

NHS Grampian Annual Climate Emergency and Sustainability report 2022/23

August 2023

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1. About

The template focuses on the environmental performance of the organisation.

However, health boards such as NHS National Services Scotland, NHS Education for Scotland, Healthcare Improvement Scotland, Public Health Scotland and the Golden Jubilee should also highlight how they are supporting the rest of the health and care system to improve their environmental and social sustainability.

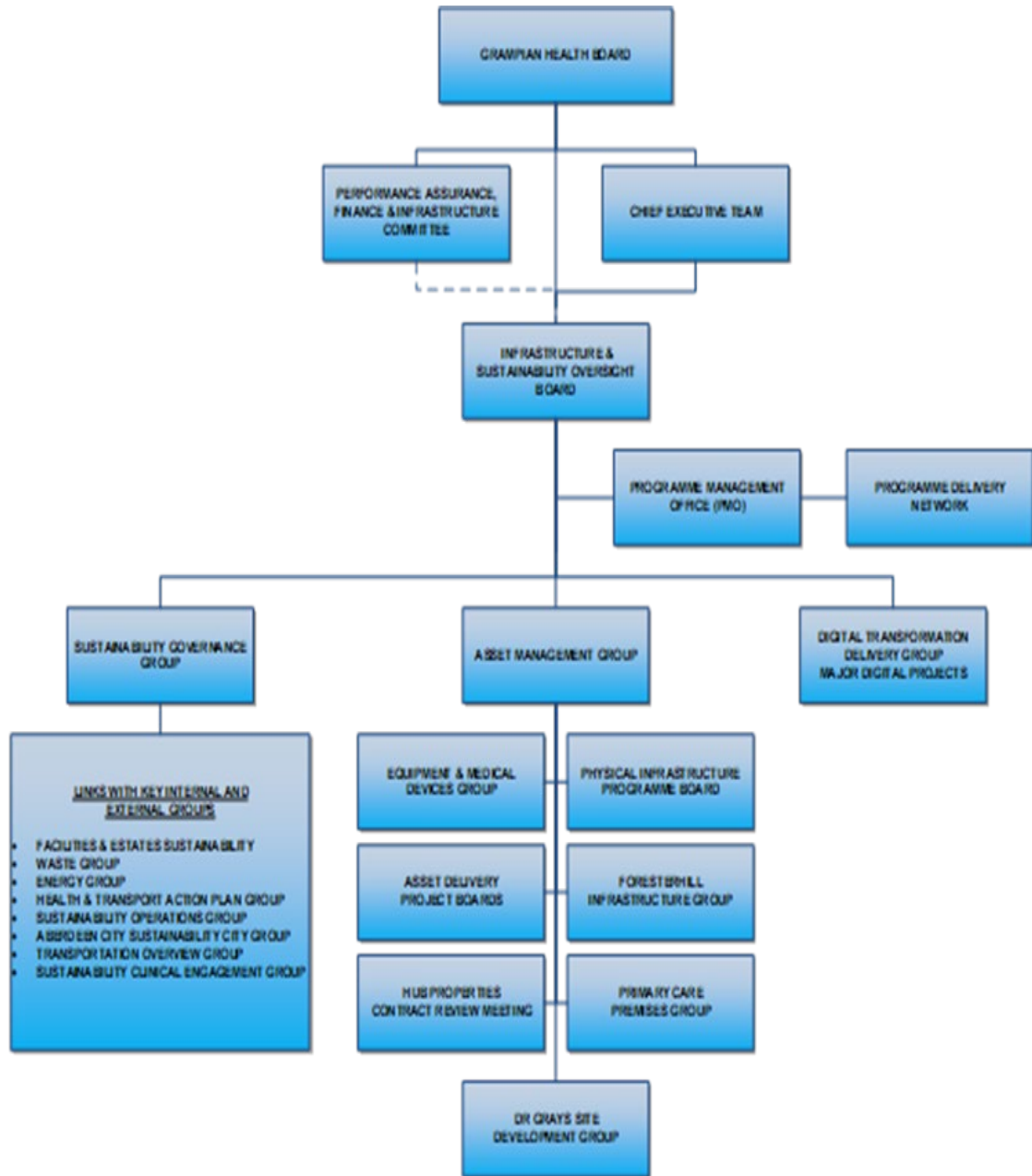
2. Introduction

This is NHS Grampian's annual Climate Emergency and Sustainability Report.

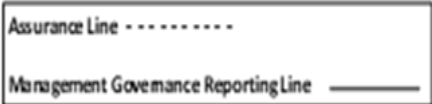
NHS Grampian provides healthcare to over 584,000 people who live in Grampian which cover an area of over 3,000 miles squared and employs 16,181 staff.

3. Leadership and governance

- Who is the Sustainability Champion on the board?
 - Derick Murray
- Who is the Executive Lead?
 - Alan Wilson
- An outline of the organisation's governance structure for climate action and sustainability – a diagram is preferred:



CO-DEPENDENCY BETWEEN SUSTAINABILITY, ASSET MANAGEMENT AND DIGITAL DELIVERY



- How is the health board showing leadership in tackling climate change and becoming environmentally sustainable?

NHS Grampian has published its 2023-28 Sustainability Strategy, recognising the climate emergency and the role which it must play to deliver a sustainable healthcare system its moral obligations to the people of Grampian and the contribution it makes globally. For NHS Grampian to ensure that sustainability is embedded and for effective leadership, it has created a diverse governance structure to ensure that sustainability leadership and engagement takes places at all levels within the board, from the Chief Executive level to operational teams and grassroots level sustainability champions.

4. Greenhouse gas emissions

NHS Grampian aims to become a net-zero organisation by 2040 for the sources of greenhouse gas emissions set out in the table below. The table sets out the amount of greenhouse gas produced annually by NHS Grampian.

Greenhouse gas emissions 2021/22 & 2022/23, tonnes CO₂ equivalent

Source	2021/22 – emissions	2022/23 – emissions	Percentage change – 2021/22 to 2022/23	2022/23 – target emissions*	Percentage difference between actual and target emissions – 2022/23
Building energy	40,873.7	39,187	-4.2	N/A	N/A
Non-medical F-gas use					
Medical gases (N ₂ O, Desflurane, Isoflurane and Sevoflurane)	1,600	1,533	-4.3	N/A	N/A
Metered dose inhaler propellant	6,095.8	6,441.9	+5.5	N/A	N/A
NHS fleet use	1,084.3	800.3	-30.1	N/A	N/A
Waste	544.5	583.1	+6.8	N/A	N/A
Water	90.3	80.8	-11.1	N/A	N/A

Business travel		936.1		N/A	N/A
Total greenhouse gases emitted	42,592.7	42,317.6	-0.65	N/A	N/A
Carbon sequestration	0	0	0	N/A	N/A
Greenhouse gas emissions minus carbon sequestration	42,592.7	42,317.6	-0.65	N/A	N/A

* No emissions reduction target was set in 2022/2023 but data from this year is being used as a baseline and an ambitious target of 5% reduction in gas and electricity consumption has been set for the following years.

5. Climate change adaptation

The climate is changing due to the greenhouse gases already emitted into the atmosphere. While efforts to reduce the rate and scale of climate change continue, we must also adapt to new conditions we are facing.

The changing climate is increasing risks for health and health services. More information on these risks in the UK can be found in the UK Climate Change Committee's Health and Social Care Briefing available here: www.ukclimaterisk.org/independent-assessment-ccra3/briefings/

- *What are the main risks from climate change that the Health Board has identified through its Climate Change Risk Assessment?*

Current impacts to healthcare service delivery:

Building construction and materials are maladapted for higher temperatures and warming weather, particularly in the summer months. Solar gain mixed with restricted ventilation capability is causing significant overheating issues for both patients and staff. This summer, NHS Grampian received more than one hundred Datix alerts from staff that clinics, offices, and entire theatres have reached 26°C or higher, with no means of reducing or controlling temperature. On a few occasions, patients or staff have reported suffering from heat stroke within hospitals. The overheating of facilities is already impacting health practitioners' ability to deliver effective treatment, slowing efficiency, and negatively impacting patient experience. On several occasions, excessive heat indoors has caused primary care practitioners to suspend services, affecting patient critical care needs, and subsequently jeopardising patient safety.

On occasion, river, coastal, and surface water flooding causes disruption to service delivery because staff are unable to reach their place of work to care for patients. Patients are unable to reach services due to the disruption of public transport options as well as the closure of roads.

Buildings lack appropriate waterproofing design to mitigate against events of heavy downpours and prolonged periods of rain. In the past, this has led to patients' paper files becoming ruined, electrical equipment is growing increasingly vulnerable to water damage, risking the safety of hospital machinery use and disrupting business continuity. The increase in periods of heavy rain is causing area closures in Aberdeen Maternity Hospital. This puts further pressure on our estates team who are often called to several buildings simultaneously to respond to water leakages.

Risks of contributing excess CO₂ emissions:

NHS Grampian's total emissions from building operations amount to 86.8%. Most of NHS Grampian's builds were constructed from granite, which has poor heat retention properties. This means that when the temperature is cold outside, considerable energy is used to regain heat lost from the building and to maintain adequate indoor temperatures.

Future risks from climate change (all oriented around increased demand for services):

The demand for mental health services and support will be greater due to severe weather-related trauma. Post-traumatic stress disorder from experiencing previous flooding events, dislocation, and climate anxiety is likely to increase anxiety, distress, depression, drug, and alcohol-related harm as well as increase repeated admissions.

The health service is expecting to see an increase in elderly hospitalisations, with this age bracket at higher risk of injury or death during extreme weather event. Because homes are typically poorly insulated in this region and the rising costs of living, increased incidents of hypothermia are expected.

Power losses and outages increase hospital admission rates because individuals who were otherwise reliant on home electrical health equipment are unable to sustain their function.

Further demands and pressures are put on nursing homes and other care facilities when buildings need to be evacuated due to severe weather. Increases in hospital admissions are occurring during periods of hot temperatures due to heat stroke. There may also be increased incidents of road traffic accidents.

Vector-borne diseases like malaria, chikungunya, dengue, and Lyme are expected to become more prominent as the habitat range of ticks and invasive mosquitos grows more hospitable to their life cycles. This will add further strain and capacity issues, while adding a new dynamic to demand patterns and volumes.

- *What actions has the health board taken to reduce those risks?*

For heat-related stresses:

Occupational Health and Safety support is available for staff. Wellbeing advice is provided to staff, with suggestions on how to stay cool. Refrigerated bottled water is provided for staff. Department drop-out/cooling stations are made available for staff to take regular breaks (these are common throughout the sites). As far as reasonably practicable, uniform rules are relaxed during heatwaves to help prevent overheating. The number of breaks encouraged is increased during periods of elevated temperature. Sunscreen is made available within NHS Scotland procurement platform in the national catalogue for staff who work outside. Data

from adverse events or near misses is aggregated on corporate risk registers. Staff have daily decision-making check-ins, where people can report issues. Some fans have been installed to combat heat. All new buildings now undergo thermodynamic modelling so that they are adapted to changing climatic conditions.

On occasion, air conditioning units were brought in to support excessively hot areas. Ice machines are also available in ward kitchens.

For severe weather prohibiting access by staff or patients:

Pharmacies and care homes under health and social care partnerships which have been subject to flooding all have business continuity plans in place.

Flood warning systems are in place. An assessment of NHS Grampian's assets against SEPA (Scottish Environmental Protection Agency) flood maps has also been done. MET Office weather warnings and staff alerts are in place to warn staff of difficulties during commuting. For critical staff, NHS Grampian has a 'memorandum of understanding' (MOU) with local hotels that will provide them with temporary localised accommodation. An MOU also is in place with COTAG, our local 4x4 rescue fleet that supports the Grampian region.

Opportunities to hot desk within partner agency offices are in place (council, police, ambulance, etc.). Patients can also phone their GP for an appointment and be redirected to services more local to them in periods of unsafe travel conditions so that any unnecessary travel is avoided.

For assets at risk from weather impacts:

Flood risk assessments are part of all new planning applications, with new builds being constructed to provide flood protection. This may require review and ongoing monitor as events become more severe.

For builds that are particularly vulnerable to flooding after intense rainfall, we are looking at Property Flood Resilience measures.

- *What are we doing to be prepared for the impacts of climate and increase the resilience of our healthcare assets and services?*

We are considering cost-benefit opportunities to work in collaboration with Local Authorities to implement better surface water flood protection measures as well as improve drainage systems adjacent to key transport links.

Realistic Medicine is working to increase uptake of virtual appointments for non-essential appointments during periods of anticipated heavy rainfall.

Greenspace areas on our estate are being explored to see whether they can be adapted to include sustainable drainage systems (SuDs) (e.g. bio-swales, retention and detention basins, rain gardens) to attenuate storm water more effectively. Other opportunities exist to retrofit fit building facades to include living walls and roofs, which will help to reduce runoff while improving HVAC energy efficiency.

Hospital sites including community hospitals have been provided with emergency kits. Power resilience workshops have been held at each hospital site and at GPs, pharmacies, and dental practices to build awareness and robust business continuity plans.

6. Building energy

We aim to use renewable heat sources for all the buildings owned by NHS Grampian by 2038.

NHS Grampian owns: 26 hospitals; 27 health centres; 22 clinics; 5 dental units; 4 hub procured health centres and the health village. These include Foresterhill Health Campus, Woodend Hospital, Dr Gray's Hospital and Peterhead Community Hospital.

In 2022/23, 39,186.76 tonnes of CO₂ equivalent were produced by NHS Grampian buildings by energy use. This was a decrease of 4.2 % on the previous year.

In 2022/23, NHS Grampian used 215,540,691 kWh of energy. This was a decrease 2.33% on the previous year.

In 2022/23, NHS Grampian generated 6,141,765 kWh of energy from renewable technologies.

Building energy emissions, 2015/16, 2021/22 and 2022/23 – tCO₂e

	2015/16 energy use	2021/22 energy use	2022/23 energy use	Percentage change 2015/16 to 2022/23
Building fossil fuel use	38,588.9	35,119.8	34,296.4	-11.8
District heat networks and biomass	67.3	86.8	64.67	-3.99
Grid electricity	22,646.61	5,667.1	4,825.69	-79
Totals	61,302.81	40,873.7	39,186.76	-36

Building energy use, 2015/16, 2021/22 and 2022/23 – MWh

	2015/16 energy use	2021/22 energy use	2022/23 energy use	Percentage change 2015/16 to 2022/23
Building fossil fuel use	197,864.429	190,437.794	186,535.928	-5.89

District heat networks and biomass	5,095.498	5,736.063	6,141.765	18.62
Grid electricity	45,260.477	24,520.282	22,862.998	-65.8
Renewable electricity				
Totals	248,220	220,694	215,541	-14.09

- *What did we do last year to reduce emissions from building energy use?*

Energy efficiency and decarbonisation projects on rural GP clinic covering lighting, insulation, windows, heat source and onsite renewable energy generation.

A major feasibility study was completed for part of a major acute site, which would see the decommissioning of 11 outdated gas fired boilers to be replaced with a combination of air and ground source heat pumps, as well as a full suite of energy efficiency measures to bring the building up to current standards.

- *What are we doing this year to reduce emissions from building energy use?*

We want to ensure energy efficiency and decarbonisation are incorporated into all of our built environment improvement projects - when re-tendering our measured term contractor framework, we have specified key energy reduction measures such as LED lighting, insulation and variable speed drives to ensure these are business as normal and that they are delivered to suitable level in line with the Sustainable Design and Construction (SDaC) Guidance (SHTN 02-01). This approach will also be implemented through our backlog maintenance schedule to ensure when compliance is work is undertaken energy efficiency and low carbon options are prioritised.

- *What projects are we planning for the longer-term to reduce emissions from building energy use*

We are working with SEPA to develop guidance on the use of hydrotreated vegetable oil for backup generators as a secondary fuel for combustion boilers. While we recognise this will not achieve zero emissions, we feel it is a reasonable stepping stone reducing CO₂e by up to 70% and can be implemented seamlessly given it can be blended with current fuel stocks at any ratio.

We are working with project consultants Storegga on the development of green and blue hydrogen production projects within Grampian. If commercially viable this could provide a solution to heat our buildings, fuel our backup generators and our larger transport vehicles.

We are in ongoing talks with local authorities in the area about the development of heat networks on which reply on properties such as hospitals or swimming pools to provide a constant heat demand to allow them to operate throughout the year.

We are engaged in talks with consultants about the possibility of deep geothermal heating. This project will have high upfront costs but could provide long term, zero emission heat source that could potentially replace our gas CHP.

7. Sustainable care

To establish and deliver the Grampian response to the Global Climate and Health Emergency with the urgency that is required to protect and sustain environmental and human health.

The vision of the proposed NHS Scotland Climate Emergency and Sustainability Strategy is of a comprehensive set of measures designed to reduce global warming and its impact on the climate and human health and health services whilst maintaining a focus on the provision of equitable health care to the people of Scotland. The underpinning values behind the strategy are those of an enlightened concern for the environment whilst improving the health and wellbeing of communities and reducing health inequalities through the exercise of corporate social responsibility. However, as currently framed the national NHS Scotland strategy remains inwardly focussed. If we are to achieve meaningful change in the way we live a strategy for Grampian and for the Country must begin with the people of Grampian and Scotland in a comprehensive alliance with everybody playing their parts. Mobilising the extensive human, environmental and social assets of Grampian towards the COP 26 goals should be the primary aim.

The role of the NHS in the creation of such a movement is by founded in its role as an Anchor organisation in concert with other public, private and third sector organisations to support the measures needed which individuals and families alone are unable to take. Whilst this work is still in its developmental stages, working within NHS Grampian to deliver DL (2021) 38 is already advanced. Further work is needed to take the next steps for Grampian embracing the urgency with which actions to tackle the co-occurring Climate and Health Emergency through the necessary whole system partnerships that can deliver meaningful co-benefits.

8. Anaesthesia and surgery

Greenhouse gases are used as anaesthetics and for pain relief. These gases are nitrous oxide (laughing gas), entonox (a mixture of oxygen and nitrous oxide) and the 'volatile gases' - desflurane, sevoflurane and isoflurane.

Through improvements to anaesthetic technique and the management of medical gas delivery systems, the NHS can reduce emissions from these sources.

NHS Grampians total emissions from these gases in 2022/23 were 1,532.51 tCO₂e, a decrease of 4% from the year before.

More detail on these emissions is set out in the tables below:

Volatile medical gas emissions, 2018/19, 2021/22, 2022/23 – tCO₂e

	2018/19 (baseline year)	2021/22	2022/23	Percentage change 2018/19 to 2022/23
Desflurane	896.6	158.1	58	-93.5
Isoflurane	9.7	3.8	2	-79.2
Sevoflurane	108.3	66.6	74	-31.7
Total	1,014.6	228.5	133	-86.9

Nitrous oxide and entonox emissions, 2018/19, 2021/22, 2022/23 – tCO₂e

Source	2018/19 (baseline year)	2021/22	2022/23	Percentage change 2018/19 to 2022/23
Piped nitrous oxide	1,601	1,310	1,274	-20.4
Portable nitrous oxide	81	67	125	+54.3
Piped entonox	2,149	2,348	2,357	+9.6
Portable entonox	282	260	267	-5.3
Total	4,113	3,985	4,023	-2.2

- *What did we do last year to reduce emissions from anaesthetic gases?*
 - NHS Grampian's Anaesthetic Department discontinued the use of desflurane and continued to promote the use of low flow anaesthesia. They also began the process of decommissioning nitrous oxide manifolds and replacing them with cylinders or anaesthetic machines in appropriate areas.
- *What are we doing this year to reduce emissions from anaesthetic gases?*
 - Nitrous oxide pipelines will have been fully decommissioned at all hospital sites.
- *What else did we do last year to make surgery more sustainable?*
 - A local multidisciplinary and multispecialty working group was set up (Net Zero Theatre Group) to facilitate local engagement. We trialled the use of a grey water surgical suction system in urology theatres.

- *What are we doing this year to make surgery more sustainable?*
 - We continue to work on implementing the recommendations of the National Green Theatres Programme, in particular, engineering solutions to out of hours turn off of AGSS and HVAC systems.

9. Respiratory medicine

Greenhouse gases are used as a propellant in metered dose inhalers used to treat asthma and COPD. Most of the emissions from inhalers are from the use of reliever inhalers – Short Acting Beta Agonists (SABAs). By helping people to manage their condition more effectively, we can improve patient care and reduce emissions.

There are also more environmentally friendly inhalers such as dry powder inhalers which can be used where clinically appropriate.

We estimate that emissions from inhalers in NHS Grampian were 6,441.89 tonnes of CO₂e.

Inhaler propellant emissions, 2018/19, 2021/22, 2022/23 – tCO₂e

Source	2018/19 (baseline year)	2021/22	2022/23	Percentage change 2018/19 to 2022/23
Primary care	5,996.43	5,992.15	6,320.32	+5.4
Secondary care	117.17	103.61	121.57	+3.7
Total	6,113.6	6,095.76	6,441.89	+5.4

- *What did we do last year to reduce emissions from inhalers?*

Within NHS Grampian MDI emissions reduction is being led by our Respiratory Managed Clinical Network, with the NHS Grampian formulary group addressing prescribing policy for these various products and green choices. We are ensuring – in line with Realistic Medicine principles that we are prescribing the right device for the patient that provides compliance and manages their condition.

In the last year, the Respiratory MCN has continued to review inhaled therapies on a regular basis. We reviewed our prescribing guidance for COPD and Asthma at the beginning 2023 and developed and rolled out our greener toolkit for staff to aid discussion and support shared decision making. The toolkit hyperlinks to our prescribing guidance for COPD and Asthma and is also available on the respiratory section of Grampian Guidance.

NHS Grampian has supported the work of the Scottish Respiratory Pharmacist Specialist Interest Group which has been addressing Short-Acting Beta Agonists (SABA) overuse. The group has developed an information leaflet for patients re this issue. This is currently being subject to a peer review process.

- *What are we doing this year to improve patient care and reduce emissions from inhalers?*

We will be reviewing the guidance again at the beginning of this year where we will insert a traffic light system re the carbon footprint of inhaled therapies. The Respiratory MCN will also be addressing SABA overuse, encouraging/advising GP's and other healthcare professionals to review patients who have been prescribed > 3 SABA MDIs per year.

More broadly we will be looking to add our voice to encouraging national initiatives. For example, Boots Pharmacy are no longer supplying the Ventolin brand of salbutamol MDI due to its higher carbon footprint, they will now supply salamol or equivalent when fulfilling prescriptions. Encouraging such a move in other pharmacy multiples or independent pharmacies could be important contributions to achieving net zero. We would also seek to encourage the adoption on a national inhaler recycling scheme within NHS Scotland and would be interested in exploring a pilot scheme.

- *What else did we do last year to make care more sustainable?*

In addition to supporting national initiatives – such as creating our Green Theatre Programme – we have been encouraging local service area approaches through our quality improvement processes. These are currently being collated through a Delivery Data Base which can be used to support scaling approaches up to system-wide initiative.

- *What else are we doing this year to make care more sustainable?*

Taking a lead from the Respiratory MCN we have been exploring the potential to include further climate adaptation themes into the work of our other MCNs. An exploration of how we could “green” our immunisation services has also been proposed.

10. Travel and transport

Domestic transport (not including international aviation and shipping) produced 26% of Scotland's greenhouse gas emissions in 2021. Car travel is the type of travel which contributes the most to those emissions.

NHS Scotland is supporting a shift to a healthier and more sustainable transport system where active travel and public transport are prioritised.

- *What did we do last year to reduce the need to travel?*
 - In 2023/24, we had in place for the first six months of the year, the Sustrans Workplace Engagement Officer post, which was integral to NHS Grampian progressing active travel work.
 - We continue to promote the GetAbout branding, to encourage less reliance on cars and more active travel.
 - We worked with TravelKnowHow to develop a draft Active Travel Framework, and a draft Foresterhill Active Travel Plan.

- *What did we do last year to improve active travel?*
 - Our Sustrans Workplace Embedded Officer undertook several health behaviour change initiatives and promotion to encourage staff to cycle more, including Dr Bike sessions, and some lead rides.
 - We began linking in with the Big Issue bike scheme run by Aberdeen City Council, to investigate potential locations on the Foresterhill site for Big Issue bikes to be located.
 - We continued to work collaboratively with Aberdeen City Council on their LOIP actions around walking and cycling and contributing to wider sustainability work.
 - Through the Sustrans post, we continued to improve cycle storage infrastructure at our key sites.
 - We ran our annual Paths for All Winter Step Challenge for four weeks from mid-January until mid-February 2024, which attracted over 350 teams, and this year we worked with St Andrew's and Stirling Universities to undertake research into the challenge. Over 500 staff took part in the research, and we await the outcome of this, which will inform future work.

- *What did we do last year to improve public and community transport links to NHS sites and services?*
 - Up to March 2023, the Grampian Health & Transport Action Plan (HTAP) group have progressed work on an NHS Grampian Active Travel Framework in conjunction with TravelKnowHow, and with consultants within Public Health. The Foresterhill Action Plan was also developed through this process and is now with NHS Grampian's Transport Overview Group for consideration. Active travel is also part of the Health Improvement Plan within Public Health.
 - Throughout the year HTAP partners have facilitated circulation and responses to consultations on transport corridors and specific projects, such as the Sustrans project looking to improve active travel routes along Ashgrove Road next to the Foresterhill Health Campus in Aberdeen. Ashgrove Connects has now been awarded funding for the Design Stages from the Sustrans/Transport Scotland Places for Everyone programme.
 - As part of partnership work with Aberdeen City Community Planning Partnership, Local Outcome Improvement Plan, Nestrans is leading on two project charters promoting walking and cycling. These charters involve implementing small test of changes to see if they make an impact. A recent walking project which was raised by a member of the local community was to install more park benches from the city centre up to Foresterhill Health Campus.
 - This is to encourage people to make more walking journeys between Foresterhill Health Campus and Aberdeen city centre.
 - Nine benches have been installed on Westburn Road and Hutcheon Street (a hilly corridor) to allow pedestrians to rest when required – targeting those who have previously been discouraged from walking between the hospital and city centre.
 - A student from University of Aberdeen on placement with NHS Grampian worked with HTAP partners to produce a research paper on how transportation affects healthcare access, focussing on access to healthcare

services for residents in the Banff & Buchan areas. It investigated how hospital administrators schedule appointments, the factors considered and other health boards' strategies to overcome transportation barriers and reduce missed appointments.

- The Travel to Health & Social Care Information Centre (THInC) has continued to be funded by NHS Grampian, Nestrans, Aberdeenshire Council and Aberdeen City Council. This project is staffed by colleagues at Aberdeenshire Council's Passenger Transport Unit who offer advice and liaise with community transport providers, whenever possible, to coordinate transport for health and social care appointments.
- *What are we going to do this year to reduce the need to travel?*
 - We will continue to promote alternatives to car travel to our staff, patients and visitors.
 - We will ratify the draft Active Travel Framework, and a draft Foresterhill Active Travel Plan, and use this plan as a basis to develop Active Travel Plans for other key sites.
- *What are we going to do this year to improve active travel?*
 - We will continue to promote active travel as an alternative to car travel where possible, and to increase the physical activity and wellbeing of our staff, through promotion of walking, cycling and wheeling.
 - We will undertake the annual step challenge and using the learning from the research with St Andrew's and Stirling universities, improve our health behaviour approaches.
 - While we no longer have a dedicated Workplace Engagement Officer in post, we will utilise some existing staff time to work on key active priorities.
 - We will continue to work in partnership with Aberdeen City Council on LOIP stretch aims on Walking, Cycling and Wheeling, with NHS Grampian leading on the "Walking" outcome.
 - We will investigate undertaking a staff travel audit, using the Sustrans model as a basis.
- *What are we going to do this year to improve public and community transport links to NHS sites and services?*
 - NHS Grampian is looking at maintaining the following areas:
 - Sharing campaigns
 - Giving patients travel advice through joint funding of THInC
 - Delivery of volunteer transport awards
 - Contributions to strategies and consultations
 - Continue dialogue with health, social care and transport providers (Scottish Ambulance Service, Community Transport, Local Authority Transport and Commercial Transport)
 - Include Public Health input to relevant transport groups.
 - The health board will develop the following areas:
 - Social prescribing
 - Joint training capturing lived experience
 - Maximise opportunities relating to improving infrastructure and planning of EV charging stations regionally

- Build an understanding of how technology changes demand for face-to-face appointments in the long term
- As an anchor organisation, we will seek to influence on:
 - Mobilising individual and collective expertise to strategically influence local and national policy
 - Funding and data sharing between partners relating to health and transport relevant issues (including access poverty, mobility poverty, health inequalities and access to health and social care services)

We are working to remove all petrol and diesel fuelled cars from our fleet by 2025.

The following table sets out how many renewable powered and fossil fuel vehicles were in NHS Grampian fleet at the end of March 2022 and March 2023:

	March 2022		March 2023		Difference in % Zero Emissions Vehicles
	Total vehicles	% Zero Emissions Vehicles	Total vehicles	% Zero Emissions Vehicles	
Cars	181	2.8% (5)	173	2.9% (5)	0
Light commercial vehicles	127	4.1% (5)	119	5.9% (7)	+1.8
Heavy vehicles	13	0	13	0	0

The following table sets out how many bicycles and eBikes were in NHS Grampian's fleet at the end of March 2022 and March 2023:

	March 2022	March 2023	Percentage change
Bicycles	0	0	0
eBikes	31	31	0

11. Greenspace and biodiversity

Biodiversity

Biodiversity, or the wide variety of living organisms within an environment, has declined at a rapid rate in the last 50 years. Evidence demonstrates that these trends are attributed to human activities, such as land use change, habitat degradation and fragmentation, pollution, and the impacts of climate change. The State of Nature report published in 2023 has highlighted the decline of nature across Scotland, with 11% of species now classed as threatened with extinction.

Public bodies in Scotland have a duty under the Nature Conservation (Scotland) Act 2004 ([Nature Conservation Scotland Act 2004](#)) to further the conservation of biodiversity, taking care of nature all around us. Furthermore, the Wildlife and Natural Environment (Scotland) Act 2011 ([Wildlife and Natural Environment Scotland Act 2011](#)) requires every public body to summarise their activities to meet this duty, through the production of a publicly available report.

- *What actions have been taken to identify, protect and enhance biodiversity across your organisation?*

NHS Grampian is working to establish its first biodiversity strategy and action plan. Through stakeholder mapping, the key themes and associated actions that will deliver the biggest benefits to biodiversity across our estate have been identified. These include:

- Collating the information:
 - Review the greenspaces within our remit to create an overarching picture of the responsibilities NHS Grampian has, as well as the contributions we can make at the landscape scale
 - Create a register of trees, regionally important species and invasive species which have been found within the estate
 - Managing greenspaces for biodiversity:
 - Reduce herbicides that are routinely applied to the landscape
 - Increase the amount of leaf litter to remain on sites
 - Reduce mowing frequency
 - Create quick-win micro habitats that will increase the suitability of an area for wildlife
 - Allow deadwood to remain in place on site, permitted there is no risk posed to human safety
 - Mapping the opportunities:
 - Identify areas that will best support the increase in canopy cover for both climate change adaptation and biodiversity propagation
 - Identify the opportunities to improve habitat connectivity for pollinators
 - Map the green infrastructure opportunities that will support nature-based solutions, such as living walls and SuDS
 - Increase education and engagement between people and nature through tools, such as high-quality signage, promoting partnerships, and holding NHS Grampian based biodiversity events
- *What actions have been taken to contribute to the NHS Scotland Estate Mapping programme, or to develop an internal mapping programme?*

We have submitted a list of all NHS Grampian owned properties to Public Health Scotland (PHS), who will provide us with a map of our greenspaces. In time, we will add in layers of habitat data to help us visually monitor progress.

- *What actions have been taken mainstream biodiversity across the organisation?*

NHS Grampian's newly published Climate Emergency & Sustainability Strategy: Reimagining the Health Service for People & Planet 2023-2028 highlights the integral role biodiversity and greenspaces have in placemaking and planetary health. We plan to increase the amount of quality greenspaces within our estate and promote the restoration of areas deficient in ecological quality through habitat creation, as well as changes to landscape management.

Additionally, the health board liaises with PHS on biodiversity components to health. This leads to better-informed social prescribing systems and allows wider engagement between NHS Grampian communities and biodiversity.

- *How have nature-based solutions been utilised to address the climate and biodiversity emergencies?*

We have developed an overviewing typology of green infrastructure for NHS Grampian, to make planners and capital projects aware of the benefits and necessity they bring over traditional grey infrastructure. We aim to ensure this becomes embedded in future capital project design.

- *What actions have been undertaken to raise awareness, engagement and understanding of biodiversity and nature?*

NHS Grampian participated in No Mow May this year, an international movement which sees land managers refrain from cutting or mowing grass in the month of May. This allowed grasses to grow longer and flower, meaning that pollinator species can emerge from hibernation to complete their life cycles, and act as food for other species. To raise awareness of our contributions as well as encourage adoption of similar practices at home, we used NHS Grampian communication channels (Daily Brief, social media, hospital display screens) to disseminate promotional materials.

- *What surveys, monitoring or assessment of biodiversity have been undertaken? If you have – have systems been developed to continue monitoring long-term?*

External company Envirocentre carried out four ecological and environmental appraisals, one for each of NHS Grampian's major acute hospital sites. We are incorporating the findings and recommendations from these into our biodiversity action plan.

Greenspace

The design and management of the NHS Scotland green estate for human and planetary health, offers an opportunity to deliver a range of mutually beneficial outcomes. These include action on climate change (both mitigation and adaptation), biodiversity, health and wellbeing for patients and staff, community resilience building and active travel.

The table below outlines any key greenspace projects and their benefits.

Project name/ location	Benefits of project	Details of project
Nature Garden, Foresterhill	<p>Enhancement of biodiversity on Foresterhill</p> <p>Improved visitor and staff experience by way of introducing a viable walking path between the Royal Aberdeen Children's Hospital and the Radiotherapy Centre. Provision of seating (i.e. benches) mean people of all mobility types can spend time outdoors without worry of growing too weary halfway. This equally incentivises active travel, improving health and reducing CO₂ emissions.</p> <p>Maximising opportunity for land to be used as local amenity, as well as a healing landscape that complements the buildings around it. Increases the bond between the public nature.</p>	<p>Project is being co-funded by NHS Grampian Charity, Starbucks, and the Endowments Fund.</p> <p>This project will see the transformation of an area of greenspace which has low quality biodiversity and poor amenity space, into an ecological haven for struggling pollinator species. The area lies central within our largest acute hospital site (Foresterhill). Through the project, we will hold participation events to increase visitor and staff engagement with hospital grounds as well as local wildlife.</p> <p>Hard infrastructure works is expected to commence in winter of 2023-2024 the aim of this area to be open to the public by late summer 2024.</p>
Blackbird Walk, Foresterhill	<p>Improved connectivity and experience for pedestrians and those engaging in active travel.</p> <p>Increased habitat and connectivity for dwindling pollinator species, such as bees and butterflies.</p>	<p>This project saw 1.3 hectares of amenity grassland replanted with pollinator-friendly and wet meadow wildflower mixes, to improve habitat for dwindling pollinator numbers. The path, signs, and planting for this were all completed in early 2023.</p>
Greenspace Project	<p>Increased tree and scrub planting will result in enhancement of ecological value on site</p>	

12. Sustainable procurement, circular economy and waste

Earth Overshoot Day marks the date when our demand for resources exceeds what earth can regenerate in that year. In 2023, Global Earth Overshoot Day is 2nd August.

For the UK, the picture is more worrying. In 2023, the UK's Earth Overshoot Day is 19th May. The current level of consumption of materials is not sustainable and is the root cause of the triple planetary crises of climate change, biodiversity loss and pollution.

We aim to reduce the impact that our use of resources has on the environment through adopting circular economy principles, fostering a culture of stewardship and working with other UK health services to maximise our contribution to reducing supply chain emissions to net-zero by 2045.

- *What did we do last year to reduce the environmental impact of the goods and services we buy?*

NHS Grampian ensure that procurement activities are contributing to climate change duties and are represented on the NHS Scotland Sustainable Procurement Steering Group which is the oversight group for sustainable procurement activity. NHS National Procurement have recruited a Climate Change and Circular Economy Lead who is leading on implementation of the requirement for suppliers to submit climate action plans from next year.

NHS Grampian purchases through the National Distribution Centre (NDC) have a significant impact on reduction of environmental impacts, rather than multiple suppliers delivering to site, these are consolidated through the NDC and delivered on the scheduled days. We also have agreements with local suppliers, (eg.TPS and Lyreco) to minimise the number of deliveries on the site by having a single depository rather than multiple deliveries a week. NHS Grampian procurement service staff have undertaken the Scottish Government Sustainable Procurement e-learning which outlines the key principles, tools, techniques, and guidance available to support sustainable public procurement. External accreditation is encouraged where possible through specification.

- *What are we doing this year to reduce the environmental impact of the goods and services we buy?*

We want to reduce the amount of waste we produce and increase how much of it is recycled.

The table below sets out information on the waste we produce and its destination for the last three years:

Type	2020/21 (tonnes)	2021/22 (tonnes)	2022/23 (tonnes)	Percentage change
Waste to landfill	132	45	16.1	-88
Waste to incineration	65	1,518	1,792	+2,657

Recycled waste	993	1,048.51	1,025.49	+3
Food waste	222	184.2	141.79	-36
Clinical waste	1,958	1,683.21	1,799.21	-8

We have set targets to reduce the amount of waste we produce, and the tables below provide information on our performance against those targets:

Reduce domestic waste by a minimum of 15%, and greater where possible compared to 2012/2013 – by 2025	
Target – reduce domestic waste by	3,800 tonnes (against baseline)
Performance – domestic waste reduced by	3,100 tonnes
Outcome	ACHIEVED – Reduced by 27.7% (against baseline)
Further reduction required	None

Ensure that no more than 5%, and less where possible, of all domestic waste is sent to landfill – by 2025

Target – reduce waste sent to landfill by	1,800 tonnes (for 22/23)
Performance – waste sent to landfill reduced by	16.1 tonnes sent to landfill (0.9% waste sent to landfill)
Outcome	ACHIEVED
Further reduction required	None

Reduce the food waste produced by 33% compared to 2015/16 – by 2025

Target – reduce food waste by	197 tonnes (for 22/23)
Performance – food waste reduced by	143 tonnes
Outcome	ACHIEVED – Reduced by 57.7% (against baseline)
Further reduction required	None

Ensure that 70% of all domestic waste is recycled or composted – by 2025

Target – recycle or compost	61% against baseline
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Performance – recycled or composted	44%
Outcome	NOT ACHIEVED
Further increase required	26% increase required to meet target

- *What did we do last year to reduce our waste?*

Board wide waste reduction charter to improve segregation and streaming at source.

- *What are we doing this year to reduce our waste?*

Continued improvement in waste avoidance through re-use of equipment and circular economy options. Continued improvement in the reduction of food waste.

13. Environmental stewardship

Environmental stewardship means acting as a steward, or caretaker, of the environment and taking responsibility for the actions which affect our shared environmental quality.

This includes any activities which may adversely impact on land, air and water, either through the unsustainable use of resources or the generation of waste and pollution. Having an Environmental Management System (EMS) in place provides a framework that helps to achieve our environmental goals through consistent review, evaluation, and improvement of our environmental performance.

- *What steps did we take last year to develop and implement our EMS?*

In March 2023, NHS Grampian hired two new members of staff to the Sustainability, Compliance, and Risk team as the custodians of NHS Grampian’s developing EMS. A route map was produced to aid in monitoring performance. The legal register has been assessed for legislation relevant to our health board, and the key players (department heads) responsible for reviewing the compliance status of each piece are being identified. There are several areas for which we are known to be non-compliant, and discussions are being held with senior management to guide progress. As each department is different and has different contexts to review legislation, this is expected to be a lengthy process. Regular meetings with statutory bodies, such as SEPA, have been initiated to aid us in this process.

- *What did we do last year to improve our environmental performance?*

The health board has significantly reduced the volume of promotional materials from PHS being distributed to all NHS Grampian hospitals and GP offices, encouraging the use of resources available online. This is likely to reduce the energy and resources needed to produce them as well as that to process them at the end of their life cycle.

- *What steps will we take this year to further develop and implement our EMS?*

We will continue to consult with colleagues and external statutory consultants to help us identify NHS Grampian's legislative responsibilities and ensure environmental compliance. Through senior management and NHS Grampian's Compliance group, we will present an overview of the EMS, its importance, and act as knowledge facilitators between SEPA and these departments to ensure guidance is disseminated appropriately. We will publish an Environmental Policy Statement to contextualise the overall scope for our organisation. On further understanding of our legislative duties and our compliance status, we will work with senior management departmental heads to set targets for NHS Grampian so that performance/compliance is monitored.

- *What are we doing this year to improve our environmental performance?*

Given the high percentage of emissions arising from conventional fuels and infrastructure within our estate, we are investigating the potential for hydro-treated vegetable oil to replace diesel in generators, as this will reduce emissions without calling for new infrastructure. We also expect to direct focus to deep geothermal as an alternative fuel source in the future.

14. Sustainable construction

Where there is a need for new healthcare facilities, we want both the buildings and grounds to be safe, nature-rich, sustainable, resilient, and accessible. NHS Grampian is working on the following building projects:

- Baird Family Hospital
- Anchor Unit
- Integrated Mortuary Project

- *What did we do last year to make our construction projects more environmentally sustainable?*

- Rothieden Ward Refurbishment, Huntly

The ward is being upgraded and as part of the project, we have replaced the existing slate roof and installed solar PV panels. We have also replaced and upgraded the roof space insulation.

- EV Charging Points

NHS Grampian have engaged with local supply chain partners including designers and contractors to procure and install EV charging points at four locations across the region. We are continuing to develop our pipeline of future projects with designs in hand for a further four locations when funding becomes available.

- Foresterhill Health Campus, Greenspace

Our greenspace project adjacent to our new Integrated Mortuary has continued and will be complete by end of April 2024. This area will provide space for patients, staff and visitors to enjoy the outdoors, also providing more accessible footpath routes through the Foresterhill Health Campus estate from local bus routes.

- *What are doing this year to make our construction projects more environmentally sustainable?*

With very limited funding being available this financial year we will be continuing to look at opportunities to install net zero carbon technologies and improve the performance of our buildings existing fabric, including doors/windows, wall/ceiling insulation and air tightness.

We are also investing in the ongoing utilisation of Thermal Dynamic Modelling software (ies) and thermal imaging equipment on projects of size and value that merit it to improve our energy efficiency and reduce our carbon footprint.

NHS Grampian is taking the initiative to establish a more sustainable environment for capital and non-capital projects. Our Decarbonisation Manager has been focussing on establishing sustainable concepts into the core values of our organisation's culture.

- As part of our renewed medium-term contract agreement, the Sustainable Design and Construction (SDaC) will engage with contractors and sub-contractors throughout the years. This collaboration is integral to the successful execution of our contractual obligations and the achievement of our organisational goals as per the Policy for NHS Scotland on the Climate Emergency and Sustainable Development (DL (2021) 38).
- Participation in the National Team of Green Theatres is an opportunity to reduce emissions by integrating innovative technologies. One such technology is the application of Surgical Fluid Suction Systems. Additionally, we will be closely collaborating with the IPCT department to investigate the possibility of implementing more efficient practices, such as deactivating the air-handling unit during non-operational hours. This concerted effort will significantly reduce our carbon footprint and demonstrate our commitment to environmental stewardship.
- The decommissioning of the N₂O pipe system represents a significant accomplishment for our organisation in 2024. The Estates and Pharmacy teams will introduce an aggressive order tracking system to further reduce emissions from this gas. This initiative will assure our organisation that we are effectively minimising the impact of N₂O on the environment.
- We are working with SEPA and discussing the inclusion of hydrotreated vegetable oil (HVO) as a generator fuel in the forthcoming mortuary project at NHS Grampian. If this is approved, it is set to make history as the first fully electric building to incorporate this fuel. This landmark innovation reflects the ongoing trend of integrating sustainable and eco-friendly technologies into the new building sector. By utilising HVO in its backup generators, the resulting reduction of CO₂ emissions (by up to 90%) makes this a laudable and practical solution to mitigate the carbon footprint of the occupant buildings. This advancement is expected to bolster the industry's sustainability performance, promote similar green initiatives in the future, and align with NHS Grampian's commitment to adopting environmentally conscious practices.

- Under extant legislation governing the Environmental Management System (EMS), Estates is poised to develop an F-Gas Register, fulfilling its legal obligations. This accomplishment reflects the organisations unwavering commitment to regulatory compliance and environmentally conscientious operations. The purpose of the F-Gas Register is to prove an exhaustive record of all fluorinated gases used on the premises, including their quantities, uses and locations. Through this, Estates will be able to monitor and manage the use of these gases, thereby reducing their impact on the environment and ensuring compliance with the law.

15. Sustainable communities

The climate emergency undermines the foundations of good health and deepens inequalities for our most deprived communities.

The NHS touches every community in Scotland. We have a responsibility to use our abilities as a large employer, a major buyer, and one of the most recognised brands in the world – an ‘anchor’ organisation – to protect and support our communities’ health in every way that we can.

- *What are we doing to act as an anchor institution for our local community / communities (delete as appropriate)?*

Being an anchor institution is to be a good neighbour, employer and consumer, rooted in our communities. We want to ensure our actions as an organisation are intentionally working to improve population health rather than unintentionally worsen population health and increasing health inequalities.

We are working through each of the anchors pillars (employment, procurement and land and assets) to ensure the money we spend, the people we employ, and our assets maximally benefit the local community. This might look like more good quality jobs for local people, spending more of our budget locally rather than procuring goods and services from further afield and considering best use of our land and buildings for population health benefit. Environmental sustainability is a pillar within anchors but weaves through all anchors activity, as it is through the delivery of the other pillars that we will realise our environmental sustainability ambitions.

At a high level, any anchors work that contributes to preventing ill health (e.g. through quality employment) reduces demand on our services, reducing our environmental impact. At a more operational level, employing local people and purchasing local goods reduces the miles being travelled, reducing our emissions. The Scottish Capital Investment Manual supports us to embed environmental sustainability practices in the development of new buildings but an anchors mind set in the disposal of assets allows us to reduce our impact through re-purposing where possible (ourselves or in partnership e.g. community asset transfer) rather than demolishing our facilities.

In the past year, we have been working in partnership with Local Authority colleagues to progress local procurement opportunities to increase our local spend, we have provided new jobs for local people through the Anchor and Baird construction projects and are supporting a community asset transfer.

We are currently developing our anchors strategic work plan with specific actions for each pillar and environmental sustainability will be embedded within the pillars rather than existing as a siloed work stream. This aligns with the organisational ambition to make environmental sustainability part of everyone's role

- *What are we doing to improve the resilience of our local community / communities (delete as appropriate) to climate change?*

NHS Grampian is an active member of the Grampian Local Resilience Partnership and has direct membership within the Local Resilience Partnerships in Aberdeen City, Aberdeenshire, and Moray alongside the three health and social care partnerships. Through these arrangements, we take part of the local, regional, and national exercises which help build local resilience to a range of civil contingencies, including those associated with severe weather events due to climate change. More broadly, NHS Grampian has worked with its partners in responding to the Building Scotland: Building Community Resilience guidance issued by Scottish Government. Examples of our work in building resilient communities include:

- supporting local community resilience conferences (last one held by Aberdeenshire & City Council in October 2023);
- share helpful information and guidance on our social media re: winter preparedness and home safety kits etc.;
- share weather warnings & flood alerts on our social media pages with relevant advice and guidance;
- educate our staff re: personal (home) resilience as a foundation to work resilience; and in
- making our community risk register available to NHS Grampian staff to help build awareness of home risk; finally, we routinely
- engage with patients who use home devices that are reliant on power to share information on power resilience and signposting to the SSEN priority register.

Within the NHS Grampian Climate Emergency and Environmental Sustainability Strategy we have clearly identified the role of NHS Grampian to work as part of the three community planning partnerships across Grampian in developing community resilience to climate change. Specific examples of these arrangements in practice include:

1. The leadership provided by NHS Grampian Public Health staff in relation to the Aberdeen City Sustainable City Group which operates as part of the Community Planning Aberdeen arrangements and contributes to the Aberdeen City LOIP;
2. Providing expert public health input to both Aberdeenshire's and Aberdeen City's revised Local Development Planning guidance in relation to climate change, sustainability, and human health impacts; and
3. Supporting the development of sustainability and climate adaptation in the three Grampian IJB's.

16. Conclusion

NHS Grampian's publication of the Climate Emergency & Sustainability Strategy (2023-28) marks a significant milestone in recognising the urgent nature of the climate emergency, and the integral role the healthcare system plays in delivering sustainability. Acknowledging both moral obligations to the local community in Grampian and the global contribution it can make, the strategy reflects a holistic commitment to fostering a sustainable healthcare model. By recognising the importance of sustainability at every level of our organisation, NHS Grampian is poised to foster a culture that integrates sustainable and environmental considerations into daily operations. The commitment to effective leadership in sustainability signifies an understanding of the need for coordinated efforts to address the climate emergency.

The health board faces a formidable challenge in lowering emissions and achieving net zero. One of the primary obstacles is the cost associated with transitioning to renewable energy sources and implementing sustainable practices across various sectors. Additionally, we have the difficulties of aging infrastructure which is ill-equipped to handle current and projected climatic conditions. Climate change poses unprecedented threats, including extreme weather events, rising temperatures, and altered precipitation patterns, all of which can strain infrastructure built for different climatic norms. This issue is multifaceted, requiring a comprehensive approach. Developing and deploying clean technologies and adapting to changing climate conditions demand substantial investments. Overcoming these challenges requires a combination of collaboration with partners and stakeholders, targeted financial support, and policy frameworks that prioritise feasibility and affordability in the pursuit of a sustainable, net zero future.

In the coming year, NHS Grampian will continue with the following projects:

- Programmes around the integration of EV infrastructure on our sites (EV charging stations will be installed around our Central Stores/Warehouse Complex and are progressing at other community sites)
- Implementing behavioural change to foster more sustainable practices
 - o Learning modules are being developed
 - o Cultivation of our Sustainability Champions network to increase the number of champions within clinical settings – particularly those within the nursing workforce
 - o Ongoing communication and support for staff at all levels, and the introduction of the Green Star Award in recognition of sustainability projects and practices from individuals/groups in the organisation – motivating our workforce to be conscious of their practices in their professional roles.
- Encouraging staff, visitors and the local community to embrace active travel, which not only promotes individual health and wellbeing, but also contributes to broader sustainability goals.

New projects for the coming year include:

- Ratifying and pursuing the action plans that complement the Heat & Power Strategy for the health board. This will look at optimising heat and power usage, recognising the critical role energy efficiency plays in our overall sustainability goals. The action plan strives to implement best practices and innovative technologies to minimise energy consumption across our facilities.

- The action plan is extensive and proactive, allowing us to improve heat and power usage, emphasising sustainability, community engagement, and the exploration of innovative solutions for a greener healthcare infrastructure
- The development of a biodiversity strategy to address ecological concerns on our sites. This strategy aims to formalise an action plan that not only preserves and enhances biodiversity but also recognises the intricate connection between a healthy environment and public health.
 - It will be a comprehensive roadmap to guide initiatives aimed at preserving and enhancing biodiversity - articulation a clear vision and mission, outlining the organisation's commitment to safeguarding diverse plant and animal species, ecosystems, and genetic diversity.
 - We aim to go beyond conservation efforts by incorporating a healthcare dimension, emphasising the preventive and therapeutic potential of nature. Through this dual approach of biodiversity conservation and healthcare promotion, the strategy aligns environmental and public health goals, creating a sustainable framework for a healthier and more resilient future.