National Museums Scotland

# OUR ORGANISATIONAL STRATEGY FOR SUSTAINABILITY 2023-2030

Our mission is *to preserve, interpret and make accessible for all, the past and present of Scotland, other nations and cultures, and the natural world.* To fulfil this, we need to balance long term care for the National Collections with the development of impactful and engaging public programmes for all, whilst meeting a series of carbon emissions adaptation and mitigation measures and planning thoughtfully with Earth's finite resources.

This is a seemingly impossible challenge but we have a way forward that delivers our business priorities whilst meeting national and international targets in a mutually beneficial way.

To summarise, this Strategy evidences the work done to date, showing that we have already exceeded the Scottish Government's Interim Target for 2030 due to the last decade of resource investment. The Strategy then looks forward to 2023-2030 and describes our objectives and outcomes:

Objective 1 Achieve whole organisation culture change and connect all colleagues to their role in effective sustainability performance.

Objective 2 Develop the National Collection to represent the material culture of sustainability and biodiversity, and share our collections knowledge on a global scale.

Objective 3 Develop a public programme to engage and inform the broadest audience reach enabling understanding and behaviour change.

Objective 4 Ensure the enhancement of biodiversity at our museum sites through responsible caretaking and regular survey work.

Objective 5 Meet all compliance obligations including carbon emissions targets with suitable risk-based systems in place underpinned by evidenced, reliable and transparent data.

Objective 6 Develop funding-ready projects that meet the demands of future construction standards, prepare our buildings and infrastructure for climate change, and address carbon mitigation of our estate and its operations.

Objective 7 Ensure we develop our own practice through continual improvement and sharing our work for museum sector benefit.

Each section of this Strategy explains how outcomes will be measured. Our key numerical compliance targets are an organisational carbon emissions total of no more than: 3,075 tonnes of carbon dioxide emissions (tCO2e) by 2030; 1,230 tCO2e by 2040; and net zero by 2045.

Due to the broad scope of sustainability this Strategy should be read in conjunction with other business guiding documents such as our: Procurement Strategy and Policy; Equality & Diversity Action Plans; the Gift Acceptance Policy; Travel & Subsistence Policy; National Strategy; Collections Development Strategy; and Research Strategy.

## 1. CONTEXT

### 1.1 Sustainability Definition and International Context

The work of the United Nations frames our approach. We follow the definition of sustainability adopted by the United Nations and their Sustainable Development Goals, named after Gro Harlem Brundtland, the then Chair of the World Commission on Environment and Development (1987):

*"Meeting the needs of the present without compromising the ability of future generations to meet their own needs."*

In terms of defining what is most important to us, we are led by our Mission which particularly supports the following UN Sustainable Development Goals:

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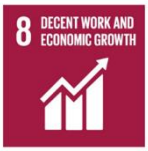
|---|---|---|---|
|  | *Good health and well-being, by promoting well-being for all at all ages* |  | *Quality education, by ensuring inclusive and quality education for all and promoting lifelong learning* |
|  | *Decent work and economic growth, by promoting inclusive and sustainable economic growth, employment and decent work for all* |  | *Responsible consumption and production by ensuring sustainable consumption and production patterns* |
|  | *Climate action, by focussing on sustainability in our public and peer programming, and through collection's research* | | |

### 1.2 National Context

National Museums Scotland's work directly aligns to the UN Sustainable Development Goals via Scotland's National Performance Framework and the Scottish Climate Change Adaptation Programme.

International and UK legislation sets the pace for our response to the climate emergency, and the Climate Change Act (Scotland) 2009 (April 2019 updates) is of particular importance for us. These duties require that a public body must in exercising its functions act in the way:

- Best calculated to contribute to the delivery of emissions reduction targets
- Best calculated to help deliver any statutory climate change adaptation programme

- That it considers is most sustainable.

Section 4 of the Act also reiterates our public engagement responsibility to address climate change through our work with visitors and audiences.

The Act states that the net zero carbon target in Scotland is 2045 - this target refers to zero being at least 100% lower than the baseline figure in 1990. There are also Interim Targets, each compared to the baseline figure in 1990/91: 75% reduction by 2030 and 90% reduction by 2040.

Our 1990/91 Organisational Fixed Baseline is set out in **Appendix 1**.

In the Act, 'carbon emissions' is defined by the Greenhouse Gas Protocols, that is, all three Scopes. Not only does this include all our utilities-related emissions from heating, air handling and lighting (mostly Scopes 1 and 2), but also emissions resulting from all our services, products and goods (mostly Scope 3) including: commuting; collections care; visitor offer; digital platforms; office equipment; fuel for company-owned vehicles; business travel; publications; retail products; food in our cafes; waste production and so on. Importantly, we are not permitted to offset these emissions through international credits or third party/supply chain activities. In short, we are responsible for our full carbon footprint and are required to employ efficiencies and innovative thinking to meet targets.

### 1.3 Organisational Context

Our governing principles for sustainability are set by the Scottish Government, anchored in international practice created by the United Nations, enacted through law and overseen by Sustainable Scotland Network.

We use DEFRA methodologies for carbon management and together with the stipulations of the Climate Change Act (Scotland) 2009 (April 2019 updates) we follow a parallel approach to Science-Based methodologies.

Through our regulatory reporting we benchmark ourselves against other Scottish public bodies and organisations in the cultural sector. We do not intend to seek accreditation from the Science-Based Target Initiative and have established our own practice of using external, expert validation. This is practical and commensurate with our organisational size and status as a public body in Scotland.

Our Strategic Plan 2022-2027 sets out our commitment to sustainability and our public duty. Sustainability is centre stage as one of five strategic priority areas underpinned by the Vision: *Inspiring People: Addressing the Challenges of Our Age*.

Our Strategic Aim is: *We will be well advanced on the path to net zero carbon and a respected resource for understanding climate and biodiversity challenges*.

Three Strategic Actions support it:

- Achieve carbon reduction targets
- Improve biodiversity and habitat quality at our sites
- Become a respected resource for understanding climate and biodiversity challenges.

The next sections in this Strategy look across our business activities and systems and describe how they support organisational sustainability:

- People: colleague training, behavioural change and procurement (section 2)
- Programmes: founded on the National Collections, curatorial and conservation engagement with peers and public (section 3)
- Place: habitats and buildings (section 4)
- Processes: new ways of working (section 5).

A theme of collaboration and partnership threads through this Strategy as we increasingly work with neighbours, technical experts, audiences, Scottish and UK museum sector, contractors and funders to achieve our ambitions.

## 2. PEOPLE: OUR WORK AS EMPLOYER AND PROCURER

This is **objective 1**: *Ensure colleagues understand how their role connects to the effectiveness of our overall sustainability performance to achieve a whole organisation culture change*.

Our change management is comprised of three elements:

- A skilled, knowledgeable and confident workforce

  We have a formal training programme in place that ranges from a short introductory module to bespoke, role-focussed courses. Our sustainability agenda is embedded in the induction process for all new starters and connected to the annual cycle of Personal Development Reviews throughout employment. An informal, peer-led group – the Green Advocates Group – coordinates colleagues from almost every team to share practice and solutions, understanding and expertise.

- A solid foundation of sustainable procurement practices
  A large expenditure category – second only to salaries - is our procurement of goods, products and services. Through our procurement practices we have a huge opportunity to plan for a better and more sustainable way forward. This is a collaborative activity with contractors and suppliers working together towards more sustainable practices. An updated Procurement Policy and Strategy encourages Life Cycle Assessments, Green Conscious travel and Circular Economy thinking.

- Responsive interconnection between governance and practice
  The importance of critical feedback between on-the-ground practice and top-down strategy setting is essential so that we capture learning; maintain pace and focus on what is important.

Threading through these three elements is internal communications planning which uses formal and informal channels to share news, celebrate successes and invite feedback. These things work together to bring about shifts in organisational culture.
Changes that are already underway include:

- Contractor and supplier induction with regards to our sustainability expectations
- Forward planning of works packages so that we can be opportunistic with external funds
- Rethinking purchased materials in terms of whole life assessment and reducing the use of materials such as bubble wrap and MDF
- Reusing packaging e.g., shredding for our own shop sales and collection’s care

- Purchase of equipment with energy efficiencies ratings A or B and reconsidering the value of repair.

More examples of change underway by colleagues is described in **Appendix 2.**

Our investment in people – our staff and volunteers as well as all the people we do business with – supports our connection with the UN Sustainable Development Goals 8 Decent Work and Economic Growth and 12 Responsible Consumption and Production.

We measure our progress and effectiveness against key performance indicators such as percentage of spend with local suppliers, completion rate of staff training, and success against carbon emissions reduction targets.

## 3. PROGRAMMES

### 3.1 Research and Collections Development

Our expertise and facilities underpin **objective 2** - *Develop the National Collection to represent the material culture of sustainability and biodiversity, and share our collection's knowledge on a global scale.*

Our exceptional collection is a rich resource for creating knowledge and understanding. The natural science collection represents 300 years of collecting, providing invaluable data sources for measuring biodiversity change over time. As well as housing specimens, our teams of biological and geological scientists undertake fieldwork to provide evidence-based research, which contributes to the global effort to better understand human impacts on the environment.

National Museums Scotland conducts world-class research programmes in taxonomy. Our natural scientists undertake research, produce data and disseminate primary knowledge concerning biodiversity and geodiversity. We are a key source of environmental data and enable work around the world on sustainability through open access to our collections. In 2021-22 we completed the 'CryoArks' programme, funded by UKRI (UK Research and Innovation), that has enabled us to set up our Biobank on a professional, fit-for-purpose footing. We are now one of only two such facilities in UK museums and we can process a significant demand for specimens. With support from the American Foundation for National Museums Scotland we have also extended the Biobank facility to include invertebrates giving us greater capacity to participate in these important international projects.

We will continue to lead and collaborate on innovative digital access to our collections through large-scale digitisation and aggregation programmes. A current project is DiSSCo - Distributed Systems of Scientific Collections – which enables increased global access to critical biodiversity and geodiversity data with a concomitant reduction in the negative environmental impact of this work (significant reducing the need for travel by researchers). Other priority programmes include the Darwin Tree of Life, Bioscan and the UK Barcode of Life. They are critical if we are to fully understand and reverse declines in the nation's biodiversity. This work will be refined and grow as part of our ongoing focus on open access. Curatorial departments will also continue to collect around sustainable technology ranging from the Edinburgh cargo bike delivery services Farr Out Deliveries and Cargo Bike Movement in the Science & Technology Department; bark cloth, a sustainable material used in the Pacific, South-east Asia, Africa and the Caribbean in Global Arts, Cultures & Design, and new smart materials and fashion.

We measure our progress in this area through activities in qualitative and quantitative ways, for instance through number of publications and peer reviewed articles, research grant income, as well as through impact: knowledge sharing through conferences, research collaborations and partnership working, and shared knowledge and collections through digitisation.

### 3.2 Public Programmes

Fundamental to our public offer is access for all. Much of our public offer is free of charge and commercial ticketing is only introduced to offset particularly high-cost aspects of our operations and programme, for instance the large-scale exhibition programme. Promotions, Memberships, Annual Passes, dynamic pricing models and discounts are utilised to enable further access and engagement.

We have established plans and resources to ensure social equity is fundamental to our work. For instance, through the work of the Equality & Diversity Steering Group we ensure that all organisational policies, strategies and plans are Equality Impact Assessed. From a team-led approach, we work together to support communities with bespoke needs and requirements to ensure their visits are supported in ways to ensure equity of outcome. Recent research work has proven the lifelong importance of a positive school visitation, and we will develop a broader schools' programme to reach increased numbers through blending digital, on site and outreach engagement.

Our Strategic Aim for developing audience diversity is underpinned by an Audience Development Plan that focusses cross-Directorate resources and efforts, demonstrating site by site strategies for audience growth and diversification, as well as deepening points of engagement.

Sustainability will continue to be a key theme in our public offer expressed through the learning programme, digital and digitised offers, loans programme, exhibition programme and displays renewals. This is **objective 3** - *Develop a public programme to engage and inform the broadest audience reach enabling understanding and action-taking.*
Learning from past activities and successes, we will plan for future public engagement by focussing on:

- Social equity - the overlap between climate crisis and colonialism due to their shared origins forming new identities, real stories and new points of connection
- Learning from the past for sustainable development solutions e.g., Make Do and Mend and Dig for Victory programming connecting our audiences to past lifestyles
- Using digital platforms to capture and share social and material history for example Open Access and new emerging technology to better catalogue, curate and conserve
- Learning from and about nature through programming using outdoor classrooms and the use of natural materials on our sites
- Learning together blending technology and community participation
- Learning on the move through physical and sensory programming such as touch tours, increased interactivity, and dynamic community-led interpretation
- Learning in partnership within and beyond the cultural sector for instance with new areas of research, new suppliers and new delivery partners in specific fields such as circular economy.

Future plans also embed sustainability in our long-term exhibitions programme. Recently, the exhibition programme has featured *Scotland's Climate Challenge* (2021-22); *Audubon's Birds of America* (2022); *Beyond the Little Black Dress* (2023) and *Rising Tide: Art and*

*Environment in Oceania* (2023/24). The forward exhibition programme maintains the focus on sustainability with subjects such as wildlife photography; the global threat of a pandemic, and the criticality of the survival of bees.

Our public programme particularly connects to the UN Sustainable Development Goals 3 Good Health and Wellbeing, 4 Quality Education and 13 Climate Action.

We measure our progress and effectiveness against key performance indicators such as visitor and participation numbers and quality of experience using our Social Impact Framework.

## 4. PLACE-BASED WORK

Sustainability-focussed site work focuses on two broad categories: habitats and buildings.

### 4.1 Biodiversity and Habitats

National Museums Scotland has a portfolio of five sites: two are landlocked in a city centre with a limited scope for habitat enrichment, and three sites include land, ranging from a small area of urban parkland to a Second World War airfield (preserved as a Scheduled Monument), and a working farm on just over 67 hectares (or 165 acres).

Work has begun to develop and implement a Biodiversity Action Plan at each of our sites, on a basis of one site a year. These plans will be particular to the challenges and opportunities of each setting and will *ensure the enhancement of biodiversity at our museum sites through responsible caretaking and regular survey work (**objective 4**).* Our first Biodiversity Action Plan is focussed on the National Museums Collection Centre and includes activities such as restricted mowing; cessation of pesticides and regular biodiversity survey work.

However, our organisational impact on biodiversity goes beyond the habitats in our care. Procurement decisions about manufactured and purchased goods, and production and construction supply chains have deep connections with biodiversity loss. A new Procurement Policy supports a better consideration of environmental sustainability and is supported by ongoing sustainable procurement training.

Actions we have already taken include:

- Use of FSC-certified wood only
- Use of environmentally friendly cleaning liquids only
- Reduction of red meat in our café menus in favour of vegetarian options
- Reduced use of pesticides at all sites.

### 4.2 Building and Infrastructural adaptation

Building and infrastructural adaptation to climate change is becoming increasingly important as we experience “wetter, windier and wilder” weather in Scotland. We have already experienced increased flooding at our sites due to sudden high volumes of rainfall and adapted roofing, guttering and drains accordingly. The Estates Department’s response is ongoing and reactive through a cycle of review and action (a proactive replacement programme is unaffordable considering the size of our estate and operational budgets). In line with the principles of Scotland’s Climate Change Adaptation Framework we will also

ensure that the specification of any new construction considers climate change adaptation from the onset.

## 5. REVIEW OF PROCESSES

### 5.1 Environmental Management System

In the last two years we have undertaken a bottom-up and top-down review of the way we work, looking through the lens of sustainability to make considerable change. We have established an Environmental Management System which is comprised of business management processes and documents such as a Compliance Register; an Environmental (Aspects and Impacts) Risks Register; site-specific Biodiversity Action Plans, and an externally verified Carbon Management Plan. In addition, an annual cycle of organisational and statutory reports is established as outlined in section 6.3.

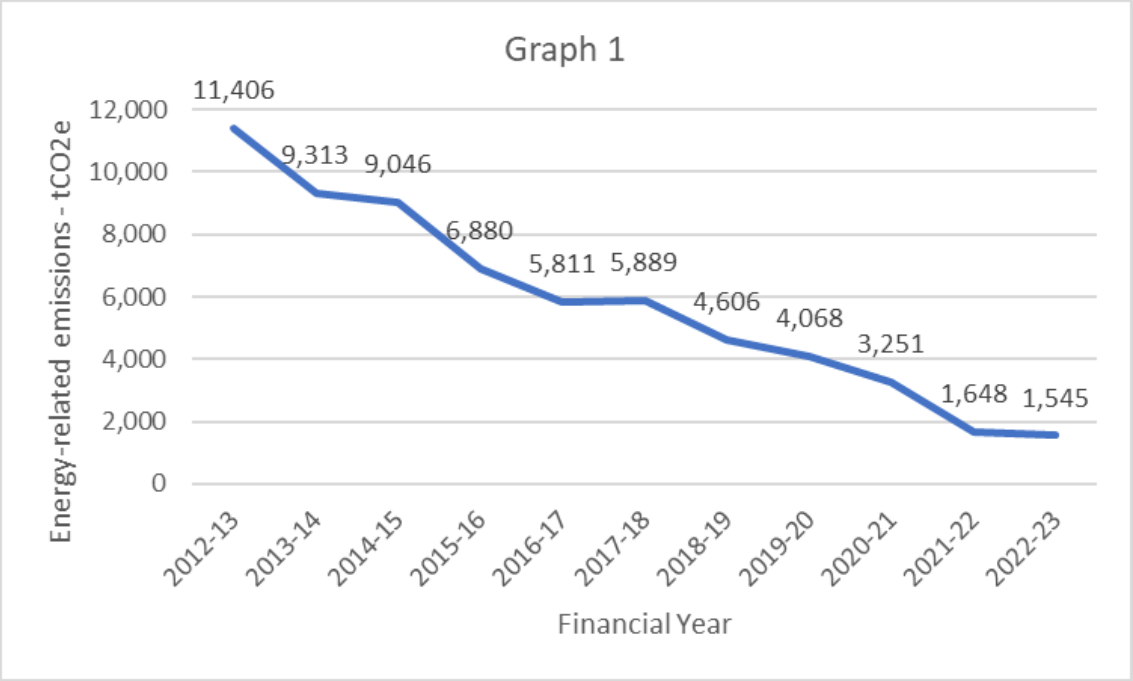
Section 5.2 describes work already undertaken to provide transparency of our emissions reduction programme and to show how it provides a foundation for forward looking objectives described in section 5.3.

### 5.2 Carbon Management 2012-2022

We have been measuring our energy-related carbon emissions since 2012-13 and have built useful comparative data over the last decade. In this first year, our energy-related carbon emissions totalled 11,406 tCO2e. To compare: our energy-related carbon footprint in 2022/23 was 1,545 tCO2e. This dramatic reduction is due to ongoing work by the Estates Department in terms of energy consumption and efficiencies, for instance:

- Building and Energy Management System upgrades at all sites
- Lift controls upgrades that allow the lifts to operate more efficiently, reducing the number of journeys and operate the motoring in the optimum fashion
- The reduction of space temperature – both front and back of house, across all sites – to 18 degrees centigrade
- Adjusting boiler flow temperatures and reducing plant run times, having the dual effect of reducing energy consumed and improving the granularity of our controls
- Change of electricity tariff to solely renewable sources.

Graph 1 below shows the reduction in energy-related carbon emissions from 2012/13 to 2022/23. Data informing this graphic is **Appendix 3.**




This Strategy's reduction approach is based on the carbon emissions data gathered in 2022/23 - an organisational footprint of 2,820.25 tCO2e. A summary of the 2022/23 Carbon Management Plan (our organisational carbon footprint) is presented in **Appendix 4**.

In 2022/23, our organisational carbon footprint was approximately evenly split between heating-related emissions and production-related emissions. This requires a dual approach to organisational carbon reduction:

i. An Estates-led plan for major investment in our buildings and infrastructure focussing on carbon reduction and mitigation; alternative heating sources and climate change adaptation. To succeed, this will require partnership working and major additional funds.
ii. A whole-organisation investment in shifting our procurement decision making towards decarbonising supply chains, life cycle thinking and carbon mitigation. Carbon emissions reduction needs to begin to serve the greater goal of an organisational culture built on sustainability.

Together these inform **objective 5** - *Meet all compliance obligations including carbon emissions targets with suitable risk-based systems in place underpinned by evidenced, reliable and transparent data.* Our way forward is set out below.

### 5.3 Carbon Management 2023-2030

#### *i. Heating-related carbon reduction forecast and required investment*

Every year it is becoming harder for the Estates department to yield further carbon savings through their annual operational work. The carbon savings yielded in 2022/23 was 103 tCO2e for instance and an aspirational saving of 63 tCO2e is forecast for 2023/24. However, more can always be done and throughout the period of this Strategy we forecast a year-on-year reduction target of 4% achieved through further building control systems and efficiencies. It is important to note that this is only achievable with a full Grant-in-Aid settlement from the Scottish Government – any financial cuts will have the effect of

deprioritising this work in favour of essential maintenance and our climate adaptations work will cease, increasing display and storage risks for the National Collection.

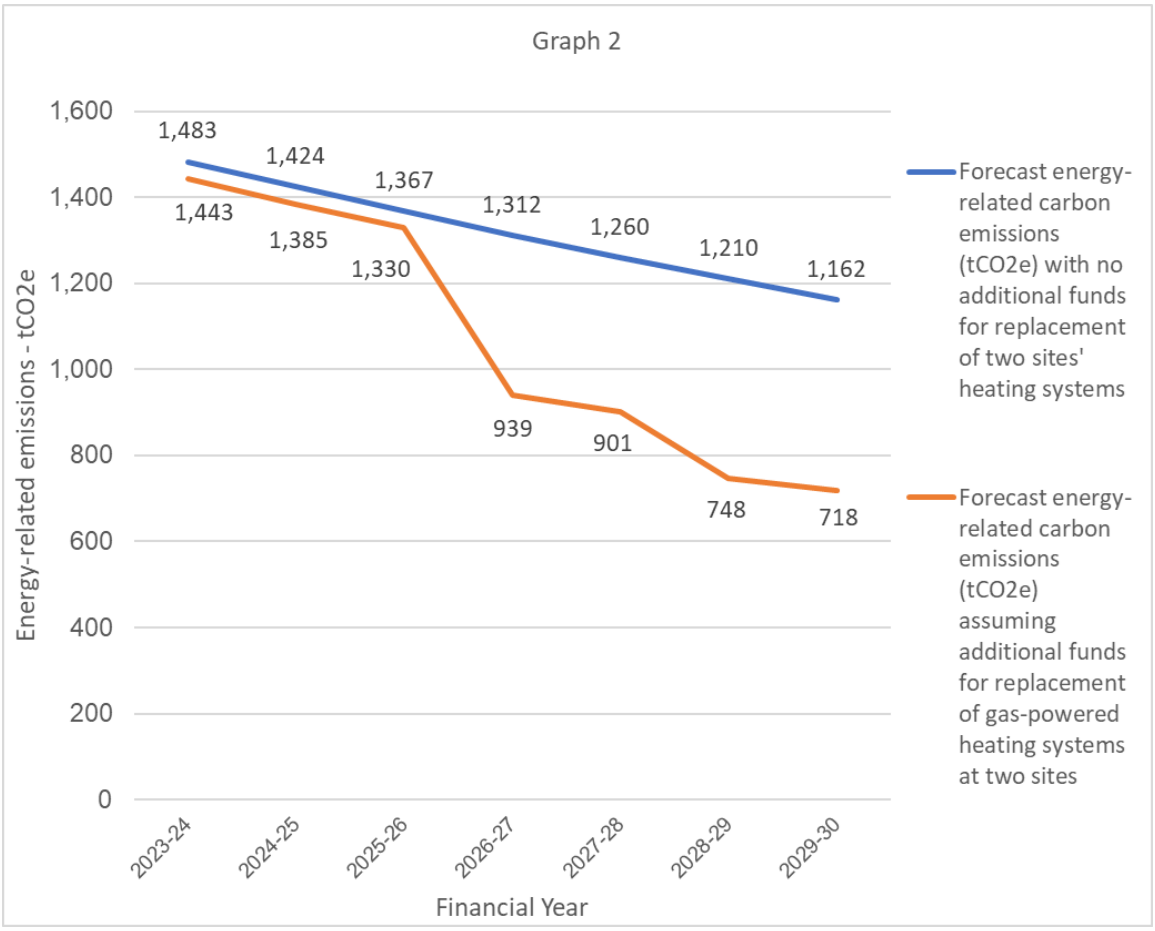
However, we have a more fundamental barrier to achieving greater reductions and net zero: four of our sites are heated from gas boilers. Sourcing alternative heating solutions is technologically challenging and expensive, beyond our annual operating budgets. We can only achieve this level of change through partnership working and major external funds. We have an ambition - but currently unfunded - to replace gas-powered heating systems at two further sites within the period of this Strategy: National Museums Collection Centre by 2026/27 and National Museum of Rural Life by 2028/29. To help realise this ambition we will prepare designed specifications and project costs and complete a review of our estate's thermal qualities.

With funding support, we could yield a heating-related carbon footprint reduction of 54% by 2030 (compared to 2022/23's total of 1,545 tCO2e). This is a reduction of 827 tCO2e by 2030. This significant carbon saving would be realised through the replacement of gas boilers at two sites plus the Estates department's ongoing programme of works. Without any additional investment in replacement boilers, the Estates department will focus on their operational target of 4% yielding a total saving of 383 tCO2e by 2030.

In addition to requiring significant additional funding, transition from gas boilers at the National War Museum and National Museum of Scotland will involve complex partnership working and years of preparation. Our assumptions about carbon reduction yield at these two sites is therefore forecast for post 2030.

We also commit to other measures to develop our sustainable practices in construction. We will work with consultants and contractors to ensure that carbon emissions are reduced as much as possible throughout the construction project, for instance focussing on early design phases to support sustainable decision making, and methodologies such as Climate Change Impact Assessments and PAS 2080 recommendations. All new buildings will be specified as no/low carbon emissions in its operations and as cost effective as possible.

Graph 2 below shows carbon reductions forecasted for heating-related emissions. The data informing this graph is **Appendix 5.**




### *ii. Production-related carbon reduction forecast*

Our production-related emissions cover a broad range of activities from collections' care and exhibitions to the purchase of all goods and services, and waste production and business travel.

These emissions fall into two categories: emissions that are beyond and emissions that are within our direct control. Examples of activities that emit carbon that are beyond our direct control include staff commuting; working from home; grid electricity transmission, water use and treatment and transport contracts. Whilst we have a responsibility to influence behavioural change by introducing EV charging points at our sites to support staff commuting, or reducing our use of water where possible, the pace of decarbonising these activities is set at a national level and unlikely to make any significant reductions over the period of this Strategy. Instead, we hope that our next Strategy from 2030 onwards will benefit from a range of large-scale carbon reductions led by national policy.

However, many other activities are within our direct control, and we have introduced a range of tools for their carbon management, both in terms of reduction and mitigation. Some activities have been assigned a standstill target (still necessitating carbon reductions within a business area of anticipated growth), whilst others have absolute reduction targets. All aspects of our production work are tasked with emissions reduction though – no exceptions – and their reduction forecast is tailored to their activity and performance expectations. For example:

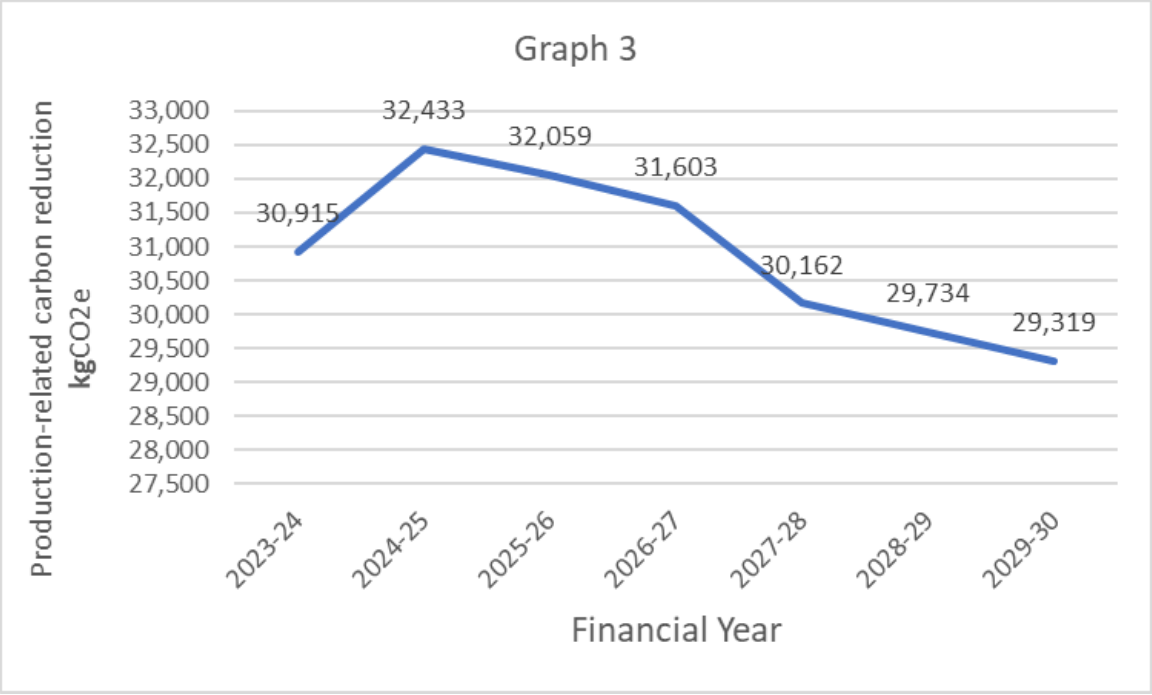
- Retail: an intensity metric is in place for the carbon footprint per sale, thus driving carbon reductions within an overall growth business model
- IT hardware: we will transition to a new IT equipment replacement programme yielding carbon savings for the next seven years
- Catering: as with Retail, we have established an intensity metric per cover
- Office printing: we aim for a standstill at 2021/22's carbon emissions. This is a challenging target due to the growth in activities and office-based staff since this post-Covid year.
- Business Travel: we are trialling the introduction of carbon travel budgets for frequent flying departments, with a view to implement travel budgets across the organisation thereafter.

Underpinning and informing departmental targets are changing practices about the way we do our work. All colleagues are involved in making changes to their everyday working practices, to achieve the development of this Strategy. Organisation-wide examples of change include:

- Replanning the frequency and mileage of goods' deliveries across the whole organisation. Connected to this is a changed approach to stock ordering so that we forward plan with greater benefit.
- Greater focus on reducing air travel as a means of business travel.

An overall reduction target of about 3% year-on-year is in place for our production-related activities which will be realised through a broad mix of reduction and mitigation actions, as outlined above. More details of carbon reduction activities undertaken by colleagues is described in **Appendix 2.**

Graph 3 below shows the reduction forecast for production-related carbon emissions. The data informing this graph is **Appendix 6.**



We have not assumed any carbon reduction yield from national decarbonisation policy changes in this period 2023-2030 as it is too early for them to have a material effect on our business activities. However, we hope for a compounding positive effect as we increasingly work with suppliers and consultants supporting our aspirations.

Finally, at the point of writing this Strategy we are aware that a few business activities are not yet included in our Carbon Management Plan. This includes our business-to-business retail activities; retail product development; e-commerce, and digital platforms (including our email system and website). These activities will be added to our reduction forecasts as the Strategy is updated over the coming years.

### 5.4 Performance against Scottish Government Targets

In terms of our regulatory compliance, we have already met (and exceeded) the 2030 Interim Target of 75% reduction; in fact, the Interim Target was likely passed in 2021.

However, we are not complacent and have put challenging carbon reduction targets in place. This Strategy sets out how we will continue to decarbonise our business and will have made considerable progress towards meeting the next Scottish Government Interim Target of 90% carbon reductions by 2040.

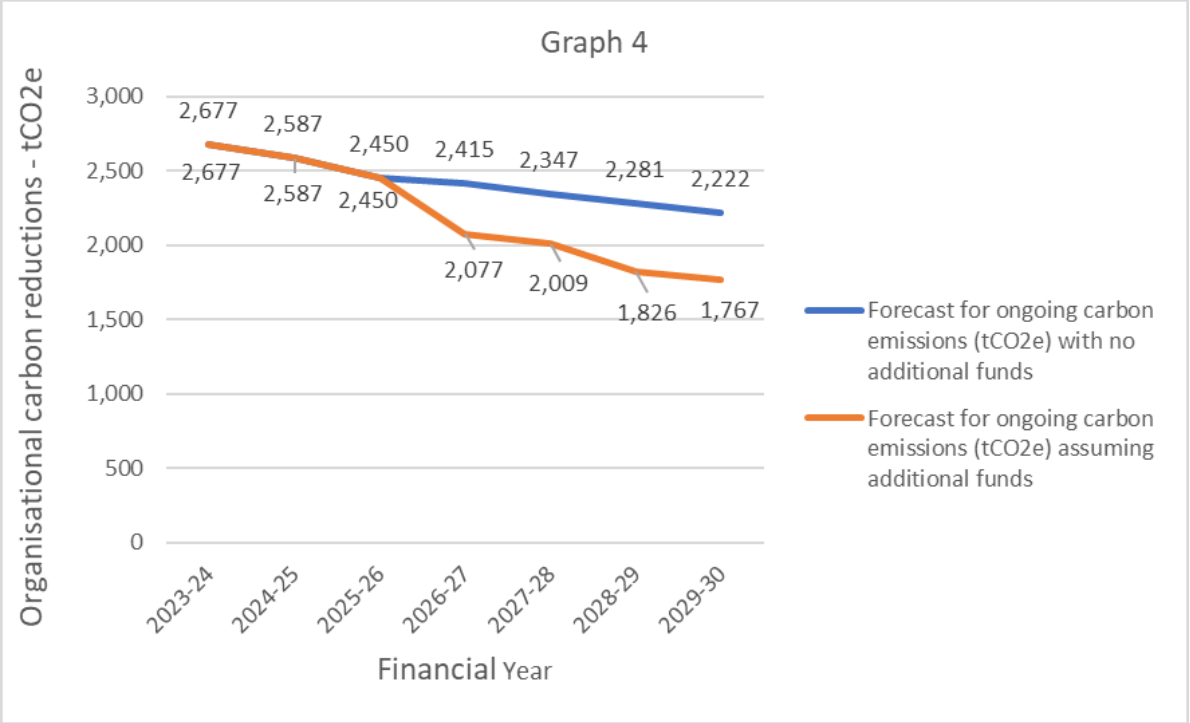
Achieving net zero is contingent on finding alternative carbon-free heating sources for four sites; this is a funding gap at all four sites. We will focus on this challenge at two sites before 2030 and two further sites in the following decade. Change at these last two sites is contingent on significant external funding and complex stakeholder relationships.

We have a proven record of putting externally funded support into immediate and beneficial use. For example, due to Scottish Government capital funding in 2022/23 we were able to replace the last LPG-powered boiler at the National Museum of Flight with an air-source heat pump system. The heating system at the National Museum of Flight is now carbon free, and the investment yields a yearly carbon saving of 50 tCO2e.

To help our success in attracting additional funding we will *develop funding-ready projects that meet the demands of future construction standards, prepare our buildings and infrastructure for climate change, and address carbon mitigation of our estate and its operations* (**objective 6**). To guide this work, the Estates Department have developed a good understanding of the financial costs of a variety of carbon reduction and mitigation projects to create a prioritised work plan based on sustainability performance.

Putting together heating-related carbon reductions with production-related targets we forecast our total organisational reduction targets. The data informing this section is **Appendix 7.**

Graph 4 below shows organisational carbon reduction forecasts to 2030 (compared to the 2022/23 organisational footprint of 2,820.25 tCO2e). The blue graph line shows our carbon reduction journey through only operational investments, assuming no additional funding and full Grant in Aid Settlements each year. The orange line shows the above plus the positive progress we can make with additional funding for the replacement of gas-powered boilers at two sites.




Through the successes already achieved and the implementation of this Strategy in 2023-2030, National Museums Scotland is in a strong position to achieve net zero by the deadline of 2045 providing our work is supported by Scottish Government funding; national decarbonisation milestones materialise, and shared heating schemes are successfully brokered.

## 6. GOVERNANCE

### 6.1 Governance

The responsibility for the implementation of this Strategy is delegated to the Chair of the Sustainability Development Group who works with colleagues with responsibility for priority aspects of our sustainability performance, and a representative from the Green Advocates Group (a peer-led internal champions group).

### 6.2 Materiality and Risk Management

An informal Materiality Assessment was undertaken to ascertain key priorities in discussions with all teams in both National Museums Scotland and National Museums Scotland Enterprises, and overlayered with our Mission and the organisational Strategic Priorities. In addition, the Environmental (Aspects and Impacts) Risk Register evidences the most material aspects of our business that require focus. Through a cycle of review and action, sustainability performance actions are embedded in each year's Action Plan.

### 6.3 Reporting

An annual Action Plan is prepared by the Sustainability Development Group and approved by the Executive Team, indicating areas for focussed resources and change in the coming 12 months. Quarterly the Sustainability Development Group reports progress against the

Action Plan to the Estates Committee – a Board of Trustees' Committee. An Annual Report is presented to the Board of Trustees summarising the previous year's progress, successes, and challenges together with the organisation's carbon emission figures on a quarterly basis.

The Carbon Management Plan is independently verified at the end of each financial year. There is no dedicated post within our staffing structure that focusses solely on sustainability; instead, it is a devolved model requiring all colleagues to play their part. Whilst this approach has challenges, it is highly effective in ensuring whole organisation understanding and behaviour change.

The Sustainability Development Group oversees statutory reporting requirements which are currently:

- Under the Nature Conservation (Scotland) Act (2004), all public bodies in Scotland are required to further the conservation of biodiversity when carrying out their responsibilities. The Wildlife and Natural Environment (Scotland) Act (2011) requires public bodies in Scotland to provide a publicly available report every three years.
- The Climate Change Act (Scotland) 2009 (April 2019 updates) requires public bodies to report annually on their sustainable development work, carbon emissions and net zero targets. This reporting duty is managed by Sustainable Scotland Network on behalf of the Scottish Government.

### 6.4 Strategy Review

This Strategy spans a seven-year period from financial year 2023/24 to 2029-30. Viewing the seven-year period as a single period ensures we plan for the next Scottish Government Interim Target in a robust, transparent and practical way. However, we also appreciate the fast pace of technological, societal and regulatory change in this area and propose a Rendezvous Clause ensuring that the Strategy is reviewed as required over this period. Through regular review the Sustainability Development Group will recommend amendments to the Executive Team to reflect the dynamics of our changing working context.

### 6.5 Sharing our Strategy and Practice

Achieving **objective 7** - *ensure we develop our own practice through continual improvement and sharing our work for museum sector benefit* – is closely connected to many other objectives. Through achieving robust sustainability performance, we build trust with our audiences, supporters and stakeholders as a credible museum authority. This in turn becomes our platform for sector skills sharing and is underpinned by our continual improvement cycle.

It is important to help support the Scottish and UK museum sector in their work towards net zero carbon emissions and a sustainable future. Our progress to date has been made without a dedicated member of staff, nor expensive consultancy services and carbon management systems, so we hope that sharing our approach, tools and lessons learnt will be practical and timely to a broad spectrum of museum and galleries. Sustainable development will be a key theme in our National Strategy therefore, delivering sector skills training in a sustainable manner.

We also have a dedicated Sustainability webpage that describes our work and shares our policy, strategy, most recent statutory reports and the annual action plan.

**Appendix 1**

## 1990/91 ORGANISATIONAL FIXED BASELINE

To understand our performance against Scottish Government targets we need a baseline figure that reflects our work in 1990/91; however, like most organisations we were not measuring our carbon emissions at this time.

Workforce size yields the best proxy because the number of staff has a direct relationship to size of productivity and number of outputs. The 1990/91 Annual Review lists 301.3 FTE (this is comprised of 282.5 FTE staff plus 18.8 FTE secondees from the Scottish Government); this is compared to 429.5 FTE in 2022/23. There were 30% fewer staff in 1990/91 therefore and our production-related carbon emission in 2022/23 should be reduced proportionately to give us an approximation for 1990/91.

The total carbon emissions for all three scopes in 2022/23 excluding energy-related emissions is 1,275.25 tonnes of carbon dioxide (tCO2e). A reduction of 30% (in proportion to workforce size in 1990/91) is a total of 893 tCO2e.

The 2012/13 data for energy-related carbon is our most historic figure and is added to production-related emissions to calculate the proxy figure for 1990/91's baseline.

The table below shows how the 1990 Organisational Baseline is comprised:

| | |
|---|---|
| 70% of 2022/23's data for all three scopes, minus energy-related emissions | 893 tCO2e |
| Energy-related carbon emissions from 2012-13 | 11,406 tCO2e |
| **1990/91 Organisational Fixed Baseline** | **12,299** tCO2e |

Therefore, the Interim Target milestones are:

75% by 2030 - a reduction of 9,224 tCO2e to meet a new annual target of **3,075** tCO2e
90% by 2040 - a reduction of 11,069 tCO2e to meet a new annual target of **1,230** tCO2e

These targets have been purposefully calculated to be sharp. For instance, we have not added an allowance when backdating 2012-13's energy emissions; an additional 10% would be typical. Instead, we have set ourselves robust stretch targets to maintain organisational momentum.

**Appendix 2**

## WHOLE-ORGANISATION EXAMPLES OF BEHAVIOUR CHANGE

All departments have **been evaluating processes around procurement and deliveries**. This includes bulk-buying and co-ordinating deliveries; communicating inter- and intra-departmentally to see if there are alternative approaches and **communicating with suppliers about their practices**. For example, NMSE Hospitality have been working together with our contracted caterers to overhaul our café offer in terms of provenance, distribution, carbon management and menu range. A different example is from the Visitor Experience department who agreed with their uniform supplier to add the amount and weight of products ordered to their delivery labels, aiding our Carbon Management Planning.

We **continue to implement and refine carbon counting methodologies**. A final few business areas will be added to the Carbon Management Plan this year: Digital Media Department will explore the emissions from our digital provision and website; NMSE Retail will be adding e-commerce to the carbon planning already in place focussed on our site-based shops. Collections Services will include a last remaining aspect of their work: the transport and packing of new acquisitions. The Finance department are working to refine the process for counting travel emissions – categories of 'Europe' and 'rest of world' are being refined for more accuracy in carbon counting. The Exhibition and Design department continue to refine best practice and have shared their processes with the wider sector nationally and internationally. For instance, they are exploring new materials to substitute traditional materials with poor production and waste qualities e.g., new site signage at the National Museum of Flight made from dibond, a sustainable and recyclable material.

The Facilities Management department have ensured **eco-friendly cleaning products** across all our sites, supported by efficient, low resource cleaning methods. To further reduce the use of environmentally hazardous chemicals, the Collections Services department have introduced parasitic wasps to manage the risk of moths, **reducing the use of pesticides**. This links with the **Biodiversity Action Plans** led by our Natural Sciences department which aim to encourage biodiversity by reducing grass mowing and using pesticides in a more considered way, for example.

Many teams now **include sustainability in their monthly team meetings**, for instance the Visitor Experience department at the National Museum of Rural Life. The Learning and Engagement department have a Sustainability Collective group meeting every quarter and designed a toolkit to act as a 'living document' to guide their sustainability work. The National and International Partnerships Department have a Colleague Engagement Plan and the All Colleague Briefing issued monthly features sustainability news in each edition.

Across the whole organisation we are focussing on **reducing travel emissions.** The Facilities Management department and Site Managers are encouraging hotdesking and Teams meetings to reduce the need to travel between sites. The new Travel and Subsistence Policy ensures all colleagues to review travel plans with reference to carbon impact and encourages the attendance of conferences and meetings remotely where possible.

The People team have introduced a suite of **e-learning modules and virtual learning events**, including climate emergency training for all staff.

All Departments have moved to provide **digital alternatives and minimise printing** – the Visitor Experience team at each site are minimising printed team communications and the Marketing and Communications department has reduced the content and size of Visitor Maps. The NMSE Publishing team is adding older titles as a digital resource on the Research Repository and using minimal paper for reprints and proofing. The People team have digitised their approach to recruitment. Marketing and Communications department use recyclable and recycled paper for Explorer magazine and added a compostable wrapper. NMSE are working towards being paperless in 2024 providing other departments with useful lessons learnt. The Development team are introducing permanent Membership cards with digital QR codes to give supporters access to our museums and exhibitions without the need for a new annual card.

Across the organisation, there has been a **shift towards recycling and using sustainable materials**. NMSE Publications have ensured that deliveries use cardboard sustainable wrapping, with any plastic packaging being recycled and not bought. The Facilities Management department have sent no waste to landfill in the last 12 months. The Collections Services department shred and reuse plastazote used to pack collections. The Retail team will soon be reusing cardboard for external deliveries, pulping and shredding it to reuse for packaging for delivering their products. Exhibitions and Design work to use sustainable and reusable materials. A recent example is the use of stretched fabric over a timber frame instead of traditional walling in *Beyond the Little Black Dress,* a key example of exhibition programming with a sustainability element*.* They also clad plinths in recyclable dibond rather than painting them.

To help reduce single-use plastic, **plastic-bottled water has been removed** from our offices, shops and cafés and replaced with refillable bottles and plumbed water. The Estates department has added new plumbed water units both front and back of house at the National Museum of Scotland and at the National War Museum. The Estates team have also upgraded the National Museum of Scotland boiler burners to **improve the efficiency of the heating system** and reduce emissions and introduced a range of efficiencies and carbon mitigating practices to help drive down utility costs and carbon emissions. The organisation's electricity supplies come from fully green sources.

**Appendix 3**

## ENERGY-RELATED CARBON EMISSIONS FROM 2012-2022

The table below shows the reduction in energy-related carbon emissions from 2012/13 to 2022/23. This data refers to section 5.2 *Carbon Management 2012 – 2022* in the main body of the report.

| Financial Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 | 2022/23 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Organisational energy total tCO2e | 11,406 | 9,313 | 9,046 | 6,880 | 5,811 | 5,889 | 4,606 | 4,068 | 3,251 | 1,648 | 1,545 |

**Appendix 4**

## SUMMARY OF ORGANISATIONAL CARBON EMISSIONS TOTAL IN 2022/23 (BY MUSEUM SITE)

| **Emissions by Site** | **Tonnes CO2e** |
|---|---|
| National Museum of Scotland | 1,806.07 |
| National Museum of Rural Life | 378.85 |
| National Museum of Flight | 92.15 |
| National War Museum | 180.59 |
| National Museums Collection Centre | 451.29 |
| Off Site Work | 2.27 |
| **Emissions Total** | **2,911.21** |
| **Minus Carbon Insetting** | -90.96 |
| **Minus Carbon Offsetting** | 0.00 |
| | |
| **Organisation's Total Carbon Footprint** | **2,820.25** |

**Summary of Organisational Carbon Emissions Total in 2022/23 by Scope:**

| **Emissions by Scope** | **Tonnes CO2e** |
|---|---|
| **Scope 1** | 1,435.52 |
| **Scope 2** | 121.37 |
| **Scope 3** | 1,354.33 |
| **Total** | **2,911.21** |

**Summary of Scope 3 Carbon Emissions in 2022/23 by Category:**

| **Scope 3 by Category** | **Tonnes CO2e** |
|---|---|
| Scope 3 Upstream/'cradle to gate' (Cat 1-5) | 1,220.04 |
| Scope 3.6 Business Travel | 85.91 |
| Scope 3.7 Employee Commuting | 41.25 |
| Scope 3 Downstream/ 'gate to grave' (cat 9-13) | 7.14 |
| **Total** | **1,354.33** |

**Appendix 5**

## FORECAST FOR HEATING-RELATED CARBON REDUCTIONS 2023-2030

The tables below show carbon savings and reduction forecasts between 2023 and 2030 for heating-related emissions. This data refers to section *5.3.i Carbon Management 2023-2030* in the main body of the report.

The table below shows carbon reduction forecasts **including** the replacement of two gas-powered heating systems:

| Financial Year | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 | 2029/30 |
|---|---|---|---|---|---|---|---|
| 4% year on year reduction tCO2e | 62 | 58 | 55 | 53 | 38 | 36 | 30 |
| Heating replacement savings (unfunded) tCO2e | 50 | - | - | 338 | - | 117 | - |
| Total carbon savings tCO2e | 112 | 58 | 55 | 391 | 38 | 153 | 30 |
| Forecast energy-related carbon emissions tCO2e | 1,443 | 1,385 | 1,330 | 939 | 901 | 748 | 718 |

The table below shows carbon reduction forecasts **without** additional funds to replace two gas-powered heating systems:

| Financial Year | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 | 2029/30 |
|---|---|---|---|---|---|---|---|
| 4% year on year reduction tCO2e | 62 | 59 | 57 | 55 | 52 | 50 | 48 |
| Forecast energy-related carbon emissions tCO2e | 1,483 | 1,424 | 1,367 | 1.312 | 1,260 | 1,210 | 1,162 |

**Appendix 6**

## FORECAST FOR PRODUCTION-RELATED CARBON REDUCTIONS 2023-2030

The table below shows the carbon reduction forecast between 2023 and 2030 for production-related emissions. This data refers to section *5.3.ii Carbon Management 2023-2030* in the main body of the report.

| Financial Year | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 | 2029/30 |
|---|---|---|---|---|---|---|---|
| Organisational carbon reduction **kg**CO2e | 30,915 | 32,433 | 32,059 | 31,603 | 30,162 | 29,734 | 29,319 |

**Appendix 7**

## ORGANISATIONAL CARBON REDUCTION FORECAST 2023-2030

The table below shows the organisational carbon savings and reduction forecast between 2023 and 2030, compared to the 2022/23 organisational carbon footprint of 2,820.25 tCO2e. This data refers to section *5.4 Performance against Scottish Government Targets* in the main body of the report.

| Financial Year | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 | 2029/30 |
|---|---|---|---|---|---|---|---|
| Energy-related operational savings tCO2e | 62.0 | 58.0 | 55.0 | 53.0 | 38.0 | 36.0 | 30.0 |
| Replacement boiler savings tCO2e (funds req.) | 50.0 | - | - | 338.0 | - | 117.0 | - |
| Production-related savings tCO2e | 30.9 | 32.4 | 32.1 | 31.6 | 30.1 | 29.7 | 29.3 |
| **Total forecasted carbon savings tCO2e** | **142.9** | **90.4** | **87.1** | **422.6** | **68.1** | **182.7** | **59.3** |
| **Total forecasted carbon footprint tCO2e** | **2,677.35** | **2,586.95** | **2,499.85** | **2,077.25** | **2,009.15** | **1,826.45** | **1,767.15** |