MAYOR OF LONDON

Green Finance Fund

Allocation and Impact Report

2023-24

CONTENTS

1 Executive summary

The Green Finance Fund (GFF) is established to raise up to £500m of competitively priced financing. This will be used to support projects that contribute to achieving the Mayor's 2030 net-zero target and London Environment Strategy goals. The intention is to raise financing through the issuance of green bonds, provided this represents value for money compared to borrowing from the Public Works Loan Board (PWLB). If this is not feasible, financing will be sought from other sources, as detailed below.

The principles of the GFF are set out in its Green Financing Framework[1] (Framework), finalised in October 2023. The Framework includes guidelines and governance arrangement for allocating proceeds raised for the GFF. The Framework also commits to annual reporting on the allocation of proceeds and environmental impacts, to ensure transparency.

To fulfil the Framework's reporting commitments, the Greater London Authority (GLA) is publishing the first Allocation and Impact Report for the GFF in this document. It presents information on the amount allocated to eight eligible projects (see section 5) during the 2023-24 financial year (1 April 2023 to 31 March 2024) and the environmental impacts expected from these projects (see section 6). The impact figures in this report are forecast amounts. The actual amounts, when achieved, will be included in future reports.

During this reporting period, £218.5m was allocated to eight eligible projects, across the three green project categories outlined in the Framework: renewable energy, energy efficiency and clean transportation (see full breakdown in section 5.3). At the end of March 2024, there were 15 projects in the GFF pipeline seeking finance valuing just under £139m.

This report also details the financing raised during 2023-24 (in section 4). While no green bond was issued during the period, as this option was uneconomical, £190m was raised from the UK Infrastructure Bank (UKIB), in December 2023. Ahead of securing the financing from UKIB (none of which was drawn during 2023-24), the GLA used £100m from its cash resources – through 'internal borrowing'[2] – to fulfil a drawdown request from one of the approved projects.

The forecast environmental data demonstrates the impact that the GFF will have on achieving the Mayor's 2030 net-zero target. The eight projects supported by the GFF are expected to reduce greenhouse gas (GHG) emissions by 27,804tCO_2e per annum.

[1] Mayor of London, Green Financing Framework: Green Finance Fund, November 2023

[2] This is where expenditure is financed through internal cash balances rather than external borrowing.

They are also forecast to make energy savings of up to 31,951 MWh per annum; and to generate up to 3,547 MWh per annum of renewable energy.

The report also outlines some of the wider benefits that may be derived from the projects that will be financed by the GFF.

Overall, the GFF has made good progress during its first year of operation and is expected to make a demonstrable contribution to the Mayor's environmental goals.

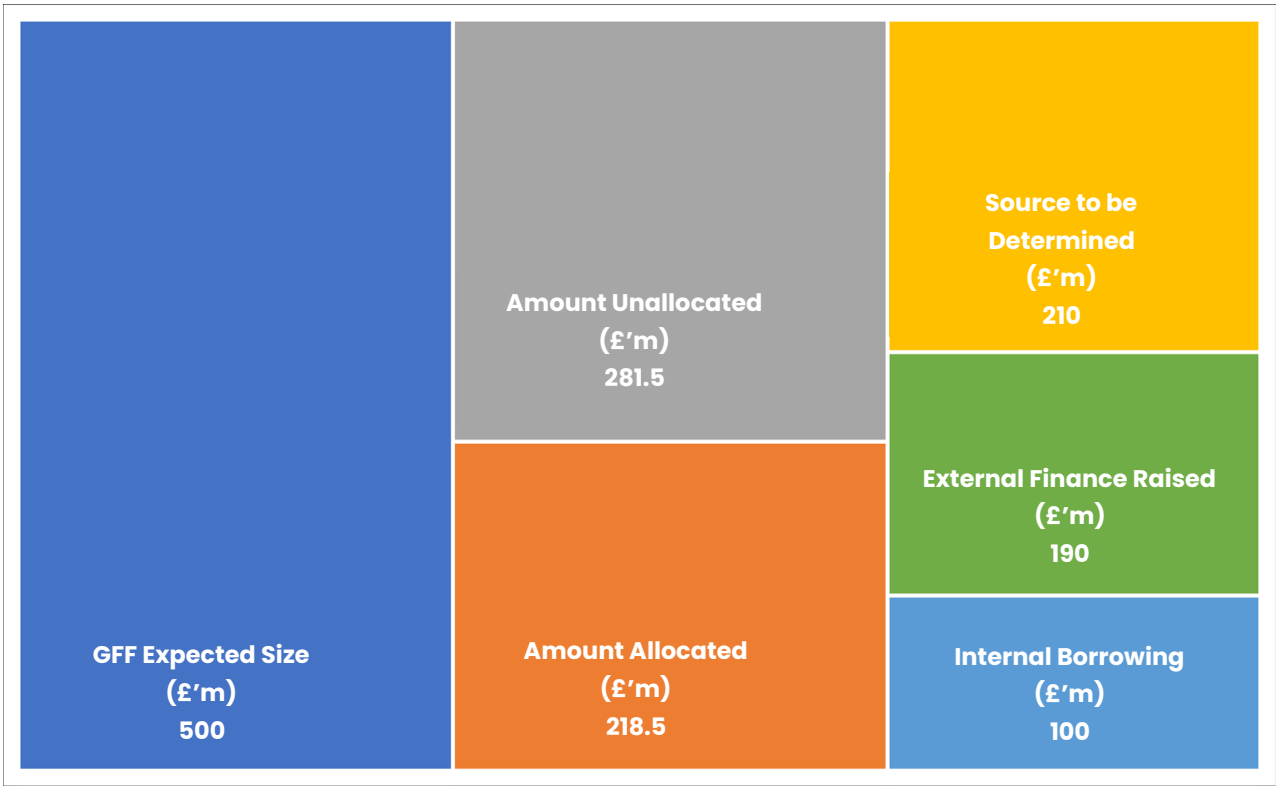

Figure 1.1.1: Summary of GFF position on 31 March 2024

2 The Green Finance Fund

2.1 Background

The Mayor has declared a climate emergency for London and set a target for London to reach net zero by 2030. This target requires considerable investment[3] in capital infrastructure across London's buildings, energy networks and transport systems.

To facilitate this, in June 2023 the Mayor launched the London Climate Finance Facility (LCFF)[4] to unlock significant investment to support the decarbonisation of London's capital infrastructure. The approach and structure of the LCFF was informed by work carried out by the Green Finance Institute (GFI).[5]

Given the pressing need for investment, the GFI recommended a phased approach for setting up the LCFF. It recommended the GLA initially capitalise the LCFF using the strengths of its own balance sheet and public sources of capital. As this initial capital would be from public sources, it was proposed that the GLA establish internal mechanisms for managing this pot of funding.

2.2 The GFF offer

Building on the GFI's recommendation, the GFF was established as an internally managed debt facility, to accelerate investments in green projects for the GLA Group and other strategic public-sector bodies across London.

In recognition of the financial challenges facing the GLA Group and other public-sector bodies, the GFF's 'offer' has been structured to lower the financing costs for eligible organisations. This makes it more feasible for decarbonising and other environmental projects to proceed. Additional support can be provided for projects offering higher environmental impacts if certain criteria are met.

The GFF provides low-cost loans compared to the PWLB,[6] which is the default lender for most organisations eligible for the GFF support. The GFF loans are provided on flexible terms – such as allowing finance to be drawn in multi tranches, when needed;[7] flexible tenors (up to 25 years) and repayment methods; and no commitment or

[3] The investments required for the Accelerated Green pathway, selected by the Mayor to achieve net zero by 2030, it is estimated to be at least £75bn.
[4] GLA, Mayor's London Climate Finance Facility, 29 June 2023
[5] GFI, REPORT (greenfinanceinstitute.com)
[6] Currently, at least 20 basis points below PWLB certainty rate.
[7] This could be use alongside internal borrowing, where an organisation initially uses its cash balance for green projects, on the basis that they can subsequently replenish their cash balances from the GFF.

prepayment fees. This approach should not only reduce financing costs, but also prevent green projects from being delayed due to affordability constraints.

2.3 Financing the GFF

To raise financing for the GFF, the Mayor announced plans to secure up to £500m from institutional investors by issuing green bonds. Using the GLA's size and credit rating, the proposal was for the GLA (acting as an aggregator, in pooling the financing requirements of the GLA Group and other key public-sector bodies across London) to secure competitively priced finance; and then extend this benefit to eligible organisations.

The process of issuing green bonds requires putting in place a green bond framework that sets out, among other things, how the monies raised would be used, and the governance arrangements for deployment. The Framework for the GFF was developed in alignment with the International Capital Market Association (ICMA) Green Bond Principles and the Loan Market Association (LMA) Green Loan Principles.

In addition to the operating guidelines and governance for the GFF, the Framework includes the key selection criteria for eligible projects These are summarised in the table 2.3.1, below.

Table 2.3.1: GFF's key project selection criteria

Criteria	Detail
Eligible organisations[8]	1. **GLA Group:** GLA, Transport for London (TfL), the Mayor's Office for Policing and Crime, the London Fire Commissioner, the London Legacy Development Corporation (LLDC), the Old Oak and Park Royal Development Corporation 2. **Local authorities:** London boroughs and the City of London Corporation 3. **Other:** social housing providers, NHS bodies, universities, colleges and museums[9]
Green project category	Projects must involve at least one of the following categories: renewable energy; energy efficiency; or clean transportation.
Core indicators	Projects must deliver against at least one core indicator: GHG reduced/avoided; renewable energy capacity;

[8] Finance will *not* be provided to an organisation if doing so would negatively affect the GLA's credit rating.

[9] Organisations accredited under the UK Museum Accreditation Scheme.

	renewable energy generation; annual energy savings; or reduction of air pollutants.
Minimum loan size	£1m (eligible organisations are encouraged to aggregate measures into a single project).
Use of funding	For capital expenditure.
Project timescale	Procurement should start within nine months of finance allocation; construction should begin within 21 months; and projects should be operational within three years.[10]
Exclusion	Projects that do environmental harm; fossil fuel boilers; energy from waste infrastructure; brown, black and blue hydrogen; and vehicles powered through fossil fuel combustion and ethanol.

[10] Where projects are delivered in phases, at least the first phase should be completely within this timescale.

The Framework also outlines the steps for evaluating and allocating financing raised for the GFF, as set out in figure 2.3.2, below.

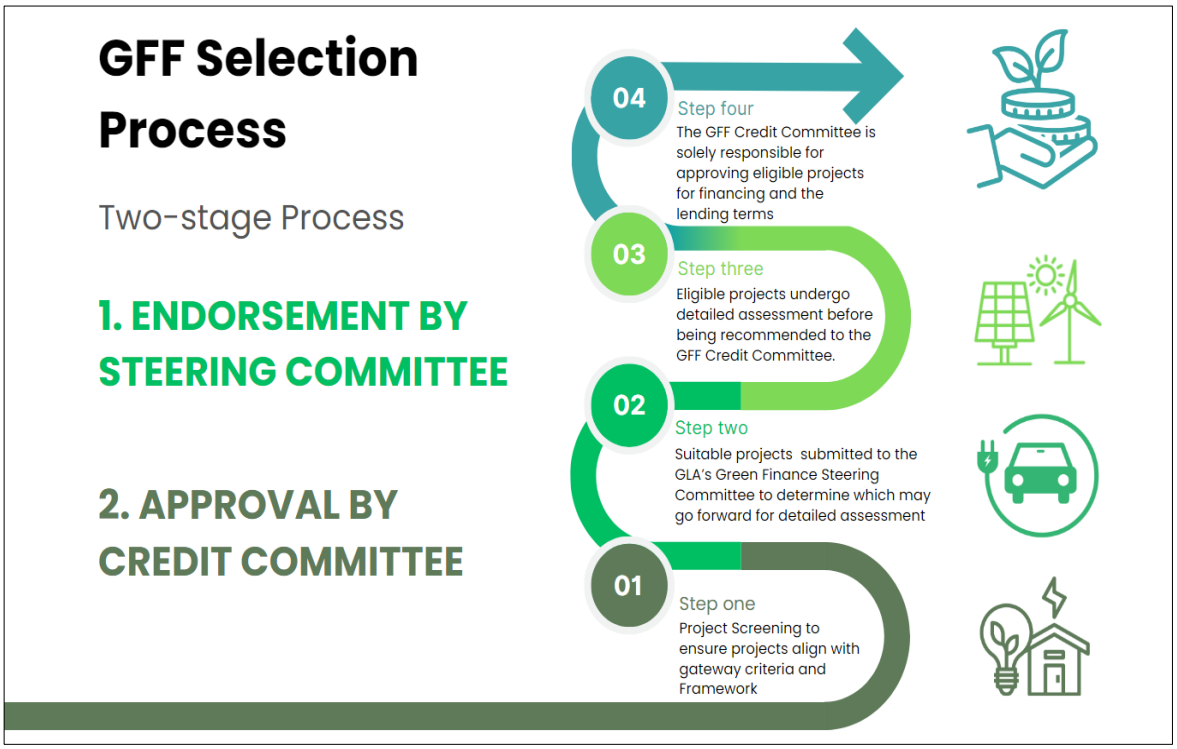

Figure 2.3.2: GFF selection process

3 GFF main activities in 2023-24

3.1 Establishment of the Credit Committee

In April 2023, the Mayor granted approval for the establishment of the Credit Committee (CC); and delegated authority to the CC to, among other things, approve proposals for finance.

The CC comprises four senior GLA staff and three independent members – all of whom have decades of combined experience in public-sector finance and governance, infrastructure projects, private sector investment, and environmental sustainability.

During 2023-24, the members of the CC[11] were:

- Enver Enver – Interim Chief Finance Officer (GLA, CC Chair)
- Phil Graham – Executive Director, Good Growth (GLA)
- Luke Webster – Assistant Director of Group Treasury and Chief Investment Officer (GLA)
- Catherine Barber –Assistant Director of Environment and Energy (GLA)
- Alina Gheorghiu-Currie -Director for Heat Networks (London) at Vattenfall Heat UK (Independent)
- Laurence Monnier – Senior Adviser at GIRA Strategic Finance (Independent)
- Dr. Jeremy Gorelick – Senior Strategic Adviser at GFI (Independent).

3.2 Launching the GFF

Following the establishment of the CC, and with the overall governance and procedural arrangements finalised, the GFF was officially launched on 29 June 2023, during London Climate Action Week, at an event jointly hosted by the GLA and 3Ci.[12]

[11] Credit Committee members' biographies can be found here.

[12] 3Ci

At the time, the Mayor said: "I'm committed to making London net zero by 2030, a target that is achievable if we make bold decisions together now. That is why I'm pleased to announce the Green Finance Fund will lend up to £500m of investment to low-carbon, green-partnership projects. We've already allocated funding to some exciting projects around London and I'm looking forward to seeing what other green initiatives we can support. The fund is open for applications now so don't delay. By working closely together on energy-efficiency projects we can help build a better London for everyone, a cleaner and greener city for all."

3.3 Finalising the framework

As previously mentioned, a draft Framework was developed for the GFF, and published in April 2023. In line with market practice, the Framework was subsequently assessed by the global ESG rating agency, Sustainable Fitch. This assessment[13] confirmed that the Framework was aligned to both the ICMA Green Bond Principles and the LMA Green Loan Principles. It awarded the highest rating of 'excellent' for the Framework's environmental credentials.

Following the assessment, the final version of the Framework was approved by the CC in October 2023.

3.4 Launching Expression of Interest (EOI) rounds

As outlined in section 2.3 above, the selection of eligible projects involves a two-stage process. The first is an initial screening by the GLA's Green Finance Steering Committee (GFSC). If endorsed, eligible projects are then assessed before being recommended to the CC for approval.

To help identify suitable projects, eligible organisations were encouraged to submit proposals, during time limited EOI Rounds (usually open for a few months),

[13] Sustainable Fitch, Greater London Authority: Second-Party Opinion – Green Framework, 2 November 2023

for consideration by the GFSC. This process is managed by the GLA's Green Finance team.

During 2023-24, three EOI rounds were launched. However, the third closed on 15 May 2024; the details for this round are therefore not included in this report. The GFF has attracted plenty of interest, with 38 eligible proposals (with a combined value of over £546m) received during its first year of operation. This excludes proposals that either lacked sufficient information (including about the amount being sought) or the projects/organisations were ineligible. Of the 38 proposals, 34 were submitted for consideration by the GFSC. Four proposals were not considered because two were withdrawn by the applicants and the other two were not sufficiently developed.

Table 3.4.1, below, shows the number and value of proposals received during the first two EOI rounds; and the figures for those endorsed by the GFSC. It also shows the figures for the proposals that were submitted and endorsed prior to the EOI round arrangements being agreed.

Table 3.4.1: Proposals submitted for GFF support, by EOI Round

	Proposals received		Proposals endorsed by GFSC	
EOI round	**Number**	**Value (£m)**	**Number**	**Value (£m)**
1	18	135.8	15	115.7
2	13	224.1	8	75.9
Pre-EOI round	7	186.1	7	186.1
Total	**38**	**546**	**30**	**377.8**

Most of the eligible proposals submitted to the GFSC were endorsed, except four proposals. After consideration by the GFSC, it was deemed that the proposed activities were not sufficiently aligned to the Framework.

Table 3.4.2, below, sets out the proposals received and those endorsed by the GFSC, broken down by organisation type. While the GFSC endorsed more local authority proposals than those from the GLA Group, the latter accounted for approximately 66 per cent (by value) of the proposals endorsed.

Table 3.4.2: Proposals submitted for GFF support, by organisation type:

	Proposals received		Proposals endorsed by GFSC	
Eligible organisation[+]	**Number**	**Value (£m)**	**Number**	**Value (£m)**
GLA Group	14	376.1	10	249.9
Local authorities	17	91.8	17	91.8
Other	7	78.1	3	36.1
Total	**38**	**546**	**30**	**377.8**

[+] *See table 2.3.1*

Table 3.4.3, below, shows the proposals received and those endorsed by the GFSC, broken down by green project categories. It should be noted that some proposals under the energy efficiency category also include renewable-energy measures.

Table 3.4.3: Proposals submitted for GFF support, by green project categories:

	Proposals received		Proposals endorsed by GFSC	
Green project category	**Number**	**Value (£m)**	**Number**	**Value (£m)**
Clean transportation	7	300.6	2	169.4
Energy efficiency	25	200.9	24	190.9
Renewable energy	6	44.5	4	17.5
Total	**38**	**546**	**30**	**377.8**

3.5 The GFF pipeline

Seven proposals endorsed by the GFSC were subsequently withdrawn by the applicants, for various reasons. These included: unsuccessful application for grant funding to match the borrowing from the GFF; no longer needing to borrow to deliver their proposals; and stalling of further development works for their proposals.

With seven proposals withdrawn and eight approved by the CC (see section 5.1), there were 15 proposals remaining in the GFF pipeline by 31 March 2024. These had a combined value of just under £139m. Figure 3.5.1, below, shows how these figures are broken down by organisation type.

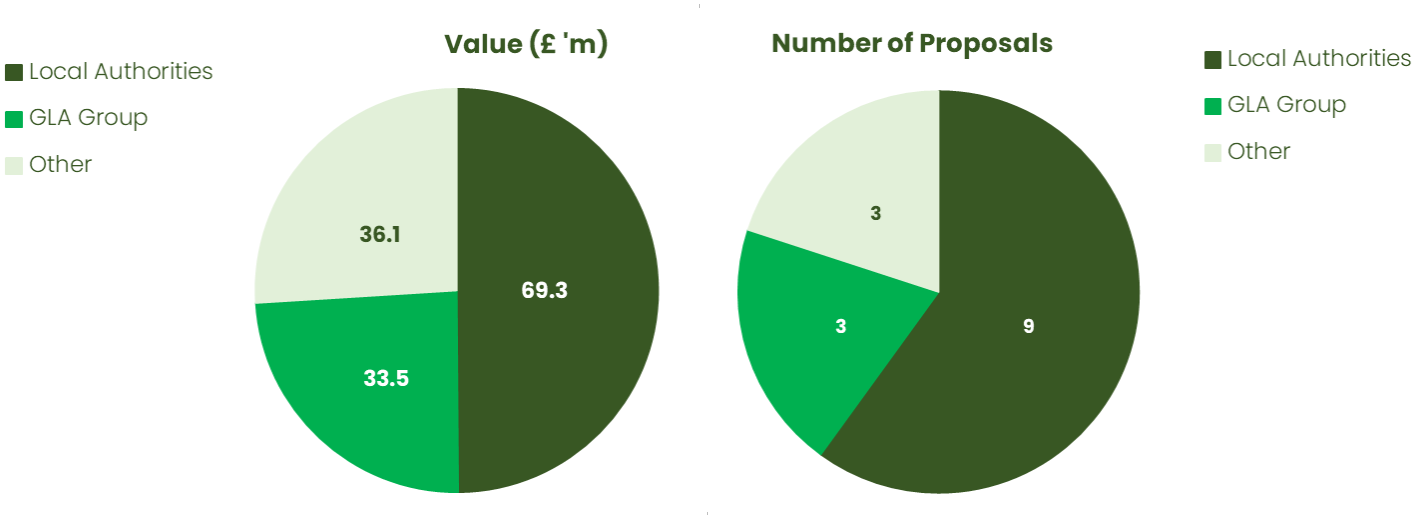

Figure 3.5.1: GFF pipeline by organisation type, as of 31 March 2024

Figure 3.5.2, below, shows the value of the pipeline, and the number of proposals, in relation to the three green project categories. While the energy efficiency category accounts for 74 per cent (by value) of the GFF pipeline, six of these proposals also include renewable-energy measures, as previously noted.

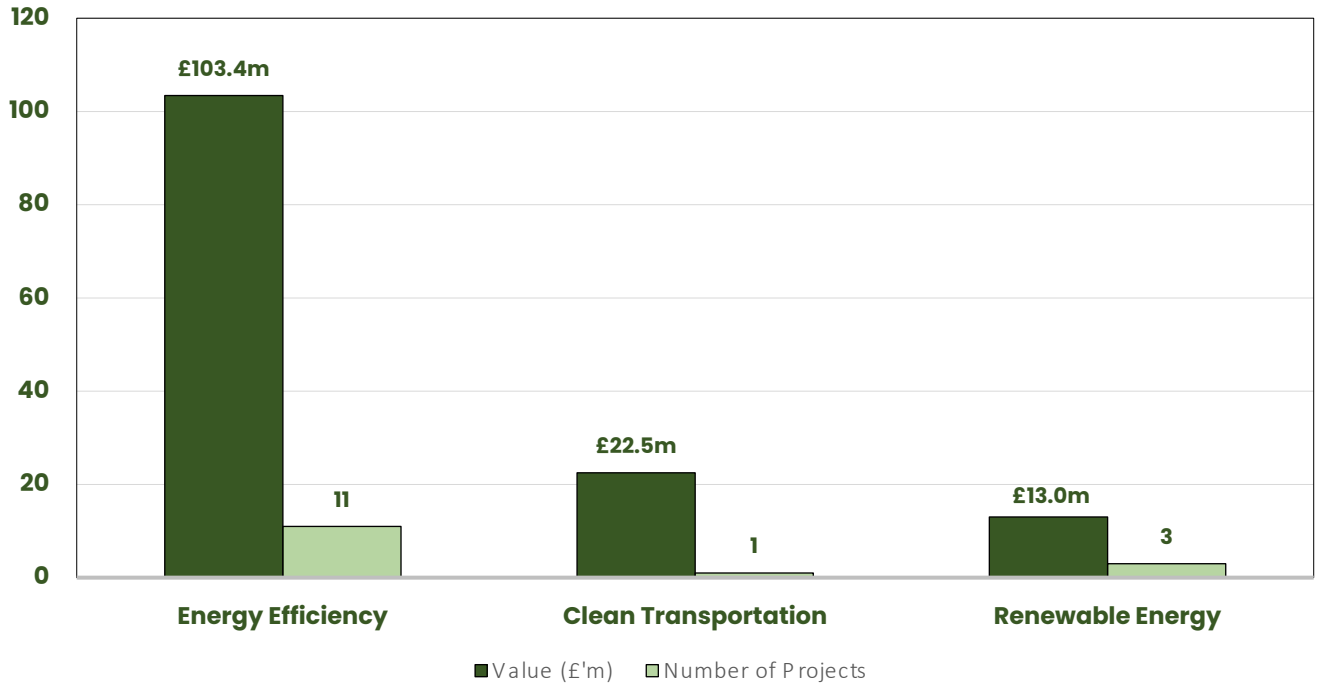

Figure 3.5.2: GFF pipeline, as of 31 March 2024

4 Financing raised in 2023-24

4.1 Capitalising the GFF

The proposal to establish a green bond programme to capitalise the GFF was based on the expectation that it would represent value for money compared to borrowing from the PWLB. The latter is the default source of borrowing for the GLA Group and other eligible public bodies, such as local authorities.

During 2023-24, the borrowing conditions of the bond market were unfavourable, compared to borrowing from the PWLB. As such, it was agreed that financing for the GFF would initially come from the GLA's cash resources. However, subject to a shift in market conditions, the GLA would launch a green bond programme as part of the refinancing strategy for the GFF. If market conditions continued to make the issuance of green bonds uneconomical, it was agreed that any initial commitments from the GFF would be refinanced by borrowing from the PWLB and/or other sources.

4.2 Financing from UKIB

UKIB is the UK's government policy bank. It was launched in June 2021, with £22bn to support the private sector and local government to finance a green industrial revolution and drive growth across the country.

UKIB does not operate in the bond market. However, the GLA used the Framework, developed for the GFF, as the basis for seeking financing from the bank. In August 2023, UKIB's Board approved a loan of £190m (representing 38 per cent of the GFF's £500m) to be deployed through the GFF, in accordance with the Framework. The loan agreement – UKIB's first investment in London – was concluded in December 2023. It allows the GLA to drawdown in tranches when needed, at rates lower than the PWLB's.

When the loan was concluded, Lorna Pimlott, UKIB Managing Director, Local Authority Advisory & Lending, said:

> "The public sector has a huge role to play in tackling climate change and this transaction is an excellent example of how we can work in partnership with public sector organisations to realise their net-zero projects.
>
> "I hope our loan to the GFF also provides a model for how we can help other areas across the UK. We are keen to hear from other local authorities planning similar initiatives."

No drawdown was made from the UKIB facility in 2023-24; drawdown is expected in future years.

4.3 Internal borrowing – using GLA's cash resources

As outlined in section 4.1, it was agreed that financing for the GFF would initially come from the GLA's cash resources (through internal borrowing) and would be refinanced later. In October 2023, £100m was used through internal borrowing to meet the drawdown request from one of the projects approved by the CC (see section 5.1 for the list of approved projects).

Given the amount approved by the CC during 2023-24 (£218.5m), the GLA may need to raise further external finance in 2024-25 to meet any drawdown requests from these projects and for future allocations.

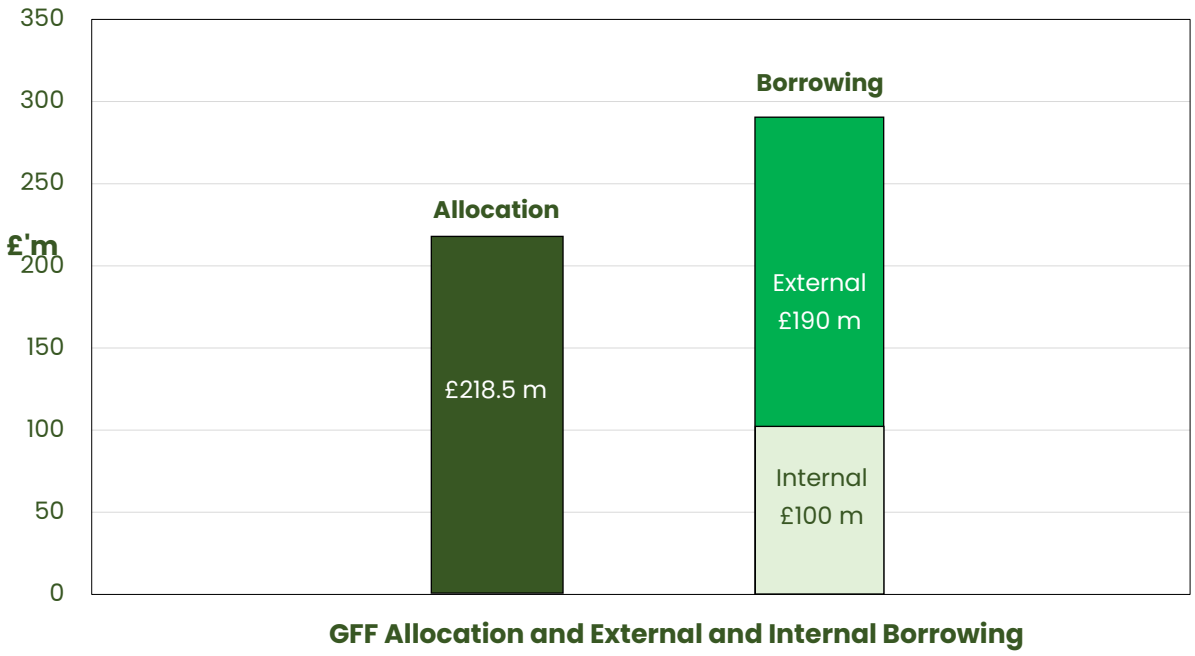

Figure 4.3.1: GFF Allocation vs external and internal borrowing, 2023-24

5 Summary of Green Finance Fund Allocations in 2023-24

5.1 Approved projects

Following endorsement by the GFSC, organisations are invited to submit applications for their proposals that are 'finance-ready'. This part of the process is administered by the GLA's investment and treasury management subsidiary, London Treasury Limited (LTL), which assesses applications (in line with section 2.1.2 of the Framework) and makes recommendations to the CC for approval. During 2023-24, eight projects, valuing £218,509,439, were approved by the CC, and are outlined below in table 5.1.1.

Table 5.1.1: Summary of the GFF allocation during 2023-24

Renewable energy (RE)					
Organisation	**Project name (CC approval date)**	**Project Description**	**GFF allocation**		**Amount Disbursed (Date)**
			Amount	**% of Project Costs**	
London Legacy Development Corporation (LLDC)	London Stadium solar PV membrane[14] (June 2023)	Installation of lightweight solar PV membranes on the stadium roof to generate up to 1,077 MWh of renewable energy, with a forecast average reduction of 270 tCO_2e in GHG emissions annually.	£4,700,000	100	-

[14] In May 2024, the area available on the stadium's roof for installing solar membrane was reduced to 6,500 m^2 to accommodate the placement of the naming rights sponsor's logo. This resulted in reduced forecast costs and environmental impacts: £4.35m, 850-950 MWh of energy generation per year and 200 tCO_2e GHG per annum. These will be reflected in the next annual report.

		Expected project lifetime: 25 years. Sustainable development goals (SDGs) supported: 			
Energy efficiency (EE)[15]					
Organisation	**Project name (CC approval date)**	**Project Description**	**GFF allocation**		**Amount Disbursed (Date)**
			Amount	**% of Project Costs**	
Transport for London (TfL)	200 Buckingham Palace Road retrofit (November 2023)	The project is to implement several sustainability measures at an existing corporate building. These will include improved insulation and installation of electric heating systems. These measures are expected to improve the building's energy usage from 207 kWh/m^2 per year to 121.6 kWh/m_2 per year, representing a 38 per cent reduction in	£4,400,000	100%	-

[15] Some of the projects under this category also included renewable-energy measures as highlighted in the 'Amount Allocated' column.

		energy demand compared to the pre-intervention baseline. It will result in 155 tCO_2e of GHG emissions reduction; and move the Energy Performance Certificate band from its current rating of D to A or B. Expected project lifetime: 20 years. SDGs supported: 			
TfL	Neasden Depot retrofit (November 2023)	The project involves modifying the Neasden Depot staff-accommodation block to include internal and external LED lighting; heat recovery ventilation; variable refrigerant flow systems for heating and cooling; and installation of solar PV panels on a green roof (to increase solar panel efficiency) to generate renewable electricity. Through these measures the project is forecasted to achieve 62 tCO_2e GHG emissions reduction per annum and a	£1,251,000 (£684,000 of EE measures; £567,000 of RE measures)	100%	-

		68 per cent reduction[16] in building energy demand compared to the pre-intervention baseline (when only the EE measures are considered). Expected project lifetime: up to 40 years (depending on the measure). SDGs supported: 			
TfL	London Underground (LU) LED lighting programme (January 2024)	The project involves upgrading the fluorescent lighting in 140 small and medium-sized stations to LED lighting. On average, 7,000 LED lamps will be installed in 20 stations per year, delivering 465 tCO_2e savings per year and cutting TfL's energy demand by 45 per cent (7,726 MWh per annum) compared to the pre-intervention baseline. Approximately 50,000 LED lamps will be installed during the project's duration.	£19,022,118	100%	-

[16] Excluding the solar PV generation; otherwise, this would lead to a 136 per cent reduction in energy demand compared to the pre-intervention baseline.

		Expected project lifetime: 25 years. SDGs supported: 			
TfL	TfL Road Network (TLRN) LED lighting programme (January 2024)	This project aims to accelerate the replacement of existing streetlights on TfL's road network with LED lighting. This involves the installation of over 6,900 LEDs on TfL-maintained roads; and over 10,000 LEDs in tunnels, subways and street signs. This will result in a 500 tCO_2e reduction of GHG emissions in the first year alone, with an average reduction of 349 tCO_2e per year up to 2030. The project will also deliver energy savings of 3,706 MWh a year. This translates to a 45 per cent reduction in energy demand compared to the pre-intervention baseline. Expected project lifetime: 25 years.	£8,829,583	100%	-

		SDGs supported: 			
GLA	Crystal Palace National Sports Centre (CPNSC) (January 2024)	The project involves implementing several EE measures such as fabric improvements, lighting upgrades to LED, and the installation of air source heat pumps. The project should result in energy demand decreasing by up to 69 per cent for the Centre (based solely on the EE measures); and total carbon emissions reducing by up to 97 per cent (2,749 tCO_2e). Expected project lifetime: 25 years SDGs supported: 	£31,326,350 (consisting of £27,545,531 of EE measures and £3,780,819 of RE measures)	60%	-

London Borough of Barnet (LBB)	Corporate estate building retrofit programme (January 2024)	This project is part of a wider £12m programme of retrofit works on 19 sites (17 school sites, a children's home and a community building), to decarbonise the buildings through the removal of gas boilers and implementation of heat pumps at all sites. Also, the project will include installing solar PV, solar thermal, window replacement and draught-proofing measures to increase the energy generation and thermal efficiency of the buildings. The project is expected to result in GHG emissions savings of 754 tCO_2e per annum, and a 47 per cent reduction in energy demand, compared to pre-intervention baseline (based solely on the EE measures) Expected project lifetime: up to 30 years (depending on the measure) SDGs supported: 	£1,988,388 (consisting of £1,957,302 of EE measures and £31,086 of RE measures)	16.6%	-

Clean transportation					
Organisation	**Project (CC approval date)**	**Project Description**	**GFF allocation**		**Amount disbursed (Date)**
			Amount	**% of project costs**	
TfL	Ultra Low Emission Zone (ULEZ) (August 2023)	The project funded the capital infrastructure required for the London-wide expansion of the ULEZ. The project will improve London's air quality; and reduce carbon emissions from vehicles by up to 23,000 tCO_2e per annum. Expected project lifetime: 10 years (until first asset replacement) SDGs supported: 	£146,992,000	100%[17]	£100,000,000 (October 2023)

As shown in table 5.1.1, above, two projects were partially financed through the GFF allocation. While the entire projects' activities would have qualified for finance from the GFF, the project applicants sought finance for only a proportion of the costs.

[17] This relates solely to the capital infrastructure needed to expand scheme. It doesn't include operational costs or costs for the scrappage scheme.

5.2 Allocation by organisation

During 2023-24, the vast majority (99.1 per cent) of the finance allocated was to organisations within the GLA Group, as shown in table 5.2.1, below. Just under £2m was also allocated to the LBB during this period.

Table 5.2.1: Allocation by organisation, 2023-24

Organisation	Number of projects	Amount allocated (£)	% of amount allocated in 2023-24	% of GFF capital[18]
GLA Group	7	216,521,051	99.1%	43.4%
Local authorities	1	1,988,388	0.9%	0.4%
Other	0	0	0%	0%
Total	**8**	**218,509,439**	**100%**	**43.7%**

The share of finance allocated outside the GLA Group is expected to increase during 2024-25 following extensive engagement with, and several proposals from, London boroughs.

5.3 Allocation by green project category

By the end of 2023-24, 43.7 per cent of the GFF capital was allocated to eight projects. The allocation by green project categories is outlined in table 5.3.1, below.

Table 5.3.1: Allocation by green project category, based on number of projects, 2023-24

Green project category	Number of Projects	Amount Allocated (£)	% of Amount Allocated in 2023-24	% of GFF Capital
Renewable energy	1	4,700,000	2.2%	0.9%
Energy efficiency	6	66,817,439	30.6%	13.4%
Clean transportation	1	146,992,000	67.3%	29.4%
Total	**8**	**218,509,439**	**100**	**43.7%**

Where a project includes measures that fall under more than one green project category, it is listed under the category with the greater cost allocation, as shown

[18] This is the proposed size of the GFF, £500m.

in table 5.3.1, above. As a result, most of the projects approved (by number) were in the energy efficiency category. The amount allocated under the clean transportation category was approximately £147m, which was 29 per cent of the GFF capital.

While the amount allocated towards the project under the renewable energy category accounts for 0.9 per cent of the GFF capital, it should be noted that three of the six energy-efficiency projects also include renewable-energy measures. Table 5.3.2, below, shows the allocation breakdown by green project category at a portfolio level.

Table 5.3.2: Allocation by green project category, at portfolio level, 2023-24

Green Project Category	Amount Allocated (£)	% of Amount Allocated in 2023-24	% of GFF Capital
Renewable energy	9,078,905	4.2%	1.8%
Energy efficiency	62,438,534	28.6%	12.5%
Clean transportation	146,992,000	67.3%	29.4%
Total	**218,509,439**	**100**	**43.7%**

5.4 Highlights of approved projects

5.4.1 LLDC: London Stadium solar PV membrane

In June 2023, the CC approved finance of up to £4.7m for the LLDC to procure and install solar PV membranes on the roof of London Stadium. The loading-weight limitation of the stadium's roof – which already takes account of event-related loading and adverse weather such as heavy snowfall – prohibits the installation of traditional solar PV panels.

The innovative solar PV membranes proposed by the LLDC are lightweight and will allow for the generation of approximately 1,077 MWh of onsite renewable energy every year (about 10 per cent of the stadium's current electricity usage), within the constraints of the strict loading allowances. This should result in estimated GHG savings of around 270 tCO_2e.

This is the first known project of this kind across the 20-plus football stadiums in Greater London. It is hoped other stadiums will follow suit to lower their GHG emissions and help London achieve its net-zero goals for 2030.

Figure 5.4.1: An image of the London Stadium in Queen Elizabeth Olympic Park

SDGs supported:

5.4.2 LBB: Corporate estate building retrofit programme

In December 2023, the CC approved finance of up to £1.98m to support LBB's corporate estate building retrofit programme. This amount, along with funding from other sources (including grant from central government) will help to deliver the £12m decarbonisation programme of 19 sites, including 17 schools, a children's home, and a community building.

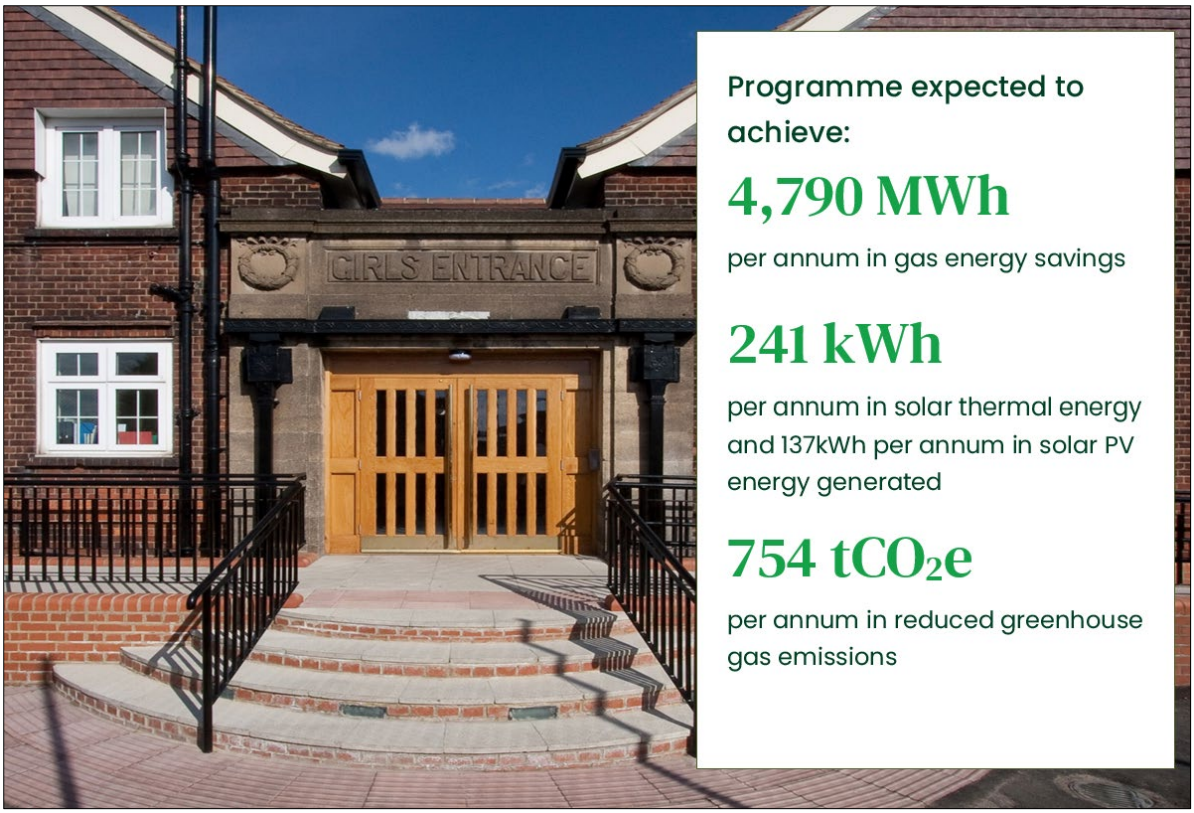

Figure 5.4.2: An image of one of LBB's schools that is part of the corporate estate building retrofit programme.

This is part of LBB's ambition to become a net-zero council by 2030. In its 2023-26 Corporate Plan, LBB set out sustainability targets and commitment covering areas such as council operations, housing buildings and transport. LBB owns and manages about 95 buildings; and acts as a landlord for 150 schools and more than 1,000 other buildings.

The measures that will be implemented include removal of gas boilers and implement heat pumps at all sites; installation of solar PV and solar thermal; window replacement; and draughtproofing. These measures will increase the energy generation and thermal efficiency of the buildings. It is anticipated that the annual carbon savings will be 754 tCO_2e.

SDGs supported:

5.4.3 TfL: London Underground LED lighting programme

In December 2023, the CC approved finance of just over £19m to enable TfL to accelerate the conversion of existing lighting to LED lighting in 140 small and medium-sized underground stations.

Figure 5.4.3: LED conversion work under way in one of the London Underground stations

TfL has 272 passenger stations across London, with the oldest dating back 161 years. The extent of the network, and its age, mean continued investment is necessary to meet the needs of an ever-growing city and TfL's net zero-carbon targets.

This transition to LED lighting will reduce TfL's GHG emissions by an average of 465 tCO_2e per annum. This represents a 45 per cent reduction in energy usage[19] (7,726 MWh per annum) across the 140 stations. This will in turn play a vital role in the Mayor's ambition of becoming a net zero city by 2030.

SDGs supported:

[19] This refers to the energy use of the London Underground stations.

6 Forecast environmental impacts from 2023-24 allocation

6.1 Environmental impacts

The ultimate objective of the GFF is to support the Mayor's 2030 net-zero ambition and other environmental goals. To that end, all projects must deliver at least one of the core indicators, set out in the Framework, under the relevant green project categories. Annual GHG emissions reduced and/or avoided are a core indicator across the three green project categories; so far, all projects financed by the GFF will deliver against this indicator.

For this first report, this section sets out only the forecast figures that projects are expected to deliver. However, once the projects are completed, project applicants will be required to provide information on the actual figures achieved. This will be included in future Allocation and Impact Reports.

6.2 Assessment of impact quantification figures

6.2.1 Ex-ante assessment of forecast figures

Project applicants are required to provide details of their forecasted environmental metrics in their application; and, where available, to submit any relevant supplementary documentation (including, but not limited to, feasibility studies and details on the applicable GHG accounting methodology and assumptions).

A detailed review of the energy and GHG emissions quantification methodology provided by project applicants is undertaken by LTL. This includes reviewing the baseline energy consumption, forecasted energy savings and relevant assumptions made for the calculations. Clarification is sought where there are deviations in the figures exceeding 10 per cent.

The assessment of the forecasted emissions figures provided by project applicants is done by using the methodology in the GHG Protocol[20] guidance and standards, along with (where applicable) the Department for Environment, Food & Rural Affairs (DEFRA) emission factors[21] for the GHG quantification of the emissions savings.

[20] Greenhouse Gas Protocol, Calculation Tools and Guidance

[21] DEFRA, Greenhouse gas reporting: conversion factors 2023, June 2023

Where relevant for the lifetime cumulative emissions, the UK electric grid decarbonisation[22] has been factored in. For renewable-energy projects, the solar PV panel degradation is also considered, where this is provided.

In this reporting period, one project (involving air-quality improvement) was financed under the clean transportation category. To develop the ex-ante air-quality metrics, the applicant, TfL, undertook traffic modelling to compare the situation in 2023 (proposed year of implementation) with and without the London-wide expansion of the ULEZ scheme. The model outputs provided by TfL comprised traffic demand (by mode of travel and journey purpose), road traffic emissions and air pollutant concentrations. The analysis was based on forecast rates of vehicle compliance with ULEZ for the proposed year of implementation.

This methodology[23] was consistent with the approach taken for the inner London ULEZ scheme, which came into force in 2019.

All reviews undertaken also assessed whether projects met the requirements outlined in section 2.1.2 of the Framework.

6.2.2 Ex-post assessment

As noted above, project applicants are required to report figures on actual impact once the works are completed. Normally this will be annually, and the results will be set out in subsequent issues of the Allocation and Impact Report. As with the forecasted figures, LTL will carry similar reviews (as outlined above) of the actual impact figures. In our monitoring framework, LTL will provide guidance to project sponsors on how to carry out relevant environmental impact calculations to ensure consistency in reporting across projects.

6.3 Core indicators – project impacts

Figure 6.3.1, below, shows the forecasted reduction in GHG emissions per annum for the eight projects approved during 2023-24. This ranges from 62 to 23,000 tCO_2e per annum due to the differences in the project's lifetimes and specifications.

[22] Department for Energy Security and Net Zero, Green Book supplementary guidance: valuation of energy use and GHG emissions for appraisal, November 2023

[23] This methodology has been peer-reviewed by Dr. Gary Fuller, Senior Lecturer in Air Quality Measurement, School of Public Health, Faculty of Medicine, at Imperial College London. The full methodology is outlined in Appendix 2. Source: GLA, Inner London ULEZ Expansion – One Year Report, February 2023.

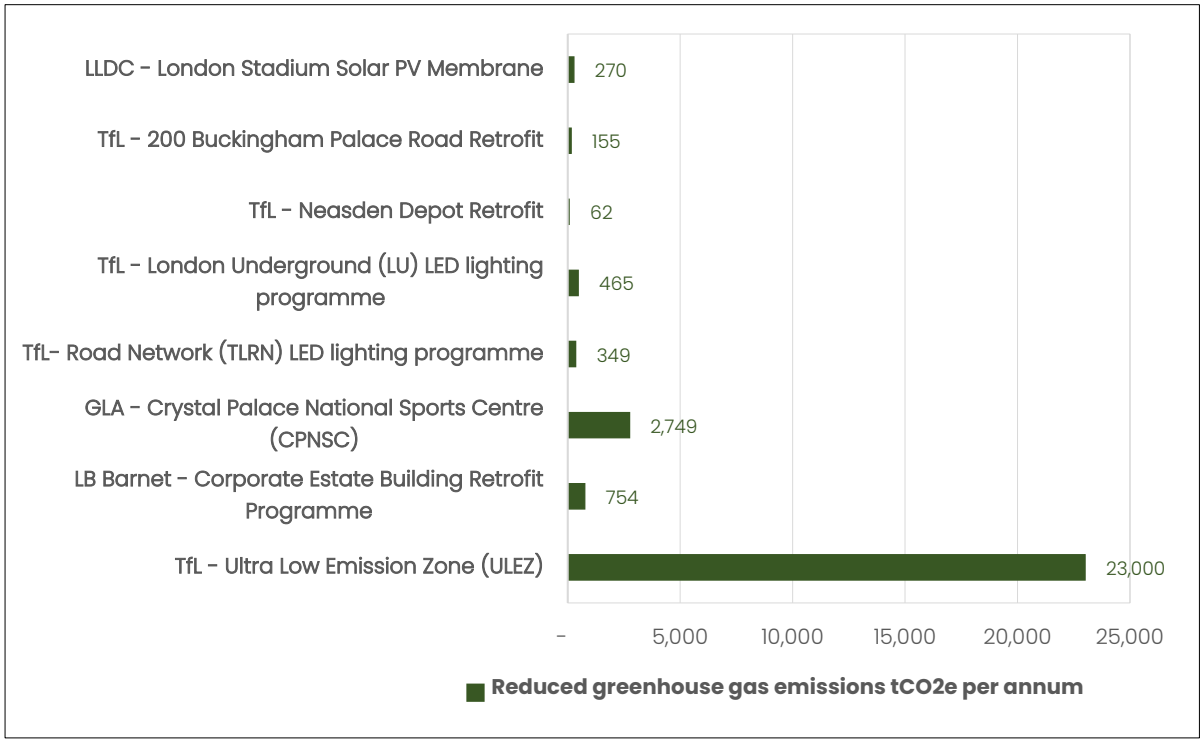

Figure 6.3.1: Forecasted reduction in GHG emissions per annum (tCO_2e) for projects approved in 2023-24

The aggregated forecast reduction in GHG emissions for the eight projects is 27,804 tCO_2e per annum, which is equivalent to taking 19,297 cars off the road.[24] The Framework includes other core indicators such as energy savings and renewable energy generated per annum; where applicable to a given project, the forecast figures for these are shown in Figure 6.3.2.

The eight approved projects are expected to make energy savings of up to 31,951 MWh per annum, which is equivalent to the energy needed to heat 2,779 homes for a year.[25] Also, the projects are expected to generate up to 3,547 MWh per annum of renewable energy from solar PV panels. This is equivalent to the energy needed to power 1,313 homes for a year.[26]

[24] Based on an average annual car mileage of 5,373 miles. Source: Department for Transport, National Travel Survey: England 2022 Main Results, August 2023

[25] Based on the average household consumption of 11,500 kWh per annum for a 2 to 3- bedroom house. Source: Ofgem. Accessed from: Average gas and electricity usage | Ofgem

[26] Based on the average household consumption of 2,700kWh per annum for a 2 to 3 bedroom house. Source: Ofgem. Accessed from: Average gas and electricity usage | Ofgem

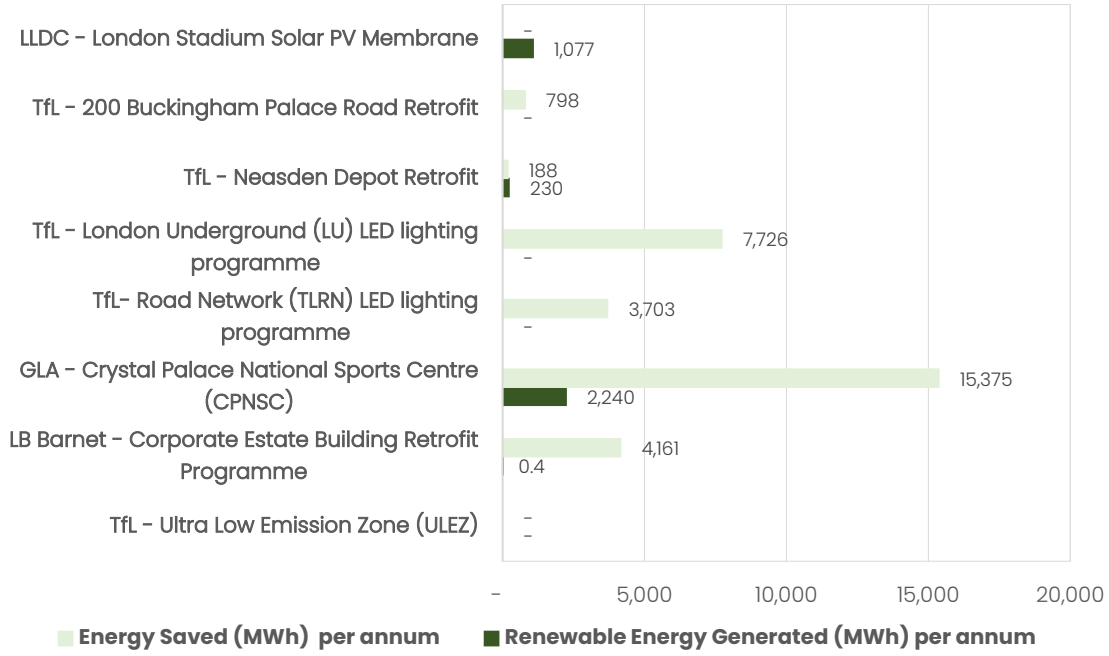

Figure 6.3.2: Forecast renewable energy generated, and energy saved, per annum for the approved projects

Figure 6.3.3, below, presents the impact by comparing the cost per tonne of lifetime GHG emission savings for each approved project. This allows for a relative basis of comparison, although this remains limited due to the different technologies implemented, project categories and differing project lifetimes.

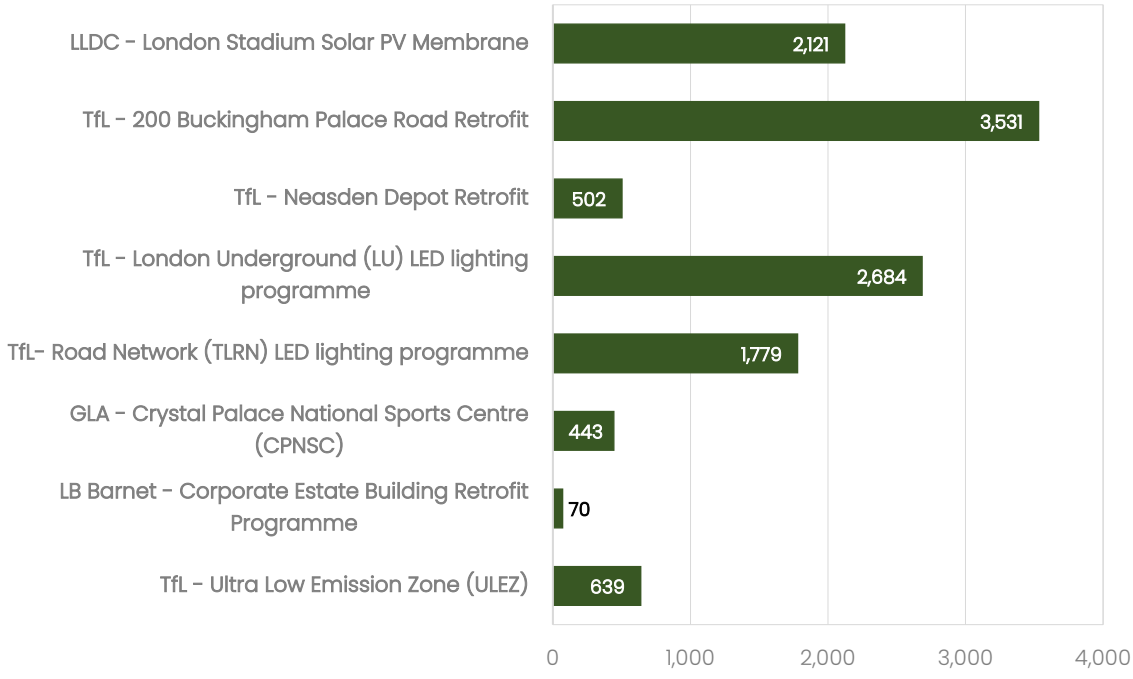

Figure 6.3.3: Cost per tonne of lifetime GHG emission saving (£/tCO_2e) for each approved project

The TfL LU LED and 200 Buckingham Palace Road projects have a relatively high cost per tonne of lifetime GHG emission savings due to the use of specialist contractors (capitalised cost), and expected higher-than-average material costs, due to the nature of the projects.

The values set out in this section 6.3 (and by extension, those in section 6.4) are the full impact figures expected to be achieved by the respective projects, even where the GFF allocation only covers a proportion of the eligible activities. Table 5.1.1, above, shows that two projects are partially financed by the GFF allocation. This approach is taken on the basis that the GFF allocation will enable the achievement of the full impacts. However, for increased transparency, the pro rata figures for the two partially financed projects are outlined table 6.3.4, below.

Table 6.3.4: The pro-rata forecast impact figures for the two partially financed projects

Project	Annual GHG Reduced/Avoided (tCO_2e)	Annual Renewable Energy Generation (MWh)	Annual Energy Savings (MWh)	Cost per Lifetime GHG Emission Savings (£/tCO_2e)
GLA - Crystal Palace National Sports Centre	1,649	1,344	9,225	738
LBB - Corporate estate building retrofit programme	109	0	614	486

6.4 Forecast aggregated environmental impacts

The tables in this section set out the forecasted combined environmental impacts of the eight approved projects across the three green-project categories (table 6.4.1) and the organisation types (table 6.4.2).

Table 6.4.1: forecast aggregated environmental impacts breakdown by categories

	Annual GHG reduced/avoided (tCO_2e)	Annual renewable energy generation (MWh)	Annual energy savings (MWh)	% reduction $PM_{2.5}$ [27]	% reduction NOx	% reduction NO_2
Total	**27,804**	**3,547**	**31,951**	**11.0**	**5.0**	**1.2**
Renewable energy	270	1077	-	-	-	-
Energy efficiency	4,534	2,470	31,951	-	-	-
Clean transportation	23,000	-	-	11.0	5.0	1.2

The reduction in air-quality pollutants ($PM_{2.5}$, NO_x and NO_2), in table 6.2.1, above, is forecasted to be achieved across London due to the impact of the London-wide expansion of the ULEZ.

[27] London-wide, this does not solely represent the expected reduction in the outer London expansion area funded by the GFF.

Table 6.4.2: Forecast aggregated environmental impacts breakdown by organisations

	Annual GHG reduced/avoided (tCO_2e)	Annual renewable energy generation (MWh)	Annual energy savings (MWh)	% reduction $PM_{2.5}$	% reduction NOx	% reduction NO_2
Total	**27,804**	**3,547**	**31,951**	**11.0**	**5.0**	**1.2**
GLA Group	27,051	3,546.6	27,790	11.0	5.0	1.2
Local authorities	754	0.4	4,161	-	-	-
Other	-	-	-	-	-	-

Given that most of the finance was allocated to the GLA Group during 2023-24, it is not unsurprising that – as shown in table 6.4.2, above – this is where the bulk of the aggregated environmental impacts are currently expected to be achieved. Given the composition of the pipeline (see section 3.5, above), an increased uptake of the GFF support is anticipated in the next financial year, from organisations outside the GLA Group.

6.5 Wider benefits

The approved projects are expected to provide an array of co-benefits as shown in table 6.5.1, ranging from community health to improving air quality.

Table 6.5.1: Summary of forecasted wider social benefits provided by the approved projects

Project	Wider social benefits
London Stadium solar PV membrane	Contribute to sustainable, eco-efficient building stock in London.
TfL - 200 Buckingham Palace Road retrofit	More accessible amenities for employees and better thermal comfort.
TfL - Neasden Depot retrofit	More accessible amenities for communities and employees and better thermal comfort for communities and employees. Improved biodiversity and habitat provided by the green roof, and climate change adaptation and resilience – as the works will feature flood-secure measures, and the green roof will aid insulation, lower the ground temperature and improve runoff filtration.
TfL – London Underground LED lighting programme	Contribute to sustainable, eco-efficient building stock in London.
TfL – Road Network LED lighting programme	Contribute to sustainable, eco-efficient infrastructure in London.
GLA - Crystal Palace National Sports Centre	More accessible amenities for communities and employees; and better thermal comfort for communities and employees.
LB Barnet - Corporate estate building retrofit programme	More accessible amenities for communities and employees; and better thermal comfort for communities, and vulnerable children and young adults.
TfL – Ultra Low Emissions Zone	Improved air quality and potentially better health outcomes from the reduction in air pollutants.

Figure 6.5.2, below, shows the location of five of the projects in relation to the climate risk areas (based on the GLA's Climate Risk Map).[28] The projects that cover most or all of London (such as ULEZ) are not shown. The Climate Risk Map overlays key metrics to identify areas in London that are most exposed to climate impacts with high concentrations of vulnerable populations. The projects could potentially help to address some of these identified climate risks and inequalities.

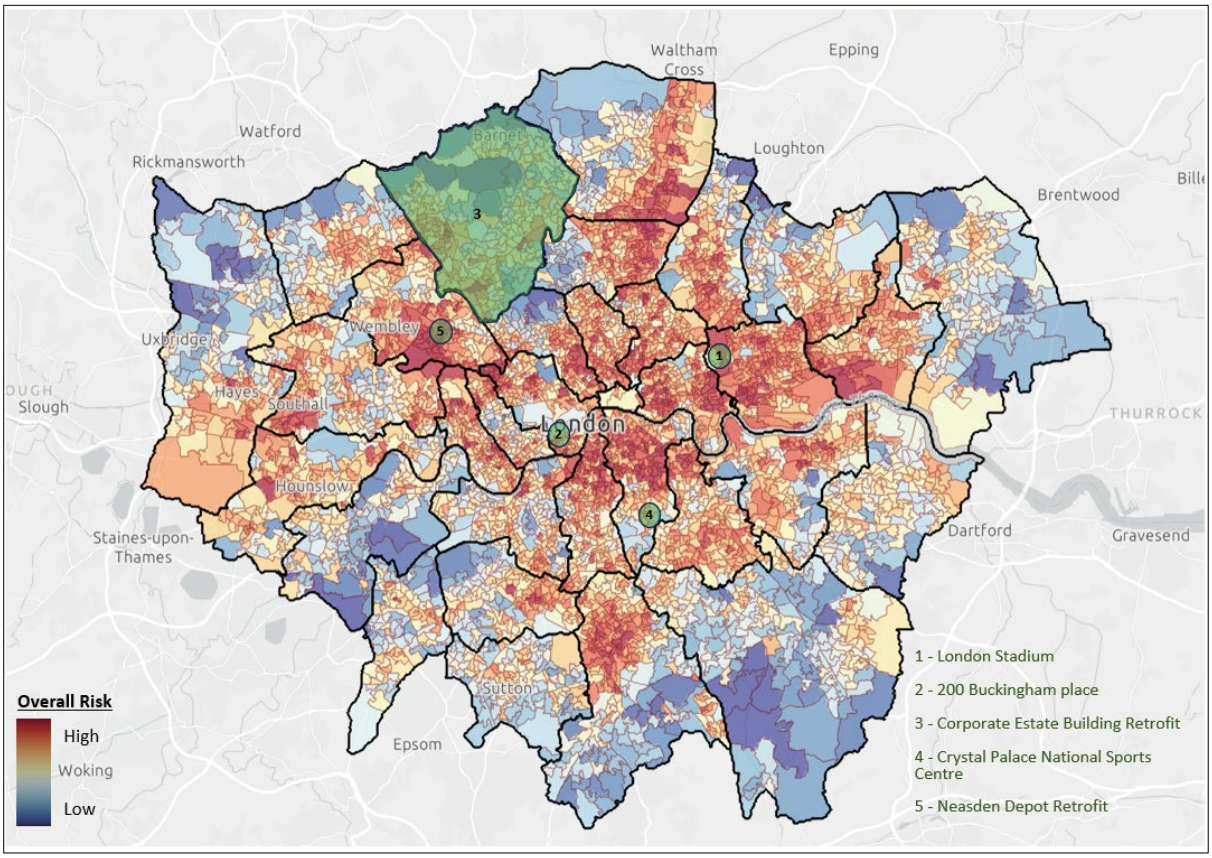

Figure 6.5.2: Project location in relation to climate risk map

[28] GLA, Climate risk map

7 External review

To ensure the highest quality of reporting and transparency, the GLA commissioned S&P Global to carry out an external review of this Allocation and Impact Report.

A copy of S&P Global review report can be found at www.london.gov.uk.