

National Lottery Heritage Fund Grants Portfolio Carbon Baseline & Decarbonisation Approach

Executive Summary

July 2023

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1.1 Introduction

The National Lottery Heritage Fund (the Heritage Fund) have committed to reaching net zero greenhouse gas (GHG) emissions for their operations by 2030 and for their grant portfolio by 2050 at the latest. The Heritage Fund completed the first quantification of their carbon footprint in 2021, excluding investments. The aim of this research was to quantify the carbon footprint of their investments to understand and improve the environmental impacts of the projects they fund. The work set out to achieve the following objectives.

- Understand the pros and cons of different quantification methodologies for estimating the Heritage Fund's Carbon Impacts
- Understand the feasibility of collecting new data
- Estimate the annual carbon footprint arising from the grants awarded by The Heritage Fund
- Understand the long-term environmental impact of the Heritage Fund's investments
- Communicate a baseline for The Heritage Fund's emissions and a science-based Net Zero target
- Deploy an evidence-led approach to reduce the footprint of The Heritage Fund's portfolio.

1.2 Methodology

In order to develop a method for assessing the carbon impacts of the Heritage Fund's portfolio, a series of criteria and scoring metrics were established through engagement with staff across The Heritage Fund. The agreed criteria are as follows.

1. **Information Requirements/Applicant Effort:** the additional information that would have to be requested by the Heritage Fund and how difficult it would be to acquire.
2. **Accuracy:** the likely level of error associated with quantifying emissions with the proposed method.
3. **Breadth of Assessment of Emissions Scopes:** the extent to which the method covers different sources of carbon emissions.
4. **Financial Coverage:** the proportion of the Heritage Fund by financial value that is covered by the method.
5. **Portfolio Coverage:** the extent of coverage of heritage types, project sizes and geographies by the method.

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6. **Repeatability:** how repeatable the method is for tracking improvements over time.
7. **Cost of Implementation:** the relative cost of implementing the method for The Heritage Fund and the grant applicant.

A baseline year of 2019/20 was chosen and a desk study of data collected by the Heritage Fund was carried out to establish the level of data already available for assessing the carbon emissions associated with projects. Based on the level of data available to the Heritage Fund in a structured versus unstructured format, three samples were developed as shown in Table 1.

Table 1 Sample development for data collection

Sample Name	Number of Projects	Description
Full 2019/20 sample	1,085	Structured, validated, bulk data providing basic information on project titles, size of grant, heritage sector etc., Structured data extracted from PDF files on visitor and volunteer numbers.
Desk study sample	47	Application, progress, completion and evaluation reports (PDFs). Structured data extracted from PDF files including cost breakdown.
Engagement sample	11	Interviews and survey used to understand availability of additional data to grantees and collect this where possible.

A review of the data available for the full 2019/20 sample identified useful metrics on visitor and volunteer numbers pre- and post-project. In addition, the data for the full 2019/20 sample provided insight into The Heritage Fund's portfolio in terms of the mix of heritage types, project sizes and geographies. The desk study sample was developed with the Heritage Fund, and a review of forms available for this sample identified several fields which could be used to inform carbon quantification. This included a breakdown of project costs, and again, the uplift in visitor and volunteer numbers resulting from the project. However, further data would be required to make a comprehensive quantification of carbon emissions.

The review of the desk study sample also enabled the identification of likely sources of carbon emissions across the variety of projects funded by the Heritage Fund. In order to categorise projects according to the likely drivers of carbon, a set of activity

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types were developed and the sources of carbon mapped indicatively for each. This exercise identified three sources of carbon emissions that are likely to be the most material across the Heritage Fund's portfolio; travel (visitor and volunteer), purchased goods and services and capital works (embodied carbon from capital goods and energy consumption). In addition, removals and avoided emissions associated with land-based projects were also considered likely to be material.

Therefore, the development of a method focussed on quantification of these four areas. Methods for quantifying emissions and removals in these four areas were established across varying levels of information availability and accuracy. This also included identification of data already available from the Heritage Fund, data that can be obtained from external sources (such as industry benchmarks), and additional data that could be requested from grantees. To explore this additional data, the engagement sample of 11 projects was developed. Engagement with this sample included interviews with key individuals from each organisation and a follow-up survey. The interviews explored drivers of carbon, data availability and implications to the grantee of being asked to provide such data. The survey aimed to gather data across the four key carbon emission / removal areas, where applicable.

1.3 Baseline Quantification

Based on the data and insight gained through the desk study and engagement, three methods were developed, as follows.

- **Cost-based analysis:** This analysis is based on the breakdown of cost data that is submitted for every project against set categories. For the purpose of this project, cost data was extracted for the desk study sample and scaled to the 2019/20 sample. However, in future it would be possible to extract this data for the full 2019/20 sample.
- **Cost-based and visitor travel analysis:** This method includes the same cost-based analysis as the previous, with the addition of visitor travel analysis. The annual visitors to a heritage asset pre- and post- project is extractable in bulk for the full 2019/20 sample.
- **Survey/interview-based analysis:** This method uses information gleaned from the engagement sample through the interview and survey in a hierarchical approach. It seeks to quantify emissions arising from visitor and volunteer travel, capital works and land-use change and includes the same cost-based analysis as the previous methods to quantify emissions arising from purchased goods and services. This method was undertaken for the engagement sample only and cannot be accurately scaled to the wider sample.

A quantification approach was developed for each of these methods, with consideration of industry-average emission factors, industry benchmarks and national decarbonisation projections. All permanent impacts resulting from a project

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(e.g. a sustained increase in visitor numbers, or ongoing energy consumption in a new building) were quantified over a 100-year period.

Table 2 shows the results of the quantification for each method. There is significant variation between methods. The cost-based analysis provides the simplest method but has the least coverage of emissions sources. The cost-based plus visitor travel analysis provides a significantly greater estimation of emissions than cost-based alone. The survey/interview-based analysis provides the most comprehensive assessment of emissions sources and is the only method that takes account of removals and avoided emissions. Despite this, the survey/interview-based analysis cannot yet be scaled to the desk study or full 2019/20 sample. Each method was scored against the established criteria (As per Section 1.2). The scores are displayed in the final column of Table 2 and are reflective of the relative pros and cons of each method. It is recommended that The Heritage Fund begin to explore the feasibility of gathering the data outlined in the survey/interview-based analysis for the wider portfolio to allow a more comprehensive baseline assessment to be established.

Table 2 Carbon emissions quantification across three proposed methods

Method	Engagement sample	Desk study sample	Full 2019/20 sample	Score against criteria (0-35)
Cost-based analysis (tCO _{2e})	6,055	1,505	43,957	19.7
Cost-based plus visitor travel (tCO _{2e})	29,741	91,212	1,508,905	20.7
Survey/interview-based analysis (100 years) (tCO _{2e})	-55,196	N/A	N/A	16

1.4 Target Setting

The Heritage Fund have already committed to achieving net zero carbon emissions across their portfolio by 2050. However, based on an external review presented in this report, it is recommended that The Heritage Fund consider setting a nearer term target to align more closely with their own ambitions and those across the sector. In addition, with Scotland having a net zero target of 2045, the Heritage Fund's current target of 2050 does not align with all of the UK nations. Setting a more ambitious target could help to foster change within The Heritage Fund and externally, across

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the heritage sector. For the purposes of the decarbonisation modelling in this report, a net zero target of 2043 has been assumed. This target falls in line with the end of the next organisational strategy which will run from 2033-2043.

1.5 Decarbonisation Scenarios

Five decarbonisation scenarios were proposed and explored with key stakeholders at The Heritage Fund. The scenarios are as follows.

- **Scenario 1 – Do Nothing:** This scenario represents a business as usual approach in which The Heritage Fund do not take action to decarbonise their projects but instead take advantage of broader decarbonisation of UK infrastructure and industry.
- **Scenario 2 – Enforcing Greater Environmental Performance Standards:** This scenario explores the impact of The Heritage Fund requiring all grantees to meet higher environmental performance standards for their projects.
- **Scenario 3 – Incentivising Improved Environmental Performance:** Similarly to Scenario 2, this scenario explores the impact of improved environmental performance but through incentivisation rather than enforcement.
- **Scenario 4 – Varying Mix of Allocated Funding to Low Emitting or Climate Positive Heritage:** In this scenario, The Heritage Fund prioritises spending on lower carbon activities, for example reducing the amount spent on new building projects and increasing the amount spent on natural heritage.
- **Scenario 5 – Requiring and Supporting Shared Solutions:** In this scenario, The Heritage Fund support the development of shared solutions through partnership working.

The impact of the scenarios was modelled over time from the baseline year up until the provisional net zero target year of 2043. Modelling was completed for the Engagement Sample only, using industry benchmarks and sectoral projections for decarbonisation. At this stage, modelling was not possible for Scenario 4 (Varying Mix of Funding) as the detailed data for the engagement sample could not be scaled to the full portfolio. Modelling was completed for Scenario 1 (Do Nothing) and for Scenarios 2 & 3 (Enforcing / Incentivising Environmental Performance). Scenario 5 (Shared Solutions) was not modelled individually as it is expected to have similar outcomes to Scenarios 2 & 3. The results of the modelling are summarised in Table 3.

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Table 3 Decarbonisation modelling results

Carbon driver	Baseline (19/20) (tCO ₂ e)	Baseline plus performance standards (19/20) (tCO ₂ e)	Scenario 1: Do Nothing (2043) (tCO ₂ e)	Scenario 2 & 3: Performance Standards (2043) (tCO ₂ e)
Embodied	3,876	1,762	140	64
Operational - new build	97	30	13	5
Operational - refurb	-300	-854	-40	-95
Visitor travel	20,407	20,407	152	152
Volunteer travel	5	5	0	0
Purchases	2,434	2,434	90	90
Land-use change	-81,715	-81,715	-81,715	-81,715
Total	-55,196	-57,931	-81,360	-81,499

The modelling shows the impacts of external decarbonisation (Scenario 1) on the Engagement Sample. External decarbonisation is expected to result in significant reduction in all emissions categories, whilst removals from land-use change remain the same. This leads to the total impact of the engagement sample being more climate positive than at baseline. The modelling for Scenario 2 & 3 considers the same external drivers as Scenario 1 but also considers the impact of The Heritage Fund putting performance standards in place for capital projects. The modelling shows significant reductions in emissions associated with capital works under this scenario compared with business as usual. The impact of performance standards has also been quantified for the baseline year to demonstrate the potential impact that these could have without consideration of external decarbonisation.

The mix of projects included in the Engagement Sample show a climate positive position at baseline which is improved further by 2043 under the modelled scenarios. The sample contained a large peatland restoration project which had a significant contribution towards this and therefore it is not possible to generalise or draw any conclusions about The Heritage Fund's wider portfolio from this sample. If The Heritage Fund were able to collect more comprehensive data for their full portfolio, the results could differ considerably depending on the mix of activity types present. It is therefore recommended that The Heritage Fund explore data collection further in order to conduct a detailed and representative baseline and decarbonisation analysis.

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1.6 Data Structuring

This report explores data collection processes that could be employed by the Heritage Fund to enable a more detailed analysis of their portfolio going forward and provide a method of measuring change over time. Following the structure used for the survey/interview-based method, the proposed data collection process asks grantees a series of questions so that only data that is relevant to their project is requested. For each of the key carbon drivers (capital works, visitor or volunteer travel, land-use or condition change and purchased goods and services), the report puts forward various levels of data requirements and questions that could be incorporated into the Heritage Fund's data collection processes. Table 4 provides a summary of the recommended data requirements.

Table 4 Data collection recommendations

Carbon driver	Minimum data	Better data	Best data
Capital works	<ul style="list-style-type: none">- Type of capital works i.e. new build or refurbishment (internal or external)- Gross floor area (m²) including breakdown of new build and refurbishment floor area	<ul style="list-style-type: none">- Main heating sources (i.e. gas, oil, electricity)- Proportion of energy supplied by renewables	<ul style="list-style-type: none">- Operational and embodied carbon assessment
Visitor / volunteer travel	<ul style="list-style-type: none">- Whether the uplift in visitors/ volunteers is temporary or permanent- Number of visitors/ volunteers pre- and post-project	<ul style="list-style-type: none">- Location type (i.e. rural, urban etc.)	<ul style="list-style-type: none">- Average journey distance- Travel mode split
Purchased goods and services	<ul style="list-style-type: none">- Breakdown of spend at Application stage	<ul style="list-style-type: none">- Breakdown of spend at Completion stage	

Given the diversity of land-use related projects and that only one was considered as part of the sample, establishing a standard approach to data collection is not

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possible at this stage. It is recommended that The Heritage Fund explore this further through working with a wider sample of land-use and condition change projects across a range of habitats (including woodland, wetland, meadows etc.).

1.7 Recommendations & Next Steps

This work puts forwards three methods for assessing the carbon impacts of the Heritage Fund's investments. The Survey/interview-based method provides the most complete and accurate assessment of emissions sources and is the only method that takes account of positive impacts (e.g. land-based removals). However, this method cannot currently be scaled to the full portfolio. In addition, decarbonisation modelling undertaken for the 10 Engagement Sample projects shows significant reductions in carbon emissions under all modelled scenarios, with the sample becoming even more climate positive than at baseline. However, due to the small sample size, it is not currently possible to draw any generalisable conclusions for the Heritage Fund's wider portfolio. Despite this, the modelling in this report does demonstrate the potential impact that land-based projects could have on the overall footprint of the Heritage Fund's portfolio. Therefore, depending on the mix of project types present in the full portfolio, there may be scope to establish a more ambitious net zero target than 2050.

This report presents six key next steps that the Heritage Fund could take as follows.

- **Categorise the portfolio and expand the baseline sample:** It is recommended that the Heritage Fund categorise a wider sample of their portfolio using the activity types developed in this report. This will provide greater insight into the balance of activity types and resulting sources of carbon emissions and removals across the portfolio. Based on this insight, it is recommended that the Heritage Fund develop a larger baseline sample, to include project types not already assessed in this report (e.g. land-use projects in habitats other than peatland).
- **Establish data collection processes:** It is recommended that as part of the ongoing review of their data collection processes, the Heritage Fund begin to explore the inclusion of additional questions and fields to aid with carbon quantification. This may include exploration of data collection at various stages throughout a project from application to completion and how this impacts the carbon quantification.
- **Explore the use of software to reduce burden on grantees:** It is recommended that the Heritage Fund begin to explore how software could be used as part of their data collection process to reduce the amount of information requested from grantees. Examples of this could include the use of AI software to scan and extract relevant information from submitted documents and forms. In addition, it could include the use of software to obtain data on the baseline condition of a site for land-use or capital projects.

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- **Establish a suite of case studies:** It is recommended that the Heritage Fund develop a suite of case studies representing best practice across the variety of heritage and activity types that they fund. This could include past, ongoing or new projects which The Heritage Fund could work with to establish a comprehensive quantification of carbon emissions. In addition, this would enable exploration of how different project types and approaches might impact the carbon footprint.
- **Revisit decarbonisation scenarios and net zero target:** Once The Heritage Fund have developed a more comprehensive understanding of the carbon footprint of their portfolio (as per Step 1), it is recommended that they revisit the decarbonisation scenarios. This could include repeating modelling of the do nothing and environmental performance scenarios on a larger sample. In addition, it could include revisiting and modelling the scenario around varying the mix of projects to achieve a net zero or climate positive position. This will provide insight around the achievable level of decarbonisation and could inform a review of the existing 2050 net zero target.
- **Explore the introduction of environmental performance standards:** The modelling in this report demonstrates the impact that employing environmental performance standards could have on the carbon footprint of capital projects. Therefore, it is recommended that The Heritage Fund begin to explore how environmental performance standards could be incentivised or enforced. This could begin with a trial within one region and gaining grantee feedback before rolling out more widely.

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