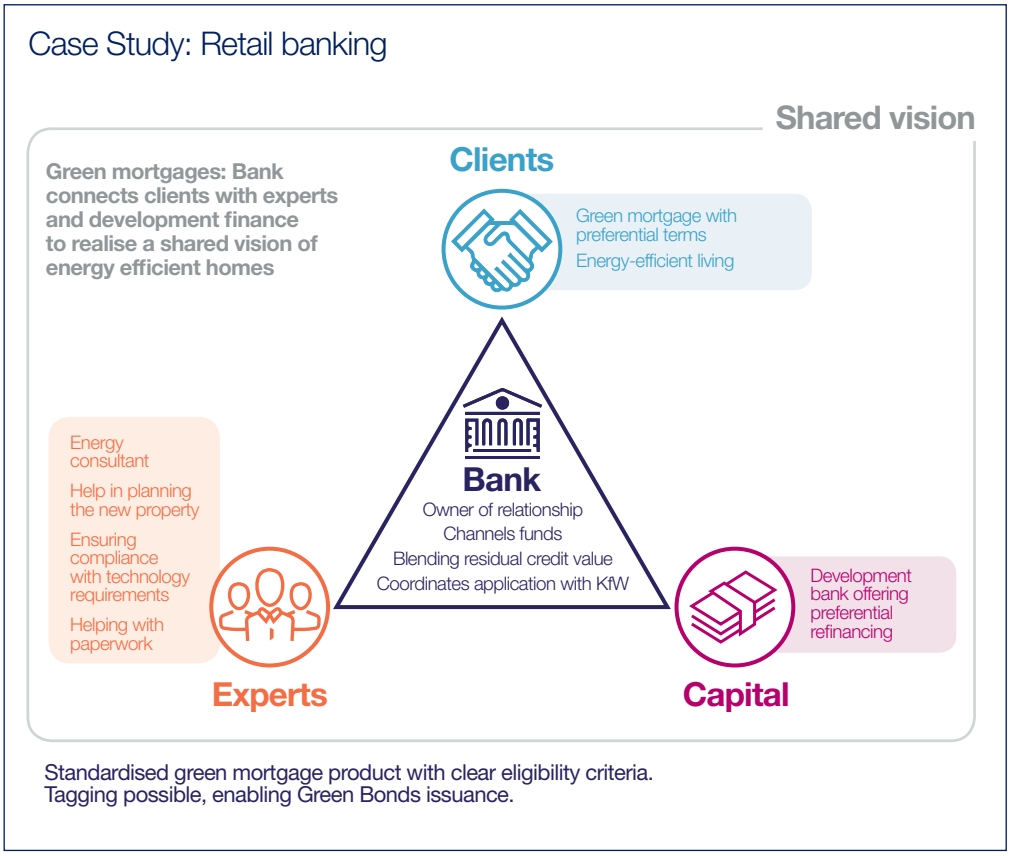
5.3 Increasing lending capacity

Synthetic securitisation can accelerate the pace at which direct low carbon lending or leasing occurs. Securitisation is now becoming an increasingly popular instrument to unlock finance for small-scale low carbon projects, such as automotive leases. The bank scaling this avenue for capital distribution requires:

- appropriate knowledge and tagging, which is why standardisation of tags via a sustainable taxonomy is valued by the banking industry[130]
- in-house expertise that can use the knowledge architecture and build the pipeline
- an active approach with clients, experts and capital markets to collaboratively build up the portfolio and the capital to fund it

Another avenue to grow the banks' lending capacity for low carbon is a synthetic risk transfer, in which a third party offers risk protection. One such example of blended finance saw the IFC provide US$85 million credit risk protection to Credit Agricole on a US$2 billion trade finance portfolio. The protection freed up regulatory capital for the bank to lend an additional US$510 million for health, education and infrastructure projects in emerging economies.[131]

Figure 15: Key stakeholders in KfW green mortgages and the role of the bank



5.4 Funding innovations

***Venture and equity capital funds* or incubators are a straightforward way for banks to directly support innovation.** For example, the Wells Fargo Innovation Incubator offers non-dilutive grants to companies to validate technologies in the agriculture or clean technology fields. This capital supports start-ups involvement in the low carbon economy and leverages banks access to these customers. Another example is the BNP Paribas Energy Transition Capital initiative.[132]

Similar to the support of an incubator, *partnerships or sponsorship* of sector experts working on innovative technologies represents another way the bank can secure privileged access to knowledge about what the future low carbon economy could look like. They also offer banks a further opportunity to help accelerate the evolution of low carbon technologies. One example of this is a partnership between ABN AMRO and the Excess Materials Exchange, which has been developing a matchmaking platform for construction materials waste. This partnership is creating the option for the bank to become the provider of choice when this model is commercialised.

5.5 The current low carbon product offering

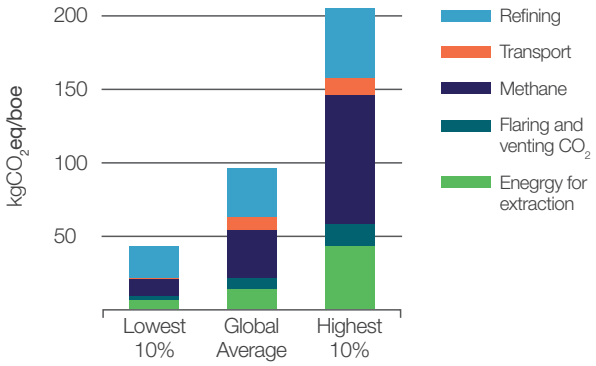
In 2018, 80 per cent of green market activity was for the issuance of green bonds, sustainability bonds and social bonds.[133] These are for large corporate and institutional clients. SMEs and individuals, meanwhile, appear to be under-serviced, with green lending or investment products limited. Green and sustainability-linked loans, for example, have also tended to service large corporate and institutional clients. Despite this, it is meaningful to see coverage in all areas, demonstrating that some banks are taking a leadership position by resourcing product innovation to create banner offerings in under-serviced areas.

6. Opportunities for banks to accelerate the transition to a low carbon economy

As a bank's capability and appetite to influence the low carbon economy grows, opportunities emerge to expand coverage of the low carbon economy. As well as deepening coverage of renewable power generation and energy efficiency investments, next steps include helping transitions of agricultural practice or innovating the means for hard-to-abate sectors, like cement, to be a part of the journey to net zero emissions. These particular sectors became a focus of our analysis because of recent financial product innovation or trends within the sectors.

An expansion of capability and appetite needs to be spent wisely – yet there are numerous opportunities that banks could finance, but which they should not. These are opportunities that make net zero more difficult to achieve. This section begins by outscoping such opportunities before addressing where coverage could expand.

Figure 16: Emissions associated with oil supply globally, per barrel [135]



6.1 What projects not to finance

To have the best chance of limiting global warming to 1.5°C above pre-industrial levels, emissions need to reach net zero by 2050.[134] Financing certain projects (investments by clients) can help reduce the emissions of 'brown' sectors, like oil & gas, but also make achieving net zero more difficult. Put simply, 'doing less harm' does not equal 'doing good'. Investments by bank clients that would make achieving net zero more difficult include:

- any manufacturing advancement that improves the efficiency of internal combustion engines
- oil refinery efficiencies
- aspects of the liquefied natural gas (LNG) value chain
- the justification of one type of oil production method at the expense of another based on a lower emissions profile, e.g. thermal-enhanced oil recovery methods versus conventional onshore methods

Indeed, there are large differences between the emissions associated with the production, transportation and refining of barrels of oil produced worldwide. If ranked by these 'by-product emissions', we see that the 'highest ten per cent' of barrels cause more than double the emissions of the 'global average' barrel. The source of the emissions associated with these barrels – i.e. the energy used to extract the oil – are detailed in Figure 16.

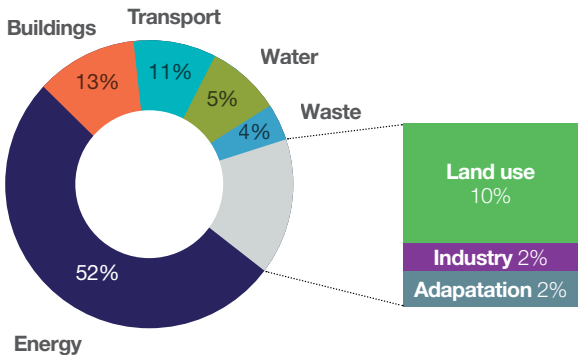
The problem is that investment in assets or efficiencies, such as those detailed above, reduce emissions and enhance the profitability of business-as-usual, making it relatively more difficult for green assets to compete. For example, in 2017 Repsol issued a €500 million 'green' bond that was controversial because funds were earmarked for investments such as refinery efficiencies. Such financing enhanced the core business model of oil & gas at the expense of green alternatives to fossil fuels.[136]

However, 'transition bonds'[137] **that finance the transition of a company to a low carbon operating model offer investors an exciting and credible opportunity to support companies on their journey to net zero.** The concept is powerful if used wisely but should not be used to achieve a lower emissions profile if low carbon alternatives exist. For example, passenger vehicles can use low carbon electricity; an oil & gas company that invests heavily in vehicle charging infrastructure is pushing both a transition to low carbon mobility and a transition of its own business model from fossil fuels. Supporting such an investment with a transition bond could be defensible; whereas one used to reduce the carbon footprint of refinery operations that produce gasoline is not.

6.2 How to scale low carbon financing

Renewable power generation and investments to make industry, buildings and households more energy efficient are the most common low carbon destinations for capital. They target the decarbonisation of electricity and heat production that constitute 25 per cent of GHG emissions. In 2017, a majority of green bonds issuances, a bellwether for the state of green finance, went to energy efficiency savings.[138] Also in 2017, two-thirds of power generation investment worldwide went to renewables.[139]

Figure 17: Green bond use of proceeds, emerging markets, 2018 [140]



These capital flows are a direct reflection of the economics. Utility-scale solar PV and wind generation are today the least expensive source of new electricity capacity without subsidies in some countries, and the cost continues to fall.

Two current challenges for scaling further investment in renewables are:

- Cost of capital in emerging economies, since competitiveness of solar is heavily determined by the cost of debt, without the operational expenditures of fossil fuel based power.[141]
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In other words, ticket size and access to SMEs and individual clients inform a cost of capital that creates a barrier to scaling further investment in renewables. The same barriers prevent deeper penetration of energy-efficient assets (process efficiency, building retrofits, heating, cooling etc.).

Banks can solve for this in a number of ways:

1. Use their access to customers to fulfil a promotional role, connecting the client with a solution provider who offers the equipment and post-sales performance guarantee (i.e. an energy services company (ESCO)). As one microfinance specialist put it, "existing partners [local banks and microfinance institutions] can be used to find a set of clients who need solutions."[143] These same partners can then be used by solar solution providers as "a distribution network".[144]
2. Create financing instruments that provide more access to capital markets for technology providers that distribute and promote solutions. For example, aggregate future cash flows of ESCOs in an SPV (Special Purpose Vehicle) that can then raise funds on capital markets, thus scaling ESCOs' access to capital so that, in turn, more energy-efficient equipment can be distributed.
3. Aggregate comparable smaller ticket low carbon projects together to diversify risk and enable financing – potentially offering DFIs the opportunity to crowd in institutional investment.[145] US$100 million was the project finance floor for some interviewed, whilst others could go as low as US$15 million.[146]
4. Offer a platform for crowd funding. This can source the equity base in the capital structure of small ticket items, on top of which debt could then follow.[147]
5. Create an instrument that channels capital to local financial institutions for specific uses. Although monitoring use-of-proceeds at ticket sizes in the hundreds or thousands of dollars is not cost effective, interviewees argued that monitoring may not be necessary; the argument being that if only 60 per cent of individuals make a low carbon investment, because a lack of monitoring prevents it being near 100 per cent, that this 60 percent is better than zero low carbon investment.[148]

In all cases, the bank could benefit by charging structuring and distribution fees or by providing its clients with the opportunity to grow by reducing the cost of capital.

As a method for enhancing the attractiveness of renewables or more energy-efficient equipment, 'as-a-service' business models are also worth noting. The model can involve selling on-site renewable power or energy efficiency as a service, in which future performance is guaranteed. The arrangement shifts the cost of capital, residual asset value risk, market risk and performance/maintenance risk from the final customer to the service provider. Invariably, the bank will be financing this service provider; but by finding ways to reduce the cost of capital for these service providers or by improving their access to customers, the bank can further help individuals and SMEs gain access to low carbon assets.

6.3 Where to broaden coverage

Renewable power generation and investments to make industry, buildings and households more energy efficient are only two parts of the low carbon economy that need to be scaled. During our research, three other areas emerged as opportunities:

1. Hard-to-abate sectors, for example shipping or cement, because recent financial instrument innovation could see these sectors become part of the low carbon transition.

2. Agriculture, because conventional wisdom about best practice on-the-ground is evolving.

3. Electric passenger vehicles because opportunities exist to make EVs more affordable if the bank goes 'beyond core banking'. For instance, going beyond leasing and providing the vehicle and all the ancillary services, including the power needed to fuel it, for one single subscription fee – an 'as-a-service' model.

1. Hard-to-abate sectors, e.g. cement and shipping[149]

Debt products where interest rates adjust based on non-financial KPI performance create opportunities to make 'hard-to-abate' sectors a part of the low carbon transition story.

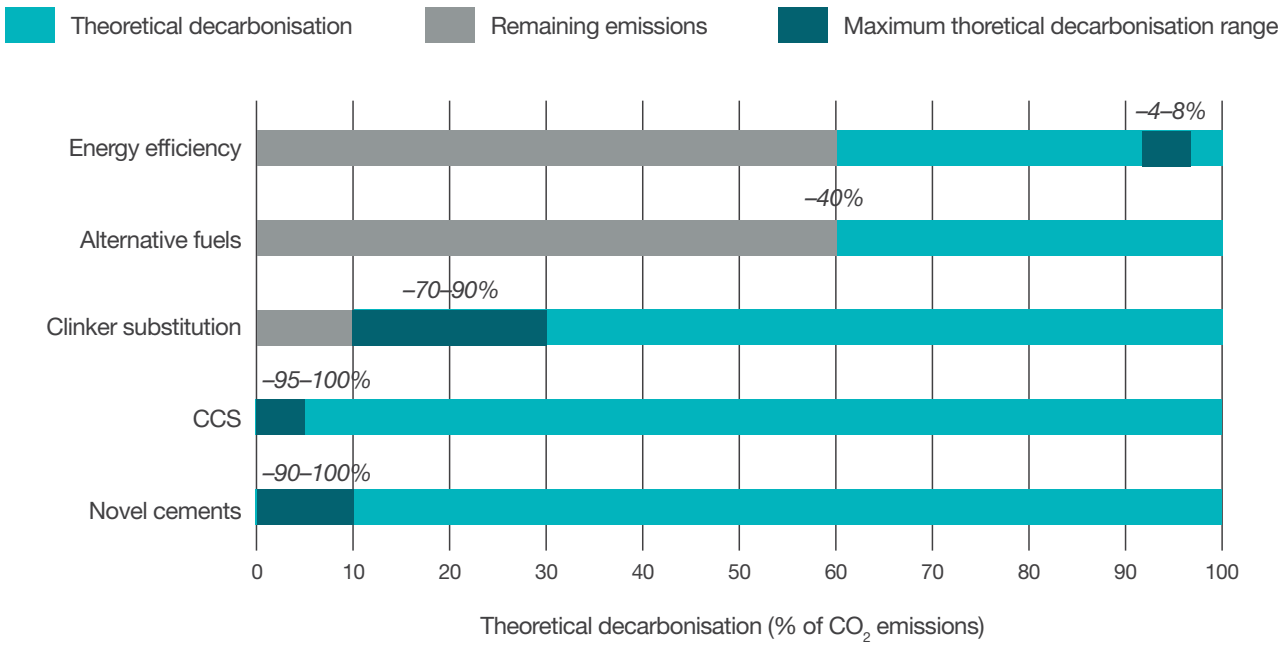
Energy efficiency savings remain the primary pathway for hard-to-abate sectors to be part of the low carbon transition – sectors where commercially scalable ways to transition to net zero emissions do not yet exist. Take shipping, which is responsible for 2–3 per cent of global emissions.[150]

Opportunities exist to reduce fuel consumption without making a net zero shipping future – via hydrogen fuels, for instance – more difficult. These opportunities include hull design optimisation, using lightweight materials, route optimisation or slow steaming.[151] A bank could help encourage the additional investment required by offering debt products where interest rates adjust based on the emissions reduction performance of the shipping company as a whole.[152] This builds on experience with 'transition bonds' and sustainability linked loans, where interest rates adjust depending on non-financial KPI performance (see Sections 5.1 and 5.3).

Instruments that incentivise decarbonisation pathways for hard-to-abate sectors also have applicability beyond energy efficiency. The cement sector, which accounts for around eight per cent of CO2 emissions, is a case in point.[153] Creating debt where the interest rate adjusts based on KPIs about a cement company's use of alternative fuels, clinker substitution or re-use of existing materials means that financing is directly tied to the decarbonisation of that industry (without making net zero more difficult). This debt can then be marketed on capital markets – growing the pipeline of low carbon opportunities available for institutional investors.

Designing instruments capable of influencing client operations also puts the bank and its clients in a robust position if/when policymakers take firm action to penalise carbon-intensive industries such as cement.[155] Indeed, as well as financing efficiencies that could enhance short-term financials, banks could benefit by increasing the resilience of their clients to incoming policy measures.

Figure 18: Theoretical potential of measures to decarbonise cement production [154]



2. Agriculture

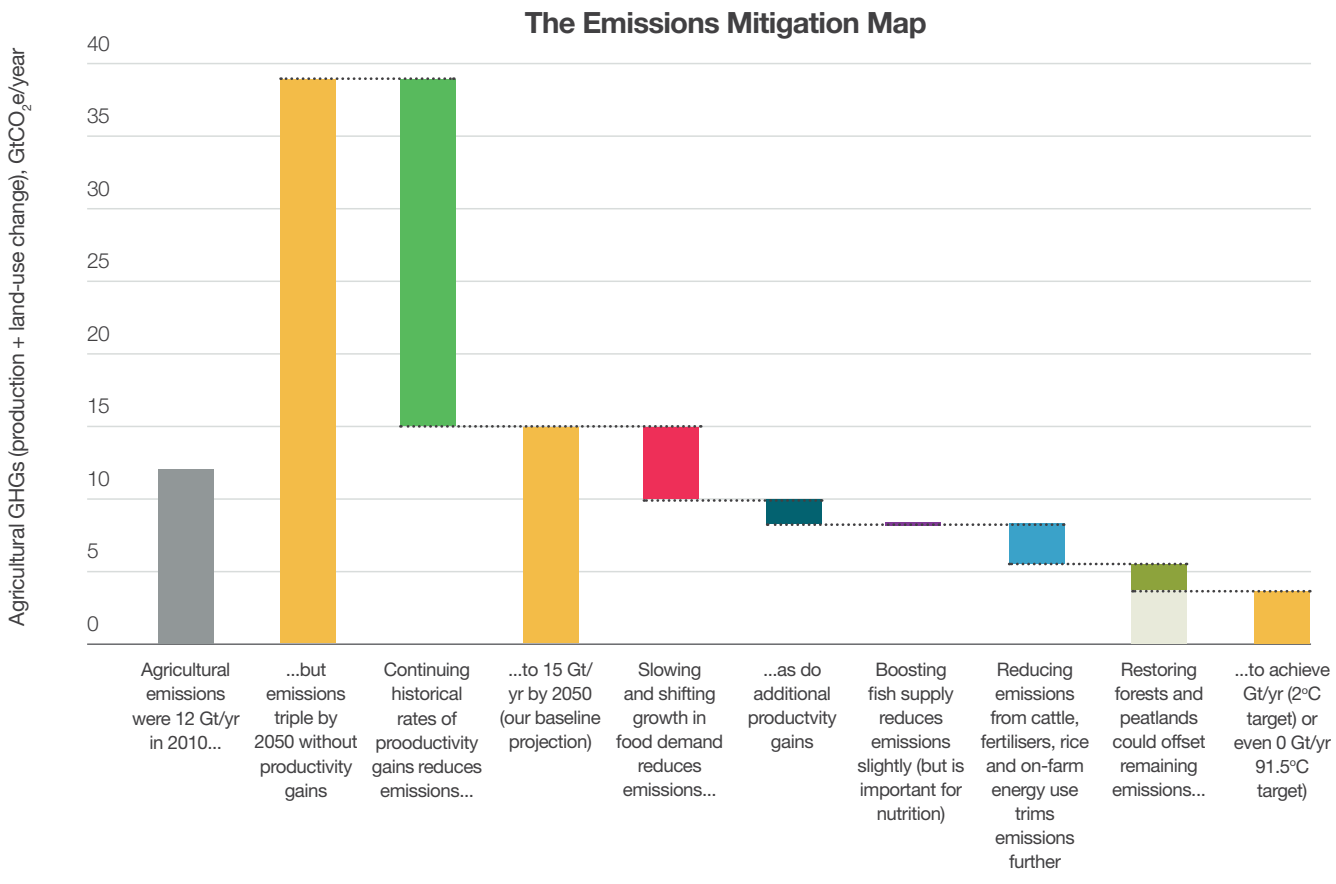
Transitioning agricultural practices represents an opportunity to use a depleted carbon sink to sequester emissions whilst also creating a more resilient and efficient borrower. The bank can help promote the transition by using its unique position in the economy; specifically, by connecting its client with experts and sources of capital that could help the client see the value in adopting farming methods with a lower carbon footprint.

Agriculture, forestry and land use change account for 24 per cent of greenhouse gas emissions. Upward pressure on this percentage is likely because demand for crop calories is forecast to increase by 56 per cent between 2010 and 2050.[156] To even meet a 2°C goal, the agricultural sector will need to cover this incremental demand for calories whilst reducing net emissions by two-thirds (Figure 19).[157]

Meanwhile, an evidence base is growing that farming practices that grow the carbon content of soil can also improve crop yields.[158] Soils contain 50–70 per cent less carbon than they once did and with different management it has been estimated that croplands could sequester up to 1.85Gt carbon per year.[159,160,161] Practices that enable this carbon sequestration, such as the minimisation of tilling, "already deliver meaningful gains"[162] to yield.[163] Furthermore, this regenerative agriculture approach, as it has become known, can improve the resilience of the land to extreme weather events and reduce the reliance on fertilisers and pesticides.[164]

The bank is well placed, with relationships that often span multiple generations of the same farming family, to carefully instigate a change to agricultural practices. Ninety-eight per cent of farmers worldwide are smallholders[166] and the industry is naturally conservative; during our research, one banker remarked that farmers think "they have already tried everything… they do not believe that someone can increase yields by ten per cent."[167] Therefore, access to farmers and trusting relationships are the minimum requirement if new practices are to be made visible and taken seriously by the farming community. If the bank has empowered employees

Figure 19: Forecast GHG emissions from agriculture with suggestions for future reductions [165]



with time and knowledge, it could use its position as a "critical friend"[168] to connect in respected experts to promote an evolution of practice.

Once buy-in is secured, any transition needs to be gradual as "rolling out new [regenerative] practices too fast can hurt a farm more than not changing at all."[169] Again, the bank can help by facilitating change over time through its usual lending and cash flow management services.

3. Electric vehicles

Providing EVs as a bundled service is one example of how a bank could take on a new business model risk in order to accelerate the transition.

The opportunities described above do not see banks extending their business model beyond finance or intermediation. The 'EV-as-a-service' model evolves the bank's remit, utilising existing strengths and access to customers to bring forward savings for the end user. It would see the bank adjusting its business model slightly in order to have a greater influence on the pace of the low carbon transition. Specifically, it would mean the bank extending an existing leasing offering to one where the client gains access to the vehicle, energy, charging infrastructure, maintenance, servicing and insurance for one bundled fee. By doing so, it could be possible for the bank to hasten the uptake of EVs, which Bloomberg New Energy Finance (BNEF) estimates will constitute more than one-quarter of global vehicle sales in 2030 (28 million).[170]

Thirty-six per cent of crude oil demand is accounted for by electric-susceptible transportation, which is equivalent to approximately eight per cent of global GHG emissions.[171] According to DNV-GL, electric vehicles should reach cost parity with the internal combustion engine equivalents by the mid-2020s.[172] Analysis is emerging that suggests there could be an opportunity for banks to bring forward this cost parity point between EVs and internal combustion engines by capturing the margin along the value chain. That margin could be used to make the 'EV-as-a-service' offering more attractive. One place margin is available to make EVs more attractive is the 'fuel' supply. BNP Paribas Asset Management recently estimated that solar- and wind-powered EVs can compete with oil at long-term break-evens of US$10–20 per barrel.[173] This is US$45 below the average closing price of WTI (West Texas Intermediate) crude oil in 2018. Capturing the opportunity could mean taking an equity stake in the infrastructure that supplies this power (see Santander's previous equity ownership of renewable generation[174] or Morgan Stanley's role in balancing US power markets[175]). By doing so, it may be possible for the bank to price in savings available for 'fuelling' the vehicles with electricity to a multi-year 'EV-as-a-service' contract with its clients.

Like other low carbon solutions for SMEs or individuals, the challenge for making EVs attractive is improving the visibility and attractiveness of up-front investment. Banks are well placed to solve for this, with access to customers and existing automotive leasing offerings. The bank could connect customers to savings it can realise from exercising its own market power to secure lower costs from manufacturers, power suppliers, maintenance providers and capital markets.

For example, the servicing, maintenance and repair (SMR) costs for EVs are estimated to be up to 40 per cent less than for internal combustion engine powered vehicles.[176] Realising those future savings and bringing them forward for customers could be one way in which the bank helps individuals realise cost parity.

In addition to leveraging the size of its vehicle fleet to secure the greatest SMR savings or entering electricity markets to meet EV demand for power, the bank could realise savings for customers by:

- Leveraging its capital efficiency to secure vehicles at the lowest cost and press manufacturers to enhance reliability over time.[177]
- Using the vehicles as part of a demand-side response mechanism.[178]
- Actively participating (via debt or equity) with others in the expansion of charging infrastructure.[179] With multiple vehicles in its fleet the bank could also advocate for charging plug standardisation.

Taking such steps would see the bank go 'beyond core banking'. By doing so, it would take full advantage of its access to customers, balance sheet and existing leasing expertise to accelerate the transition.

Last of all, by securing a dominant position as the vehicle fleet electrifies, the bank creates the opportunity to take advantage of any future 'sharing paradigm' (where miles or shared access is sold rather than individual ownership).

6.4 New methods for channelling capital into the low carbon economy

This section has thus far focused on the sectors on which to focus for expanding coverage of the low carbon economy. Figure 20 details three methods for banks to channel more capital into the low carbon economy. These methods are:

1. **Financing and intermediation activity**, e.g. project finance.
2. **Product innovation** for investment clients that price in externalities. For example, products that include a carbon offsetting mechanism.
3. **Extension of the bank's business or operational remit** beyond core financing or intermediation.

Transitioning agricultural practices uses existing lending products, whilst the 'EV-as-a-service' proposition is an extension of the bank's business remit.

Collaboration and product innovation is vital if the bank is to use these methods to channel more capital to the low carbon economy. For example, industrial symbiosis is predicated on consultation between technical experts to optimise waste streams, whilst influencing consumer habits requires credible third-party data or verification – take certification standards.

Collaboration is also essential if the bank is to create products with carbon offsetting mechanisms. Whilst these mechanisms could help make investment in carbon sequestration viable, they must be considered carefully and designed with expertise from credible third parties such as of WWF (World Wildlife Fund).[180] Similar to 'transition bonds' (see Section 6.1), offsetting mechanisms should incentivise industries to transition, rather than provide a 'brown' sector company with the means to avoid changing their business model. In the words of the UN Environment Programme, "it cannot simply be a one-for-one model"[181]. The sequestration must take place in addition to meaningful change to the company's operating model. One example could be an oil & gas company investing in grid resilience to deepen the penetration of renewables as well as offsetting emissions from their existing operations. Hence the importance of collaborating with a credible third party to ratify that the offset is meaningful and to provide ongoing verification.[182] Once these caveats are noted, **the concept of pricing externalities into financial products is a powerful one. It means the bank creates yet another pipeline – in this case via a carbon offset – for capital to reach solutions that help us reach a net zero future sooner.**

Figure 20. Three methods for banks to channel capital into the low carbon economy

Financing and intermediation activity

- Electric arc furnaces
- Renewable energy supply, including bio based
- Shipping fleet overhaul
- Utility-scale battery storage
- Near-commercial renewables, e.g. floating solar
- Micro-grids
- More efficient industrial assets or processes
- Water management
- Greener buildings
- Electrification of heating and industry
- Transitioned agricultural practices
- Facilitating symbiosis, e.g. district heating

Pricing externalities using innovative products

- Carbon capture with benefits, e.g. reforestation
- Using carbon offsets to incentivise sector transitions

Extension of the bank's business and operational remit

- Encourage consumers to change habits
- Encourage clients to optimise operations or train employees
- Act as a virtual power plant to speed up penetration of renewables
- Offer electric-vehicles-as-a-service to transition automotive sector

Many of the methods noted in Figure 20 also require the bank to 'lean in' with the client, promoting the benefits of a low carbon transition. Take the opportunity of transitioning agricultural practices; as one interviewee commented, "banks can do a better job at educating their borrowers on what sustainable agriculture looks like in 10–15 years"[183], meaning that the bank could either highlight low carbon farming practices that sequester carbon and enhance yield or bring in external experts to make the case more compelling.[184] Again, benefits for the bank are likely to be tangible, in the form of additional lending or a more resilient borrower, and intangible – a stronger relationship with the client.

Emergent methods are not only more likely to be collaborative, but involve promoting different client behaviour. For instance, by using a KPI-adjustable debt instrument – with a non-financial emissions reduction KPI – a haulage company might choose to train its employees to drive trucks more efficiently, which can save up to 33 per cent on fuel.[185]

In brief: select opportunities to accelerate the transition

- Securitise the assets or future cash flows of service companies offering individuals and SMEs access to the low carbon economy of the future 'as-a-service', e.g. Energy Service Companies (ESCOs) offering energy efficient cooling equipment.
- Aggregate smaller renewable generation or energy-efficient assets together, so that smaller ticket sizes can be financed. Collaborate with crowd finance initiatives or DFIs to reduce risk at the bottom of the capital stack for these smaller ticket sizes, perhaps prior to aggregation.
- Use leasing instruments and capabilities to deepen the penetration of green assets, like EVs (again, including individuals and SMEs in the transition).
- Utilise existing cash flow and borrowing facilities to facilitate a transition of agriculture practice to improve the capital efficiency and resilience of the borrower, many of whom are smallholders, and use land to sequester carbon.
- Introduce 'transition finance', such as adjustable-rate debt, that promotes client transitions and enables hard-to-abate sectors, like shipping or cement, to transition. Adjustments would be based on non-financial KPIs and could track efficiency savings.
- Create instruments for investing clients that automatically channel capital to carbon offsets, creating a new pipeline of capital for carbon sequestration (e.g. reforestation).

7. The vision for Bank 2030

In its flagship *Rewiring the Economy* plan, CISL set out three tasks for finance through to 2030:

1 Ensure capital acts for the long term.

2 Price capital according to the true costs of business activities.

3 Innovate financial structures to better serve sustainable business.[186]

A bank in 2030 will have institutionalised the mindset, competencies and innovative practices needed to meet this challenge. As a result of doing so, it would have:

- Financed clients that are aligned with a 'net zero' emissions economy.
- Taken on additional business model risk to accelerate sector transitions.
- Developed a distinctive competency and reputation to attract the winning clients of a low carbon future.
- Understood, measured and managed climate-related sources of risk in the credit portfolio.
- Understood the impact of each dollar of financing on the net zero emissions goal.
- Aligned the bank's business model with net zero, both from an operational and strategic perspective.
- Advocated for system change that quickened the low carbon transition, as such change was in the bank's interest.

Our interviews with bankers made it clear that this journey begins with an active, forward-looking mindset. This mindset recognises the opportunity of the low carbon transition. We observed that these bankers take action because they think it is essential to their business – helping them serve the successful clients of the future, avoid risks, generate returns and maintain their social license to operate. If this line of thinking is adopted across the firm, it results in a 'strategic approach' by banks to the climate challenge that encourages product innovation, deeper client relationships and more collaboration with third parties.

Our research found that the first steps of this strategic approach are to:

1 **Empower employees with time and knowledge about the transition.**

2 **Create industry transition pathways and forward looking scenario analysis to understand climate-related sources of risk.**

3 **Actively help clients transition their business models to low carbon by focussing on collaborative and transition finance.**

Empowered employees are better able to innovate and collaborate in order to stimulate investment in low carbon assets or operating models by clients. Over time, this should create new business lines for the bank. Alongside the quantification of climate-related risk in the credit portfolio, these new business lines should justify deploying additional resources (time, business model risk) to unlock further demand for low carbon investments by clients. This would be a virtuous circle wherein the pipeline of low carbon projects is continuously stimulated and expanded by a bank.

This strategic approach has applicability beyond climate change mitigation as the climate, environmental and social challenges we face are interconnected. This means that the path to a low carbon bank of 2030 could also represent a preliminary sketch for the journey to a sustainable bank – a bank with the appetite and ability to quicken the pace at which the full range of SDGs are met.

Although our research was about 'how banks can accelerate the transition', it is undoubtedly true that policymakers and regulators have a part to play. The aim is not only to enhance the attractiveness of low carbon options to bank clients, but about intelligently incentivising banks to use their unique intermediation position in the economy to promote these options. One example is putting in place taxonomies and market incentives to enable green securitisation to scale.

As the business and operating model of a bank aligns with net zero, it will also be in the interest of the bank to press policymakers for system change, e.g. the introduction of carbon taxes. This is because such system change will put the bank at a further advantage versus competitors that have not evolved their business model.

Last, but not least, by redefining its 'organisational purpose'[187] the bank can hasten the institutionalisation of an active, forward-looking mindset. This bank of 2030 would have a purpose aligned with creating and maintaining a 'sustainable economy'[188] and so would make decisions based on long-term financial, social and environmental benefit. As such, the very reason and motivation for the bank's activities will be derived from three goals – financial, social and environmental.

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79. Interviewee 66
80. Interviewee 55
81. Interviewee 99
82. Interviewee 37
83. Interviewee 36
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86. Interviewee 67
87. Interviewee 5
88. Such as green bonds.
89. Interviewee 75
90. Interviewee 50
91. Interviewee 91

92. Interviewee 50
93. Interviewee 9
94. Interviewee 50
95. Interviewee 75
96. Interviewee 50
97. Interviewee 28
98. Interviewee 100
99. Interviewee 53
100. One of the banks interviewed viewed training employees about the climate challenge and the impact of the transition as a combative step, which could alienate the core banking population.
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