



The Role of a UK National Infrastructure Bank in a Green Recovery

Insights Paper



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In this Green Finance Institute Insights Paper we look at the potential sectors for investment for the UK National Infrastructure Bank in order to facilitate a green long-term economic recovery.

Background

Last month the UK Government announced it will be establishing a National Infrastructure Bank (NIB) that will co-invest alongside the private sector and act as a cornerstone investor on key infrastructure projects.

In the National Infrastructure Strategy released in November the UK Government said the bank will operate UK-wide, be based in the North of England, and support the government's ambitions on levelling up and net zero.

The bank will also be able to lend to local and mayoral authorities for key infrastructure projects and provide them with advice on developing and financing infrastructure. The Strategy also highlighted that as well as offering guarantees through the existing UK Guarantees scheme, the NIB will be able to offer debt, equity, and hybrid products.

It is anticipated to launch "in an interim form" in Spring 2021.

The Role of Green Banks

The role of the NIB will be to support the financing of the National Infrastructure Strategy, which Prime Minister Boris Johnson has stated reflects the Government's environmental agenda – commitments on energy, decarbonisation and clean economic growth laid out in the Ten-Point Plan for a Green Industrial Revolution.

While not in name, the NIB will therefore operate in effect as a green bank – a specialised financing institution, or separately managed facility typically capitalised by public sector funding that acts as the focal point for scaling up domestic investment in climate solutions by attracting private sector funding.

Green banks are able to mobilise private capital through the provision of loans (debt), co-investing (equity), acting as guarantor (guarantees) or by offering credit enhancements, technical assistance or grants. (see Fig 1).

According to our recent State of Green Banks 2020 Report with Rocky Mountain Institute and the National Resources Defense Council there are 27 operational green banks around the world and 25 under consideration.

The 27 green banks captured in the report have invested a combined \$24.5 billion while attracting private investment of \$45.4 billion (a median leverage ratio of 2.3).

The UK has already had a successful green bank. In 2012, the UK launched the Green Investment Bank (GIB) that was later sold to Macquarie Bank and became the Green Investment Group. It invested in offshore wind, waste and biomass, energy efficiency (non-domestic), and small-scale renewables.¹

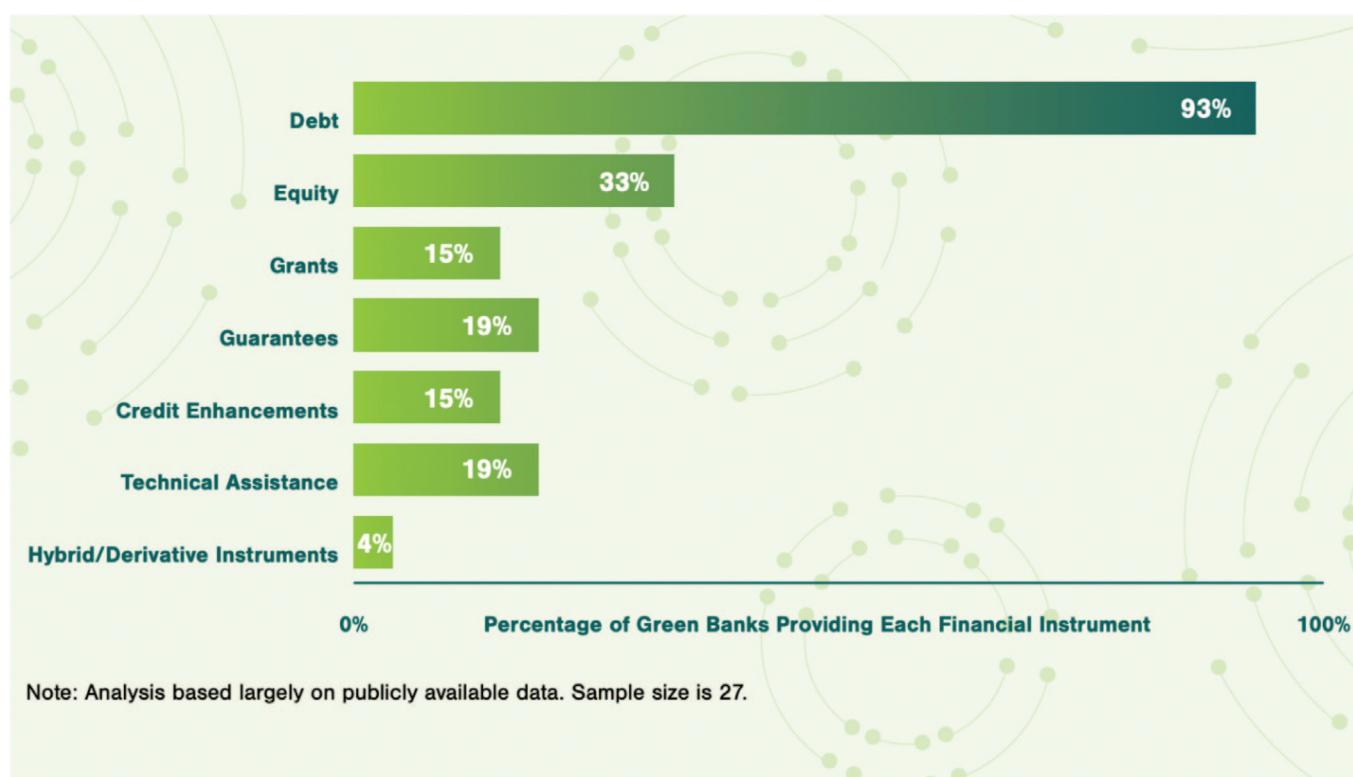
By the end of March 2017, the GIB had invested in 100 projects with a total transaction value of £12.0 billion, committing £3.4 billion of its own capital - a mobilisation ratio of 1:2.5 (£2.50 of private capital for every £1 invested).²

One of the GIB's biggest successes was its catalytic impact on the UK offshore wind sector (see page 5), where the GIB invested around 46% of its capital.

In the following section we offer initial guidance on the sectors ripe for NIB investment in the UK and their potential to catalyse green and net zero solutions and to support a long-term green recovery and job creation as the UK emerges from the COVID-19 pandemic.

Fig 1. Source: State of Green Banks 2020: RMI, GFI, NRDC

Percentage of Existing Green Banks' Provision of Financial Instruments



¹ <https://www.nera.com/content/dam/nera/publications/2017/GIB%20Examining%20the%20Case%20for%20Continued%20Intervention.pdf>

² <https://www.nao.org.uk/wp-content/uploads/2017/12/The-Green-Investment-Bank.pdf>

Potential Focus Areas for the National Infrastructure Bank

The Built Environment

Almost two-thirds of existing green banks invest in residential energy efficiency with good reason. In the UK alone the residential sector is responsible for 15% of the country's greenhouse gas emissions.³

According to the UK Climate Change Committee (CCC), energy consumption in homes must drop by 24% before 2030 if the UK is to meet its legally binding net zero emissions target, and an estimated investment of up to £65 billion is required to meet the UK Government's energy efficiency targets by 2035.⁴ The total investment will be significantly higher to retrofit over 28 million homes to a net zero standard by 2050.

Through the work of the Institute's Coalition for the Energy Efficiency of Buildings (CEEB) we have identified several opportunities for the NIB to leverage private capital to meet the inevitable funding gap.

The first is by **providing guarantees for social housing retrofits** – a credit guarantee scheme for large-scale renovations of social housing, which could unlock lower cost finance. The OECD estimates that credit guarantee schemes can bring in £5-10 of private capital for every £1 of public capital over a 5-10 year timeframe.

Secondly, the NIB could provide the **initial capital and delivery mechanism for a Property Assessed Clean Energy (PACE) Scheme**. Already a successful financing tool in the US, PACE funding can cover the full cost of a retrofit project, with the unique characteristic that repayments are linked to the property, rather than the property owner. This directly unlocks a common barrier to retrofitting – with PACE finance, homeowners don't have to worry about living in their home long enough for savings on their energy bill to cover the upfront investment. With regards to job creation, commercial PACE schemes in the US have led to an estimated 16,600 jobs being created across the nation.⁵

More broadly, UK100 estimates a total of 455,076 full-time equivalent roles would be created "if the private sector and government bolster the COVID-19 recovery funding they have already committed to retrofitting in the name of improving energy efficiency."⁶

Regarding the decarbonisation of heating, the CEEB recently concluded its Zero Carbon Heating Taskforce, which identified the investment barriers to heat decarbonisation and co-designed innovative financial solutions and non-financial enablers. Among the Taskforce's financial solutions, which will be published in a

³ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/862887/2018_Final_greenhouse_gas_emissions_statistical_release.pdf

⁴ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/820284/190716_BEIS_Green_Finance_Strategy_Accessible_Final.pdf

⁵ <https://www.sustainablefinance.hsbc.com/mobilising-finance/the-green-bank-opportunity>

⁶ [https://www.uk100.org/white-vans-go-green-army-of-half-a-million-builders-and-plumbers-needed-to-reach-netzero-as-local-leaders-urge-100bn-green-investment-to-kickstart-green-recovery/](https://www.uk100.org/white-vans-go-green-army-of-half-a-million-builders-and-plumbers-needed-to-reach-net-zero-as-local-leaders-urge-100bn-green-investment-to-kickstart-green-recovery/)

report later this month, is the creation of a **new National District Heat Fund potentially managed and owned by the NIB**.

Low-carbon district heating networks will be critical to achieving decarbonisation, but district heat networks currently serve only 2% of the UK's heat demand. The CCC estimates that this could grow to up to 20% of homes by 2050, in order to achieve the UK's net zero targets⁷ and may require up to £22 billion of private investment to achieve.⁸

A National District Heat Fund would help leverage private capital to meet this investment need. The potential of such a model under a NIB is exemplified by the Green Investment Bank Offshore Wind Fund, which was a wholly-owned subsidiary of the GIB and managed third-party capital. The fund targeted unlevered, operating assets, and provided a route into the market for new investors who wished to access green UK infrastructure assets. It attracted five UK local authority pension funds and several international investors, leading to the fund exceeding its target capitalisation of £1 billion.

Clean Energy Infrastructure

The growth of the offshore wind market is one of the most successful legacies of the UK's Green Investment Bank. The UK is now a world leader in offshore wind electricity generation – hosting more than one third of total installed capacity for offshore wind globally.⁹ In the Ten-Point Plan, the UK Government has laid out its ambition to quadruple offshore wind capacity, targeting 40 GW of offshore wind by 2030, including 1GW of floating offshore wind. To further support this enlarging industry, the Government will invest £160 million into modern ports and manufacturing infrastructure. Job projection for the offshore wind sector has now been increased from 27,000 to 60,000 by 2030.

The offshore wind market has reached a level of maturity where investment by a NIB is no longer needed to attract private capital. Other technologies, however, are at a similar stage to offshore wind and solar PV a decade ago and are in need of patient and concessionary capital and would benefit from NIB support.

In its June 2020 report,¹⁰ the International Energy Agency (IEA), for example, highlights both **lithium ion batteries and hydrogen electrolyzers** as being at the technology development stage where wind and solar were in 2009, where the technology is well understood but manufacturing is still small in scale.

Infrastructure for both Carbon Capture and Storage (highlighted in the Ten-Point Plan) and green hydrogen could be two key areas of investment for the NIB.

⁷ <https://www.theccc.org.uk/wp-content/uploads/2016/10/Next-steps-for-UK-heat-policy-Committee-on-Climate-Change-October-2016.pdf>

⁸ <https://www.ippr.org/publications/piping-hot>

⁹ <https://gwec.net/global-figures/global-offshore/>

¹⁰ <https://www.iea.org/articles/green-stimulus-after-the-2008-crisis>

The National Infrastructure Strategy reiterated the 5GW target of low carbon hydrogen production by 2030, supported by a £240 million Net Zero Hydrogen Fund, which could create up to 8,000 new, clean jobs.

The NIB could support this ambition by **co-investing in building commercial-scale green hydrogen plants**, generated from offshore wind energy, further leveraging the legacy of the GIB by utilising the UK's world-leading offshore wind capacity.

Growing the UK's green hydrogen industry could generate a cumulative GVA of £320 billion by 2050, including £250 billion of exports, and sustain up to 120,000 new jobs by 2050, with the majority in regions outside of London and the South-East.¹¹

Building the UK's green hydrogen production capabilities will also support UK-based supply chains, with ITM Power, one of the leading hydrogen electrolyser producers, based in the UK and currently planning to build the world's largest electrolyser factory in Sheffield.¹²

The IEA has warned that Europe should not miss out on hydrogen technology manufacturing market share, as happened with solar PV last decade¹³, and the UK is in a prime position to lead Europe in the development of a hydrogen economy.

Other innovative projects could benefit from future NIB debt or equity investment as they develop, such as the Dolphyn Project in Aberdeen – the world's first floating green hydrogen project (which received funding from BEIS in February 2020¹⁴).

Decarbonising UK Transportation

Transport is the largest emitting sector in the UK, contributing 28% of domestic emissions in 2018 with passenger cars contributing more than half of those emissions..¹⁵

Clear long-term policy signals, through policies such as the ICE vehicle phase-out (recently brought forward to 2030 in the Ten-Point Plan) and commitments by cities through the introduction or expansion of low emission zones, have allowed the private sector to make longer-term preparations for the decarbonisation of road transport. Further clarification is also expected in the upcoming Transport Decarbonisation Plan.

NIB co-investments can help rapidly improve mobility infrastructure, such as investing in **EV charging infrastructure, depots and hubs, and the development of a UK battery supply chain**.

With batteries accounting for 40% of an EV's value, the establishment of a secure domestic EV battery supply chain is vital¹⁶. The Faraday Institution estimates that investment in the range of £12 billion will be required by 2040 in the domestic battery supply chain, with domestic investment currently at risk with domestic car manufacturers negotiating long-term contracts with overseas battery suppliers.

Investment will be crucial for automotive sector jobs. Some 170,000 people currently employed in the UK automotive sector could see their jobs at risk as UK-based vehicle producers scale down their ICE production capacity.

¹¹ <https://ore.catapult.org.uk/wp-content/uploads/2020/09/solving-the-Integration-Challenge-ORE-Catapult.pdf>

¹² <https://www.itm-power.com/date/2019/7?catid=5>

¹³ <https://www.greentechmedia.com/articles/read/dont-repeat-solar-mistakes-with-hydrogen-iae-chief-warns-europe>

¹⁴ <https://www.gov.uk/government/news/90-million-uk-drive-to-reduce-carbon-emissions>

¹⁵ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/932122/decarbonising-transport-setting-the-challenge.pdf

¹⁶ https://faraday.ac.uk/wp-content/uploads/2020/03/2040_Gigafactory_Report_FINAL.pdf

Scaling EV supply chains, however, could increase the 170,000 jobs by 29% to 220,000 by 2040, with 78,000 being new jobs created in gigafactories and the supply chain.¹⁷

NIB investment could help scale the construction of such battery production facilities in the UK, and secure UK market share.

Beyond passenger vehicles, hydrogen production will be vital to decarbonising transport, with modes of transport such as HGVs and shipping set to be reliant on hydrogen fuel cells in a low carbon future. The NIB has the potential to accelerate this process through its investments in **hydrogen production infrastructure** already highlighted in this paper as a key sector for investment.

In public transport, given the NIB will have the remit to lend to local authorities and councils, **loans could be provided that focus on upgrading public transport** to meet net zero targets.

Further application for the NIB in unlocking private capital for transport will be identified by our Coalition for the Decarbonisation of Road Transport (CDRT), the details of which will be announced this month. The industry-led coalition will focus on unlocking the financial barriers to decarbonisation across all segments of the road transport industry and delivering real-economy outcomes.

Nature-based Solutions

The Government's 25-Year Environment Plan (25-YEP) has laid out actions to mitigate and adapt to both the climate and biodiversity crises facing the UK. According to the State of Nature Report¹⁸ 15% of UK species are threatened with extinction. Indeed, the UK is ranked 189th out of 218 countries for biodiversity 'intactness'.

The negative impacts of land use change will be exacerbated by intense bursts of rainfall, increased heat and sea-level rise due to climate change.

Summer maximum temperatures could rise by up to 10°C in parts of England by the 2080s for example, while sea level rise is predicted to be between 0.4 and 1 metre by 2100, and possibly by as much as 4 metres by 2300.¹⁹

A NIB could help catalyse private capital to add to its announced £5.2 billion investment in a six-year programme for flood and coastal defences through derisking green infrastructure, as well as **lending to local authorities to develop guarantees for new markets in sustainable drainage and stormwater retention** that are found in other countries.

The NIB could also stimulate private investment in nature-based projects by financially supporting **a pipeline for private sector nature investments and markets** building on the work of the Environment Agency and Defra's Investment Readiness Fund that launches in 2021.

¹⁷ https://faraday.ac.uk/wp-content/uploads/2020/03/2040_Gigafactory_Report_FINAL.pdf

¹⁸ <https://nbn.org.uk/wp-content/uploads/2019/09/State-of-Nature-2019-UK-full-report.pdf>

¹⁹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/758983/Climate_change_impacts_and_adaptation.pdf

While grants in the form of the Green Recovery Network Fund (increased in the Ten-Point Plan to £80 million) will support UK nature-based projects and increase jobs, there are nature-based projects that have the ability to attract significant private capital if the Government acts as a **co-investor or provides first loss guarantees particularly within sustainable and regenerative agriculture and sustainable forestry** – both sectors which could provide water and carbon sequestration.

Research from Finance Earth (formerly Environmental Finance)²⁰ for example, estimates £500 million of capital could mobilise as much as £1.8 billion.

Given the labour-intensity of nature-based projects, developing an investible domestic nature-based economy would add to the 5,000 jobs expected to be created by the £40m Green Jobs Challenge Fund.

Capitalisation of the NIB

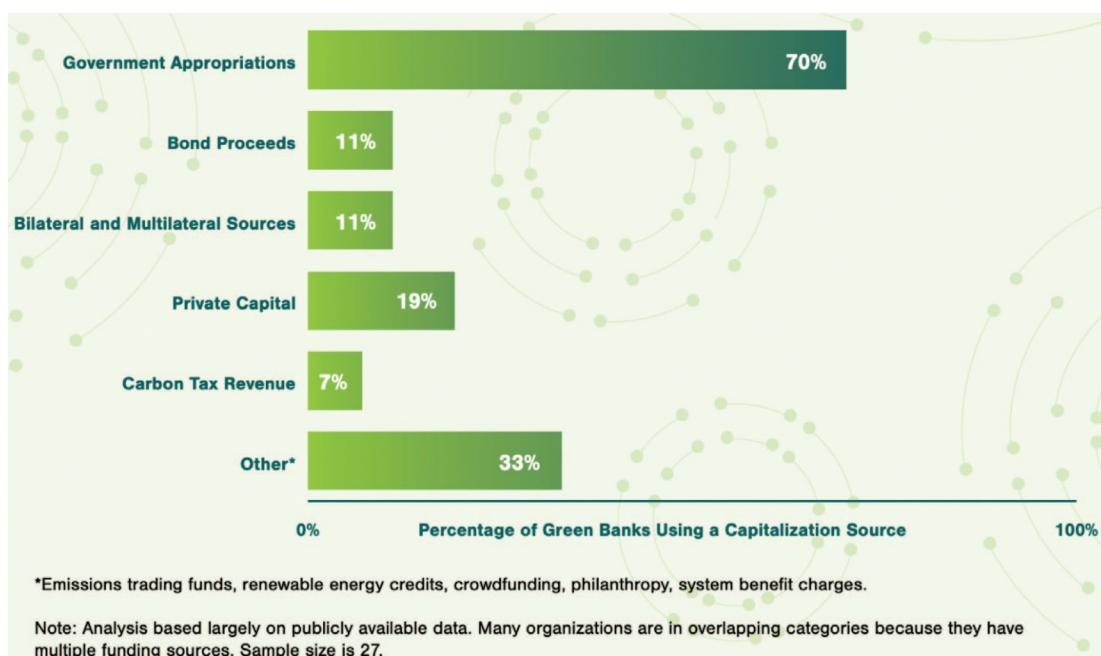
As yet the UK Government has not released details how it intends to capitalise the NIB. Proceeds from a sovereign green bond could be part of overall government appropriation. In November, the UK Government announced it intends to issue Green Gilts beginning in 2021.

Further capitalisation could also be provided by the issuance of bonds by the NIB into the capital markets. According to the State of Green Banks 2020 Report three green banks have issued bonds to provide finance, for example. (Fig 2.)

A carbon tax could also provide a large source of capital for the NIB in the decade ahead. The Zero Carbon Commission, for example, estimates revenue from a carbon charge could reach £27 billion per year by 2030.²¹

Fig 2. Source: State of Green Banks 2020: RMI, GFI, NRDC

Percentage of Green Banks Using a Capitalisation Source



²⁰ <https://finance.earth/wp-content/uploads/2020/11/Defra-Natural-Environment-Impact-Fund-Business-Case-June-2018.pdf>

²¹ <https://zerocarbon.publicfirst.co.uk/>

Conclusion

The National Infrastructure Bank provides an opportunity to mobilise private capital at scale to fund investments and projects that can ensure the UK has a green long-term economic recovery.

The importance of sectoral solutions in unlocking capital cannot be emphasised enough. At the Green Finance Institute, a technical sectoral focus guides our work and we have identified housing, transport and nature as being key for transitioning the UK to net zero beyond clean energy alone in order to create jobs and build back a resilient and healthy economy. We recommend these as areas of initial focus.

Key Reading:

- The UK Government's Ten-Point Plan
- The UK Government's National Infrastructure Strategy
- State of Green Banks 2020 Report
- National Audit Office Report on UK Green Investment Bank
- Coalition for the Energy Efficiency of Buildings
- Roadmap for Financing a UK Nature Recovery

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