

Decarbonisation of the UK Economy and Green Finance inquiry

This is a written submission from Project Heather, the trading name of Bourse Scot Ltd, the organisation established to set up a Scottish Stock Exchange.

The proposed Scottish Stock Exchange will be the world's first Recognised Investment Exchange requiring all issuers to report on their social and environmental impact at admission and annually thereafter. As such the project will support the financing environment for companies operating in decarbonisation and green finance sectors.

Executive summary

- Decarbonisation pathways present cost-savings in most sectors including power, agriculture and land-use, buildings, heavy industry and aviation and shipping.
- The growth of the Green Finance sector in the UK shows numerous environmental, social and economic benefits, however the depth of Green Finance in the UK could be improved.
- The UK holds a competitive advantage in the quality of its Green Finance capabilities.
- Her Majesties Treasury (HMT) could implement policies in: macroeconomic and growth, sectoral, entrepreneurial, skills development, occupational health and safety, social protection and labour market to ensure a regionally balanced, just transition across the UK.
- The London Stock Exchange (LSE) does not feature in the top 10 stock exchanges in the world in terms of green bond issuance, despite listing 90 green bonds totalling US\$25.3bn.
- There are plentiful opportunities to align the UK's Clean Growth Strategy with Green Finance to deliver on these goals.
- Barriers for Green Finance include: lack of regulation, lack of data, subjectivity of data, lack of minimum standards, market uncertainty and mix of public versus private investment.
- Risks that climate change has on financial services include operational, transitional, physical, litigation, reputational, regulatory, credit and supply-chain.
- Consumer demand for Green Finance has increased where supply has started to meet demand. However, there remains a gap between intention and actual investment practice.

We have responded to the following questions from the Terms of Reference:

The economic opportunity:

1. What economic costs and benefits does decarbonisation present for the UK?
2. What benefits can a growth of the Green Finance sector deliver for the UK, and does the UK hold a competitive advantage in this space?
3. How might HMT deliver a regionally balanced and 'just' transition across the UK?

Green Finance:

8. What role do UK financial services firms currently play in the decarbonisation of the economy, (for example, through stewardship, capital allocation to green projects, green financial products)? What more can they do?
10. Are there any barriers (regulatory or otherwise) preventing financial services firms from delivering green finance or investing in 'green' assets?
11. What prudential risks does climate change pose?
13. What is the consumer demand for 'green' financial products?

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Question 1. What economic costs and benefits does decarbonisation present for the UK?

Economic costs and benefits

1. Decarbonised power and hydrogen production will [cost about the same as a high-carbon power system in 2050](#), however providing economic benefits through low-carbon industrial opportunities. Renewables are cheaper than alternative forms of energy.
2. Large-scale wind and solar are cheaper than building and running a new gas plant. A gas plant established in 2020 carries lifetime costs of approximately £70/MWh, whereas wind and solar carry lifetime costs of approximately £50-£70/MWh.
3. Non-intermittent low-carbon plants such as nuclear, gas, carbon capture and storage (CCS) or bio-energy with carbon capture and storage (BECCS) are more expensive than renewables, however have lower system impacts. For example, nuclear and CCS could cost £70-£80/MWh from late 2020s with a mid-operative cost of [£30/MWh incurred](#).
4. Through the agriculture and land-use sector, decarbonisation can provide abatement cost savings for farmers. Changes to more sustainable diets can be cost-neutral and afforestation can be cost-effective at current carbon values. Peatlands, which hold currently [1.6 billion tonnes of carbon](#), can be restored at a large range of costs, some very high. Peatland restoration creates tangible benefits of water filtration and enhanced biodiversity.
5. Achieving decarbonisation in the building sector can be costly, largely due to the measures needed to create energy-efficiency. Retrofitting existing buildings can address problems like thermal inefficiency, overheating, indoor air quality and moisture producing multiple health benefits and carbon savings. However, [taking no action in decarbonising buildings could lead to a loss of £15 billion by 2050](#).
6. Decarbonisation in heavy industry would be cost-neutral or even cost saving, due to energy and resource efficiency. However, fuel-switching and carbon capture and storage (CCS) remain expensive. The total annual cost stands at £8 billion for cutting emissions from industry to 10MtCo₂e in line with [the Committee on Climate Change's \(CCC\) ambition scenario in 2050](#), compared to business-as-usual scenario.
7. The transport sector has the potential for significant cost-savings compared to high-carbon alternatives. It also produces multiple benefits of air quality improvements, health benefits, congestion reduction and noise reduction. There are economic opportunities in manufacturing zero emission vehicles; improving the infrastructure remains crucial.
8. Aviation can produce a mixture of positive and negative resource costs. For instance, technological measures to improve fuel efficiency can cost less than standard technology on a total cost of ownership, in which fuel savings are highly

likely to outweigh higher capital costs. Limiting aviation demand growth can come at a cost-neutral basis, however a welfare cost can be admitted through a change of consumer preferences. Sustainable biofuels show positive cost reductions to society. Overall, [the average cost of abatement in aviation in 2050 is predicted to be -£10/tCO₂e](#).

9. The shipping sector would produce cost-savings or cost-neutrality for decarbonisation, for example through speed reduction or shipping energy efficiency. However, alternative fuels can incur large costs abating a large quantity of CO₂ emissions through operational efficiency. [The average cost of abatement in shipping could be £200/tCO₂e in 2050](#).
10. Fluorinated gases (F-gases) emission reduction actions [can produce annual cost savings of around £100 million](#) for producing the net-zero scenario targeted by the CCC for 2050.
11. Achieving the 53MtCO₂/year of carbon removals [under the CCC's scenario](#), would cost £8.6 billion/year in 2050, with BECCS (Bioenergy and Carbon Capture and Storage technology) incurring most of the cost.

Question 2. What benefits can a growth of the Green Finance sector deliver for the UK, and does the UK hold a competitive advantage in this space?

12. Growth of the Green Finance sector can deliver environmental, social and economic benefits for the UK.
13. Environmental benefits include, but are not limited to: peatland restoration, climate-change mitigation and adaptation, carbon sequestration and improved air quality through flora and fauna. Depending on the types of projects financed through the Green Finance, it can increase the UK's energy security through increased energy supply, [higher reliability of energy infrastructure and ability to meet current and future demand](#).
14. Social benefits include, but are not limited to: mental health and wellbeing benefits, recreational opportunities, enhanced green reputation for the UK, transfer of wealth into education and community involvement.
15. Economic benefits include, but are not limited to: new business opportunities, job creation through enlarging the sector, [potential improved financial returns depending on portfolio](#).
16. Sustainable finance, such as green and social bonds, [accounted for 1% of world bond markets](#).
17. According to the Global Green Finance Index (GGFI), Amsterdam, Zürich, Copenhagen and Luxembourg [all rank ahead of any UK city for depth of Green Finance](#). Depth implies specialty on a ten-point scale of the extent of investment management, banking, insurance, professional services, government and regulatory sector. Tax breaks, lower operation costs and lighter financial regulation in these cities all show how the UK's Green Finance sector is lagging.
18. However, [The London Stock Exchange \(LSE\) currently holds the top position in GGFI's Green Finance quality](#). LSE holds US\$25.3 billion in [90 green bonds in their portfolio](#).
19. The proposed Scottish Stock Exchange, currently named [Project Heather](#), opens in Edinburgh around the end of 2019. It will be the world's first regulated stock exchange, which requires listed companies to report on their environmental and social impact. Companies will have to create impact reports and communicate their intention to generate positive and measurable impact, as well as deliver their theory of change.

Question 3. How might HMT deliver a regionally balanced and ‘just’ transition across the UK?

20. Researchers have found that Britain is at risk of creating a two-tier economy, with the North of England having one third of low-carbon jobs in England but generating half of England’s renewable energy. Decarbonisation proves a major challenge as the North of England is [more carbon intensive than other regions](#). As a result, generating a regionally balanced and just transition across the UK requires adherence and careful attention to various factors such as:

21. Macroeconomic and growth policies:

- a) Incorporate those United Nations’ (UN) Sustainable Development Goals (SDGs) into macroeconomic policy which promote sustainable production and consumption.
- b) Align GDP growth with environmental and social goals for a more holistic perspective
- c) Develop financing plans for the just transition framework through considerations of short, medium- and long-term needs.
- d) Explore and identify appropriate regulatory tools to encourage a sustainable and economically viable just transition.
- e) Consider financing mechanisms to compensate those disproportionately affected by the low-carbon transition. For example, [carbon pricing programs could be used](#) to generate government revenue to enable public investment into healthcare, education and infrastructure. Implementing tax cuts or rebates for those worst affected by the transition would [provide tangible financial benefit](#).
- f) Invest and direct public revenue towards social protection to foster job creation and reskilling for employees affected by transitional changes.
- g) Encourage green innovation through investment policies to facilitate access to environmentally friendly technology, infrastructure and business opportunities. For instance, [incorporating energy efficiency policies for buildings could be £12 billion cheaper](#) than the proposed Hinkley Point C construction.

22. Sectoral policies:

- a) Monitor industries, regions, communities and workers whose livelihoods may be hardest hit by the transition and consequently consider support mechanisms for sectors seriously affected by the transition.
- b) Promote social dialogue to generate social acceptance for the social, economic and environmental transition requirements.

- c) Use policy instruments to generate market creation to minimise disruptions in potential economic losses, market distortions. For example, generating subsidies for innovative environmental projects and government underwriting can minimise potential economic losses.
- d) Formulate policies for social protection through workforce redeployment. Policies for retention and reskilling of staff should be prioritised. Green Finance will enable job creation along the supply-chain, through new market creation and new stakeholders.

23. Enterprise policies:

- a) Enhance business resilience to avoid disruption of economic loss, jobs and incomes through developing national policies for the mitigation and adaptation towards climate change. For example, by providing business support to adapt strategies to low-carbon economy.
- b) Subsidise enterprises financially that generate new opportunities and environmentally sound practices such as enhancing energy efficiency and adoption of clean energy sources.
- c) Provide information on green business practices, green innovation and how to achieve compliance.
- d) Provide training opportunities for up/reskilling and initial learning in green business practices.

24. Skills development policies:

- a) Review skills development policies to ensure supportive training, capacity building and reskilling of those affected by structural unemployment.
- b) Generate a skills needs assessment for new industries.
- c) Identify skills gaps created through the transition and generate policies to fill the gaps.

25. Occupational safety and health (OSH) policies:

- a) Improve, adapt and develop awareness of the requirements of OSH standards to be used in the low-carbon transition.
- b) Encourage the use of OSH assessments and standards throughout the whole supply-chain of organisations with specific emphasis on, but not limited to, climate change.
- c) Promote the usage of OSH training for green jobs generated through the transition.

26. Social protection policies:

- a) Promote social protection systems including healthcare, income security and social services that safeguard vulnerable populations from economic and environmental impacts, which promote the UN SDGs.
- b) Evaluate the role of public insurance with legislation for those affected by climate-related disasters such as farmers
- c) Evaluate costing schemes such as grants, benefits, smart meters for low-income groups when it comes to designing social protection measures. High proportions of low-income group's incomes are spent on energy.

27. Labour market policies:

- a) Develop labour market policies like low-carbon business incubators and accelerators, which facilitate access to new job markets and training into new job
- b) Generate attention to those at risk of unemployment in communities and industries affected by climate change. For example, generating a risk assessment per region would prioritise balancing regions.
- c) Evaluate job opportunities created through the low-carbon transition. Create employment programmes for those at risk of structural change as a result of the transition through reskilling or training schemes.

28. Many of the above recommendations come from the [International Labour Organisation \(ILO\) recommendations](#) for future just transition decarbonised scenarios.

Question 8. What role do UK financial services firms currently play in the decarbonisation of the economy, (for example, through stewardship, capital allocation to green projects, green financial products)? What more can they do?

29. UK financial services play a crucial role in decarbonisation through listings on the LSE. For instance it has listed 90 green bonds that have raised over US\$25 billion in seven currencies. Further, there are 13 renewable infrastructure funds with a value of US\$7 billion, [along with 23 Exchange Traded Funds \(ETFs\) tracking sustainability indexes](#).
30. However, as of 2017, the UK did not make the top 10 nations for green bond issuance, [with only two sterling denominated green bonds listed on the LSE between 2012-2016](#).
31. The UK should boost investment into innovative low-carbon technologies through the Government, to enhance the sector. Further, the UK should research all sectors mentioned and subsidise, where possible, to support the low-carbon transition.
32. For the private sector, the Financial Stability Board's (FSB) private sector Task Force on Climate-related Financial Disclosures (TCFD) [has been endorsed by institutions representing \\$118 trillion of global assets](#). In this regard, various private institutions have begun implementing TCFD recommendations, with the UK becoming of the first countries, on a public sector perspective, to formally endorse them. (HM Government, 2019)
33. In 2014, the UK Law Commission reviewed the legal concept of fiduciary duty in reference to taking into account Environmental, Social or Governance (ESG) factors into investment, [finding that there is no hindrance in stakeholders taking these important ESG factors into their investment decision-making](#).
34. [BlackRock, the world's largest fund manager, begun making public the extent to which their ETFs \(exchange traded funds\) score on ESG principles](#), such as an assessment of the carbon intensity of portfolios' underlying assets. Further, [the hedge fund Man Group has begun its process of developing a grade scale of its funds](#), according to their priority on responsible investment.
35. Along with the UK government's commitments within their Clean Growth Strategy, there are plenty of opportunities for investors to contribute in tackling these problems. These are highlighted in Appendix A.
36. In order to match commitments and required improvements through the Committee on Climate Change (CCC), the total investment needed to meet the UK's fifth carbon budget sits at approximately £22 billion per year, which is 1% of current UK GDP (Green Finance Taskforce, 2018).
37. To 'green' the UK's infrastructure, [the Infrastructure and Projects Authority \(IPA\) have a spending plan](#) to set out more than £500 billion of investment into economic and social infrastructure up to 2021.

38. IPA forecast that the [energy and transport sectors require £255 billion and £134 billion of investment respectively over the following 15 years](#), with estimates of 90% necessary to come from private sources. This emphasises the requirement for the UK financial services to scope a blended finance approach, with private investment dominating.

Question 10. Are there any barriers (regulatory or otherwise) preventing financial services firms from delivering green finance or investing in 'green' assets?

39. Delivering green finance meets a barrier in the lack of quantifiable data used to calculate potential Returns on Investments – depending on the project.
40. Implementing a set of minimum standards can [prevent the prevalence of greenwashing by corporations to lead on their financial products/services](#).
41. The [FSB's TCFD](#) reported that there is insufficient information highlighting climate-related scenarios, enhancing difficulty and risk to the value of longer-term green investments. Consequently, financial institutions lack the knowledge of assets that can become obsolete/impacted by climate change, jeopardising risk management accuracy.
42. Loans and asset-backed securities lack common standards in green corporate lending, real estate, securitisation – both domestically and internationally.
43. Lack of regulation in incentivising the uptake of Green Finance can act as a barrier. Governments should consider new market structures – Project Heather being one – to support and incentivise decarbonised developments, which can produce shared value.
44. [Market uncertainty acts as a barrier](#) as the market is unclear on whether it will pay a premium for green assets. Investors should be financially incentivised on top of their expected environmental and social benefit produced, perhaps through the system of taxation.

Question 11. What prudential risks does climate change pose?

46. Climate change poses [physical, transitional, operational, supply-chain, market, litigation, regulatory and reputational risks](#).
47. Physical risks [include the physical effects from climate change such as effects from extreme weather events](#).
48. [Transitional risks can cause investors problems through stranded assets](#) such as known coal, oil and gas reserves that remain unused due to the low-carbon transition. Wholesale portfolios for potential stranded assets should be evaluated, as well as, those that are affected in decarbonisation. The use of a carbon tax can negatively impact profitability of companies with stranded assets.
49. Operational risks include those affected through extreme weather events, including: [increased energy costs, reduced water supply, relocation costs, workforce disruptions and property loss and damage](#).
50. Supply-chain risks include: [distribution issues, supply shortages, maladaptation or resource mismanagement and reputational risks](#).
51. [Market risk includes the impact of climate change on consumption patterns and preferences](#). These include: interruptions in the point of sale, migrations, conflicts, political disruption, sales and revenue volatility and higher inventory costs.
52. [Regulatory risks from climate change come from governments preparing to deal with climate change's potential impacts](#). These may include status of implementation of low emission zones in cities.
53. Litigation risk may occur. For example, [breaches of fiduciary duty through insufficient disclosure or negligent exposure to climate change](#).
54. Reputational risks can occur through improper action upon climate change [increasing public scrutiny through status of preparation measures](#).
55. Few companies currently disclose the financial impact of climate change on their company, as well as, action in climate-related scenarios. [Non-disclosure of climate change risk can put value of investments at stake](#).
56. Climate change can result in increased credit risk to banks. Climate change is expected to negatively impact property values and increase defaults.

Question 13. What is the consumer demand for 'green' financial products?

57. Consumer demand for green financial products is increasing. Issuance and investment of green bonds have increased, and is [expected to reach US\\$1 trillion by 2020. This increase in supply is partly due to growing consumer demand](#) about climate change and sustainability, and policy development. [55% of investors](#) believe their money should support firms generating positive environmental and societal impact. [56% of investors aged 18-34](#) are motivated by social finance through publicity on climate-change.
58. 26% of economic losses due to natural disasters are covered by insurance as of 2016. This means resilience and catastrophe bonds, bonds that provide an efficient route for insurers to access the capital markets for climate change, are [increasing in both supply and demand](#).
59. [42% of individuals](#) with Individual Savings Accounts (ISAs) said they would prefer an ISA that financed ethical enterprises such as low-carbon energy (Good with Money, 2018). Despite this, [34% of consumers have not yet opened an ISA](#) that matches their ethical values.
60. [Barclays Bank has set up a mortgage lending scheme](#) that promotes green mortgages.
61. A significant factor restricting consumer demand for green and social mutual funds was their [illiquidity](#).
62. Investor demand for green bonds over the past few years have been greater bond issuance, [implying that green bond issuance has resulted in oversubscription](#).
63. As the level of concern for environmental and social issues increases, so does the intention to invest accordingly. However, [a gap remains between intention and practice to invest](#).

Appendix A

[Source](#)

Clean Growth Sectors	Ambition set out in Clean Growth Strategy	How green finance can help deliver
 Innovation	Investing over £2.5bn in low carbon innovation	Increasing venture investment to support the commercialisation of innovative clean technologies Theme 5
 Business and Industry	Improve business energy efficiency by at least 20%	Developing new green lending products that can facilitate widespread and affordable energy efficiency improvements Theme 4
 Homes	Aspiration for as many homes to be EPC Band C by 2035	
 Power	Phasing out unabated coal by 2025	Mobilising increased investment in large and small-scale power Themes 6, 7 and 8
 Transport	End the sale of new conventional petrol and diesel cars and vans by 2040	Driving investment and finance that can reduce the cost of low emission vehicles both for manufacturers and consumers Themes 4 and 5
 Natural Resources	Deliver better environmental outcomes	Ensuring the financial sector is resilient to climate change, and that investors consider environmental factors Themes 3 and 10
 Public Sector	Voluntary public sector target of 30% reduction in carbon emissions by 2021	Maximising the carbon reduction impact of public spending, through targeted investment and flexible procurement Theme 9