



HSE Climate Action Strategy

2023 – 2050

Vision

“The HSE is committed to achieving net-zero emissions no later than 2050, delivering healthcare which is environmentally and socially sustainable.”

Table of Contents

Vision	2
Abbreviations	4
Foreword	5
Executive Summary	6
1. Introduction	9
2. Our Priority Areas of Focus	12
3. Strategy Implementation – Delivery Issues	34
4. Conclusion	38
5. Bibliography	39
Appendix A – Overview of Alignment with UN Sustainable Development Goals	42
Appendix B – How the Strategy was Developed	44
Appendix C – Definitions and Glossary of Terms	46
Appendix D – Drivers of Change	48
Appendix E – Drivers of Emissions in Healthcare	53
Appendix F – Climate Adaptation Plan Actions for the Health Sector	56
Appendix G – DRAFT Outline of Measurement and Assurance Approach	58

List of Tables

Table 1: An Overview of Our Priority Areas of Focus	6
Table 2: Sustainable Buildings Strategic Objective and Key Next Steps	18
Table 3: Green Environments Strategic Objective and Key Next Steps	19
Table 4: Transport and Mobility Strategic Objectives and Key Next Steps	21
Table 5: Sustainable Procurement Strategic Objectives and Key Next Steps	24
Table 6: Greener Models of Healthcare Strategic Objective and Key Next Steps	27
Table 7: Waste Management Strategic Objective and Key Next Steps	30
Table 8: Water Management Strategic Objective and Key Next Steps	31
Table 9: Adaptation and Resilience Strategic Objective and Key Next Steps	33
Table 10: Overview of Alignment with UN SDGs	42
Table 11: Workstream High-Level Scope of Works	44
Table 12: Definitions and Glossary of Terms	46
Table 13: National Drivers of Change	48
Table 14: EU and International Drivers of Change	50
Table 15: HSE Policies and Strategies	51
Table 16: An Overview of Drivers of Emissions in Healthcare	53
Table 17: Climate Change Sectoral Adaptation Plan Priority Areas and High-Impact Actions	56
Table 18: DRAFT Outline of Measurement and Assurance Approach	58

List of Figures

Figure 1: Our Six Priority Areas of Focus	12
Figure 2: Overview of total measured Scope 1 and Scope 2 emissions 2020	17
Figure 3: Healthcare Without Harm global emissions by supply chain categories	23
Figure 4: Proposed Climate Action Implementation Governance Structure	35
Figure 5: Climate Action Strategy Governance Structure	44

Abbreviations

ARC	Audit and Risk Committee
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
COP26	26th Conference of Parties
EED	Energy Efficient Design
EU	European Union
EV	Electric Vehicle
GHG	Greenhouse Gas
HSE	Health Service Executive
MDI	Metered-Dose Inhaler
N ₂ O	Nitrous Oxide
NHS	National Health Service
OGP	Office of Government Procurement
PPE	Personal Protective Equipment
SBTi	Science-based Target initiative
SDGs	Sustainable Development Goals
SEAI	Sustainable Energy Authority of Ireland
SEUs	Significant Energy Users
SO	Strategic Objective
TZC	Towards Zero Carbon
UN	United Nations
UV	Ultraviolet
VTEC	Verocytotoxin-producing Escherichia coli

Foreword

The Health Service Executive (HSE) recognises that it has a significant role to play in tackling the climate crisis by dealing with the growing health impacts of climate change and curbing its own emissions. The healthcare sector is a notable contributor to global greenhouse gas (GHG) emissions (est. 5- 15%)^{1,2} and one of the sectors at the forefront of supporting human health adapt to the impacts of climate change.

As Ireland's largest Public Body with a core objective to *"use the resources available to it...to improve, promote and protect the health and welfare of the public"*,³ we have a duty to address climate change. This can be achieved by building and further focusing on reducing our carbon emissions, promoting low-carbon and sustainable solutions which limit pollution, helping to reverse biodiversity loss, and supporting, and protecting the health and wellbeing of future generations which includes adapting to the impacts of climate change.

This Climate Action Strategy outlines our ambitions, actions, and goals to accelerate change. It addresses our mandated priorities in the Government's Climate Action Plan focused on energy efficiency. However, it also looks to move beyond this, by showing leadership and commitment to integrate sustainable actions and principles across areas such as buildings, green space development, transport, greener models of healthcare, procurement and more. Sustainability considerations will be core to our future decisions and embedded into our everyday ways of working and culture.

Delivering our Strategy requires urgent, collaborative, and ongoing action working together with our staff, Public Sector colleagues, patients, partners, and communities who will play a critical role to reduce our collective contribution to GHG emissions. We want to support and promote a positive cultural change making sustainability part of day-to-day work, motivated by the strong alignment between caring for the health of the environment with caring for the health of patients.

This Strategy represents a step-change in intent on climate change and sustainability and will be supported by additional resources to advance implementation. It critically seeks to build on the existing progress within the HSE, including the already established Capital and Estates Climate Action & Sustainability Office, and the Energy Teams in place across the country, together with the work of the HSE Health and Wellbeing Team and of the HSE Global Health Programme, and the many other examples of local action and leadership shown to date.

To be successful, we will continue to learn from best practice internally, nationally, and internationally, through collaboration with our staff, partners, and colleagues. To capture this from inception, this Strategy has been developed in a consultative manner with a range of internal and external stakeholders, reflecting a wide variety of viewpoints as we strive towards a future healthcare service that is more socially and environmentally sustainable. This Strategy will be promptly followed by a detailed implementation plan to support the efficient and timely delivery of our ambition.

As we deliver our Strategy, we will measure and report on key metrics, internal benchmarks and set targets to continually improve our performance. We will also review our Strategy annually and update, where necessary, as additional guidance and policy information becomes available, carbon hotspots are identified and when specific targets are made more granular and timebound.

Mr. Dean Sullivan
Chief Strategy Officer

1 World Bank, *Climate-Smart Healthcare: Low-Carbon and Resilience Strategies for the Health Sector* (2017).

2 Healthcare Without Harm, *Global Roadmap for Health Care Decarbonisation: A navigational tool for achieving zero emissions with climate resilience and health equity*, Green Paper 2 (2021).

3 Government of Ireland, *Health Act*. (2004)

Executive Summary

The Health Service Executive (HSE) *Climate Action Strategy 2023 – 2050* (the “Strategy”) responds to and outlines a broader approach to the actions and targets set out in the Government's Climate Action Plan, and the Climate Action and Low Carbon Development Act (Amendment) 2021. The Strategy is intended to provide readers with a clear Climate Action Roadmap which outlines how the HSE intends to put Ireland on a more sustainable path, cut emissions, create a healthier, cleaner, and greener society, and help protect and prepare the population from the health consequences of climate change. To do this, the HSE will reduce Scope 1 and 2 emissions as per the Climate Action Plan 2021, while also reviewing and addressing Scope 3 emissions (including services, procurement, and others). Climate adaptation measures will also remain a focus, prioritising disease prevention, health promotion and public health services.

Globally, the period from 2011 to 2020 was the warmest decade ever recorded. Human-induced global warming is presently increasing at a rate of approximately 0.2°C per decade principally due to the burning of fossil fuels and associated release of pollutants, causing visible changes in global climate, which in turn is creating observed consequences in social and environmental conditions.⁴ This presents risks for human health as many of the largest health concerns including cardiovascular disease, respiratory diseases and mental health are strongly impacted by climate and adverse weather conditions.

Healthcare must become “climate smart”, as health services in some developed countries account for between 5% and 15% of carbon emissions. To reduce the impact of climate change and promote greener approaches to health practices, the global healthcare community must lead by example.

By charting a course to net-zero, the HSE aims to continue and build on work already underway to reduce our carbon emissions and become a healthcare service that is both environmentally and socially sustainable and one that leads by example on climate action. To achieve this ambition, six priority areas of focus with 10 corresponding interconnected Strategic Objectives (SOs) have been developed (Table 1). These SOs are linked to the overall 2050 ambition and, where possible, to the relevant UN Sustainable Development Goals (SDGs).

Table 1: An Overview of Our Priority Areas of Focus

Priority Area of Focus	Summary of Area of Focus	Corresponding Strategic Objective	Delivered By
Sustainable Buildings and the Green Environment	Improve energy efficiency and sustainable building practices to reduce GHG emissions and manage green spaces to promote biodiversity, physical and mental wellbeing	SO1 - Achieve a 50% reduction in energy usage, a 51% reduction in energy-related GHG emissions by 2030 and a net-zero emission target by 2050 (at latest) under the requirement set out for Public Sector Bodies in the Climate Action Plan 2021.	2030/2050
		SO2 - Develop a HSE green space framework and supporting implementation plan to optimise the use of green space for the promotion of the health and wellbeing of patients, staff and the local communities.	End of 2023
Transport and Mobility	Decarbonise the HSE fleet and facilitate the transition to low carbon and active transport with HSE sites to become sustainable transport hubs in communities	SO3 - Develop a HSE Transport framework and supporting implementation plan to eliminate, reduce, and substitute transport emission sources associated with delivering and accessing healthcare.	End of 2023
		SO4 - Develop a mobility framework and implementation plan to promote travel initiatives to avoid unnecessary patient and staff journeys. Where journeys are required, support and encourage active travel, low carbon or public transport alternatives.	End of 2023

4 European Commission, Causes of climate change (europa.eu)

Priority Area of Focus	Summary of Area of Focus	Corresponding Strategic Objective	Delivered By
Sustainable Procurement	Align HSE purchasing decisions with the HSE decarbonisation and sustainability goals	SO5 - Develop a procured goods and services waste reduction framework and supporting implementation plan to reduce waste and related emissions, strengthen supply chain resilience and support the transition towards a circular economy.	End of 2023
		SO6 - Develop a baseline for all HSE supply chain emissions and work in consultation with key supply chain and product partners to include sustainability criteria in all tender procurement processes and establish a credible decarbonisation trajectory (no later than 2025).	End of 2023 for baseline (2025 for decarbonisation trajectory)
Greener Models of Healthcare	Reduce high emissions and waste in the delivery of high-quality healthcare	SO7 - Develop a framework for greener models of healthcare delivery and supporting implementation plan to reduce the environmental impact of the delivery of models of care, pharmaceutical products / services used while continuing to prioritise patient safety, prevention, and population health.	End of 2023
Water and Waste Management	Conserve water, reduce and manage waste	SO8 - Develop a HSE waste management framework and supporting implementation plan to minimise food waste generation, increase recycling and reduce the amount of clinical waste generated.	End of 2023
		SO9 - Develop a data-driven water consumption framework and implementation plan to report and manage water consumption and conservation measures to reduce wastage.	End of 2023
Adaptation and Resilience	Protect and promote the health and welfare of the public by optimising resilience of critical infrastructure and resources to ensure healthcare delivery amidst a changing climate	SO10 - Ongoing implementation of the measures set out in the Department of Health Sectoral Adaptation Plan 2019-24 and all subsequent plans.	Ongoing

Note:

- Implementation of the Strategy will be on a phased approach over the medium- to long-term as the HSE delivers on the 2050 ambition.
- The HSE will regularly measure and report on key metrics and set targets to continually improve performance during implementation of the Strategy.

Further details regarding the key next steps relating to each Strategic Objective are provided in Section 2.

The Strategy has been developed in a consultative manner with both internal and external HSE stakeholders of varying viewpoints, and by systematically reviewing and compiling existing published guidance on health and the environment. Six Workstreams with diverse membership, which linked directly to the overall Climate Action Steering Group, were established to inform the development of the Strategy. Input and insight were also sought from a HSE patient representative group who provided access to interested individuals to attend a workshop to share feedback on the overall Strategy.

To support the delivery of the Strategic Objectives, significant support and buy-in will be required from all stakeholder groups across the HSE including support from staff, voluntary agencies, local communities, other Public Bodies, national and global peer healthcare organisations, Government, local authorities, suppliers and third sector organisations. This will build on the work already underway and scale up new initiatives where required. A detailed Implementation Plan to include the prioritisation and phasing of work will immediately be developed to support the delivery of this Strategy and, as the implementation phase progresses, more specific and timebound targets will be agreed. Specific consideration will be given to promoting community engagement and providing communication, awareness, and training to proactively engage with HSE staff as agents for sustainable change encouraging a culture of environmental awareness. In addition, specific consideration will be given to prioritising and deploying HSE resources to those priority impact areas that can have the fastest and deepest decarbonisation results.

The Strategy will be reviewed annually and updated, when required, as additional guidance and policy information becomes available, carbon hotspots are identified, and when specific targets are made more granular and timebound.

1. Introduction

The Health Service Executive (HSE) Climate Action Strategy 2023 – 2050 (the “Strategy”) sets out a Climate Action Programme with corresponding actions and targets the organisation will take to both reduce the environmental and social impact of the delivery of healthcare and help the population prepare and adapt to climate-related impacts. This will help enable Ireland to transition towards becoming a climate-resilient, biodiversity-rich, environmentally stable and climate-neutral economy by no later than 2050.

Climate Action and Healthcare

Improving, promoting, and protecting the health and welfare of the population of Ireland is the fundamental focus of the health service and the primary aim underpinning the Department of Health's Sláintecare Programme, which is reforming Ireland's healthcare from a two-tier system towards one based on service user need. What it means to deliver high quality healthcare, however, must be re-interpreted in the context of the global climate crisis and its implications for both population health and the ability to continue the delivery of sustainable models of care against a background of ever-changing conditions. Good quality natural environments and reducing GHG emissions provide numerous 'co-benefits' for wellbeing and health. For example, expanding green spaces, reducing the pollutants emitted by transport and promoting active travel can result in cleaner air, improved physical activity, reduced noise, and other societal improvements. Conversely, poor water quality, noise, radiation, chemical pollution, and air pollution cause adverse impacts on human physical and mental health.

Globally, healthcare is a key contributor in fueling climate anomalies due to:

- high-energy intensive buildings (e.g., hospitals)
- the sizeable transportation footprint of employees and patients
- global supply chain emissions including supplies, pharmaceuticals, devices, and food
- the uses of single-use goods
- limited reflection of the environmental impact of regular choices and practices.

The global healthcare sector has a significant role to play in tackling the climate crisis, the loss of biodiversity and pollution. If the international health industry were a country, it would be the fifth-largest carbon emitter in the world.⁵ Given the growing urgency around climate change and climate-friendly health practices, healthcare stakeholders must play their part in protecting both the planet and human lives. The health industry and in particular the National Health Service (NHS) in England, has identified net-zero roadmaps and has already taken significant steps to adjust waste management, water usage and energy. To reduce the impact of climate change and promote greener approaches to health practices, the global healthcare community will need to lead by example. It will require quantifying and identifying all sustainability levers – from procuring more sustainable medical supplies to sourcing more renewable energies and seeking innovative solutions to limit carbon emissions.

At the 2021 United Nations (UN) Climate Change Conference of Parties in Glasgow (COP26), seven European nations – Ireland, Norway, Germany, the Netherlands, Belgium, the United Kingdom and Spain – announced notable health commitments to strengthen the climate resilience and sustainability of their health systems. Along with the UK, Spain and Belgium committed to a net-zero ambition before 2050. In addition, three health services – Italy, Portugal, and the Netherlands – committed to commencing a process to analyse their climate footprint and outline net-zero roadmaps. Globally, 50 countries have committed to developing climate-resilient and low-carbon health systems at COP26.

5 Josh Karliner et al., Healthcare's Climate Footprint: How the Health Sector Contributes to the Global Climate Crisis and Opportunities for Action, Green Paper 1 (2019).

The HSE's role to help tackle the climate crisis

The HSE has a key role to play in tackling the climate crisis by further developing options to curb its own emissions and understanding the link between environmental pollution and disease, and environmental quality with population health. The HSE aims to adapt to become a more sustainable healthcare provider and this Strategy aims to drive the necessary transformation by outlining priority areas of focus and corresponding Strategic Objectives for the Health Service of Ireland to deliver on in relation to climate action. This is essential and practical given:

- the requirement to comply with the obligations set out in the Government's Climate Action Plan and climate action legislation
- the reality that the climate crisis is a health crisis and acknowledgement of the considerable contribution (c. 5-15%) healthcare makes to net global emissions
- the principle of preventative care and preparedness as best practice in healthcare
- the overwhelming challenge that climate change presents to the planet and population
- the common goal in both the health and climate agendas to achieve health equity
- the impetus for Public Bodies to lead by example in relation to climate action
- the imperative of reduced climate vulnerability across the health sector to enable continuation of healthcare service delivery to the population of Ireland
- the ambition to be a Public Body that is both environmentally and socially sustainable.

The HSE is also committed to supporting the 17 UN Sustainable Development Goals (SDGs) to promote prosperity while protecting the planet. Although the HSE contributes to most SDGs in one form or another, as they directly relate to health or contribute to health indirectly, health has a central place in SDG Goal 3: *“Ensure healthy lives and promoting wellbeing for all ages”*. Where applicable, the Strategy has linked the Strategic Objectives to the relevant SDGs. Further details are provided in Appendix A.

Moreover, through the HSE Global Health Programme, the HSE is committed to and will continue to support less developed countries to help strengthen their health services, improve health outcomes, promote low-carbon and sustainable solutions, and adapt to the impacts of climate change. There are also reciprocal benefits for the Irish health services through shared learnings from other countries, sharing of health challenges and improving health security in Ireland by tackling global threats in other countries.

How the Strategy was developed

The Strategy has been developed in a consultative manner with both internal and external HSE Stakeholders of varying viewpoints, and by systematically reviewing and compiling existing published guidance on health and the environment. Six Workstreams with diverse membership, which linked directly to the overall Climate Action Steering Group, were established to inform the development of the Strategy. Input and insight were also sought from a HSE patient representative group who provided access to interested individuals to attend a workshop to share feedback on the overall Strategy. Further details regarding how the Strategy was developed is outlined in Appendix B, while an overview of the key definitions and glossary of terms used throughout the Strategy is summarised in Appendix C.

The Strategy is intended to provide readers with a clear outline of how the HSE intends to put Ireland on a more sustainable path, cut emissions, create a healthier, cleaner and greener society, and help protect and prepare the population from the health consequences of climate change. It will be updated when required as additional guidance and policy information becomes available (e.g., in line with the requirements of future Climate Action Plans) and more granular targets and timelines can be defined. A non-exhaustive list of some key legislative, environmental, and internal HSE drivers of change that have helped shaped the Strategy are presented in Appendix D.

2. Our Priority Areas of Focus

To achieve the ambition outlined previously, six priority areas of focus are outlined in Figure 1 as follows:

Figure 1: Our Six Priority Areas of Focus



A brief overview of each priority area of focus along with the 10 corresponding interconnected Strategic Objectives is outlined in Table 1. Further details regarding the priority areas of focus and key next steps required to deliver the Strategy are described in Sections 2.1 to 2.6, while alignment with the relevant UN SDGs is outlined in Appendix A. Where possible, initial focus will be given on seeking to reduce, then renew and restore carbon emissions.⁶

⁶ IEMA., *Pathways to Net Zero*, Using the IEMA GHG Management Hierarchy (2020).

Table 1: An Overview of Our Priority Areas of Focus

Priority Area of Focus	Summary of Area of Focus	Corresponding Strategic Objective	Delivered By
Sustainable Buildings and the Green Environment	Improve energy efficiency and sustainable building practices to reduce GHG emissions and manage green spaces to promote biodiversity physical and mental wellbeing	SO1 – Achieve a 50% reduction in energy usage, a 51% reduction in energy-related GHG emissions by 2030 and a net-zero emission target by 2050 (at latest) under the requirement set out for Public Sector Bodies in the Climate Action Plan 2021.	2030/2050
		SO2 – Develop a HSE green space framework and supporting implementation plan to optimise the use of green space for the promotion of the health and wellbeing of patients, staff and the local communities.	End of 2023
Transport and Mobility	Decarbonise the HSE fleet and facilitate the transition to low carbon and active transport with HSE sites to become sustainable transport hubs in communities	SO3 – Develop a HSE Transport framework and supporting implementation plan to eliminate, reduce, and substitute transport emission sources associated with delivering and accessing healthcare.	End of 2023
		SO4 – Develop a mobility framework and implementation plan to promote travel initiatives to avoid unnecessary patient and staff journeys. Where journeys are required, support and encourage active travel, low carbon or public transport alternatives.	End of 2023
Sustainable Procurement	Align HSE purchasing decisions with the HSE decarbonisation and sustainability goals	SO5 – Develop a procured goods and services waste reduction framework and supporting implementation plan to reduce waste and related emissions, strengthen supply chain resilience and support the transition towards a circular economy.	End of 2023
		SO6 – Develop a baseline for all HSE supply chain emissions and work in consultation with key supply chain and product partners to include sustainability criteria in all tender procurement processes and establish a credible decarbonisation trajectory (no later than 2025).	End of 2023 for baseline (2025 for decarbonisation trajectory)
Greener Models of Healthcare	Reduce high emissions and waste in the delivery of high-quality healthcare	SO7 – Develop a framework for greener models of healthcare delivery and supporting implementation plan to reduce the environmental impact of the delivery of models of care, pharmaceutical products / services used while continuing to prioritise patient safety, prevention, and population health.	End of 2023

Priority Area of Focus	Summary of Area of Focus	Corresponding Strategic Objective	Delivered By
Water and Waste Management	Conserve water, reduce and manage waste	SO8 – Develop a HSE waste management framework and supporting implementation plan to minimise food waste generation, increase recycling and reduce the amount of clinical waste generated.	End of 2023
		SO9 – Develop a data-driven water consumption framework and implementation plan to report and manage water consumption and conservation measures to reduce wastage.	End of 2023
Adaptation and Resilience	Protect and promote the health and welfare of the public by optimising resilience of critical infrastructure and resources to ensure healthcare delivery amidst a changing climate	SO10 – Ongoing implementation of the measures set out in the Department of Health Sectoral Adaptation Plan 2019-24 and all subsequent plans.	Ongoing

Note:

- Implementation of the Strategy will be on a phased approach over the medium- to long-term as the HSE delivers on the 2050 ambition.
- The HSE will regularly measure and report on key metrics and set targets to continually improve performance during implementation of the Strategy.
- The Strategy will be updated annually and where necessary as additional guidance and policy information becomes available, carbon hotspots are identified and when specific targets are made more granular and timebound.

To drive the HSE ambition, significant support and buy-in will be required from all stakeholders across the Health Service including Government, Local Authorities, other Public Bodies, suppliers and third party organisations, global peer healthcare organisations, staff, Section 38 and 39 agencies, and local communities. All shared input will be required to build on progress to date and scale up new necessary initiatives where required.

For the HSE, how to deliver the Strategy is as important as what is in it. A detailed Implementation Plan will be agreed promptly post approval of the Strategy with short- and longer-term tangible actions allocated to individuals / teams and monitored with milestones evaluated routinely. As part of the Implementation Plan, specific consideration will be given to:

- Identifying and agreeing the most appropriate and efficient programme structure for delivery.
- Creating a comprehensive data, measurement, risk management and assurance system to track Strategy actions and enable improvement overtime (this may include an IT platform / system to support data management and engagement with staff and suppliers).
- Deploying HSE resources to those priority impact areas that can have the fastest and deepest decarbonisation and environmental impacts.
- Promoting engagement and providing communication, awareness, and training mechanisms to proactively engage with all our HSE and HSE-funded staff as agents for change, encouraging a culture of sustainability awareness.
- Incorporating appropriate climate action training (technical and behavioural) into learning and development strategies for staff.
- Embedding the highest standard of transparency and trust through regular reporting and communication.
- Ensuring a robust governance and reporting process is in place to key stakeholders.

Further details regarding some of the critical implementation success factors along with the key role of the Workstreams for: (i) Measurement and Assurance; and (ii) Collaboration, Communication, Awareness and Training are provided in Section 3. The following Sections outline in detail the six priority areas of focus and include a summary of the next steps needed to ensure the successful delivery of the Strategy.

2.1. Sustainable Buildings and the Green Environment

2.1.1. Introduction

The HSE Estate is substantial, comprising both buildings and green spaces, having an approximate floor area of four million square metres spread across a diverse portfolio of circa 2,500 sites and 4,500 individual buildings. The carbon footprint of the energy-related emissions of the health sector is significant and accounted for approximately 19% of public sector energy use in Ireland in 2019.⁷ Reducing the emissions of this footprint will play a significant role in achieving national energy and carbon reduction targets as mandated by the Government's Climate Action Plan 2021.

Green spaces also have a leading role to play in climate action and sustainability, as preserving and reinvigorating green spaces promotes biodiversity, acts as a carbon sink, and supports climate resilience and adaptation efforts. They also benefit the physical and mental wellbeing of service users, staff, patients, and the wider community.

2.1.2. Where We Are Now

The following outlines the current 'as-is' state for both sustainable buildings and the green environment.

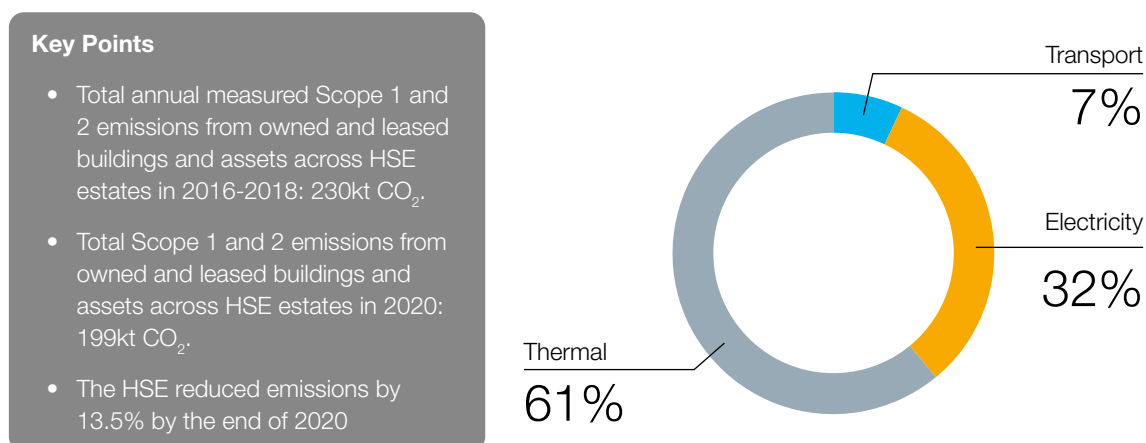
Sustainable Buildings

In recent years, the HSE has made strong progress on measuring and improving the environmental footprint and energy usage of the HSE Estate. Some examples of key milestones achieved include, but are not limited to the following:

- Achieved a circa 26% improvement in energy efficiency within the period between 2009 and 2019.
- Identified circa 170 Significant Energy Users (SEUs) across the health sector, which account for circa 75% of healthcare energy use and carbon emissions.
- Established three Regional Energy Bureaus in 2019 providing support to local Energy Management Teams (111 local Energy Teams in place and supported at SEUs by Q2 2022).
- Resourced and established the Estates Climate Action and Sustainability Office in 2021.
- Developed and implemented an Energy Efficient Design (EED) process aligned with I.S.399 and integrated it into the design of all new and replacement capital projects.
- Amended the HSE Design Team Technical Requirements and scope of service to demonstrate 'Route to Carbon Zero' in all building designs.
- Currently implementing a shallow energy retrofit engineering works programme, which has spent approximately €14.7 million between 2019 and 2021 with 27,106 MWh and 7,012 tonnes of carbon dioxide equivalent (CO₂e) reductions. This includes LED lighting upgrades, window and insulation upgrades, heat pump installations, improved control systems, building management systems upgrades, meter upgrades, and photovoltaic installations. The projected spend for 2022 is €12.5 million.
- Commenced a Deep Retrofit and Pilot Pathfinder Programme in partnership with the Sustainable Energy Authority of Ireland (SEAI) in 2021, which is progressing detailed costed designs for the major building fabric and energy retrofits that will be required to meet the Government's Climate Action Plan targets.
- Established a baseline (2016/2018 average) for Scope 1 and Scope 2 GHG direct and indirect emissions (refer to Figure 2 for additional details). At the end of 2020 the HSE has achieved a reduction of 13.5% of the 51% target emissions reduction by 2030 set out in the Climate Action Plan 2021 (against a 2016-2018 average baseline).

Figure 2 shows an overview of total measured Scope 1 and Scope 2 emissions in 2020.

⁷ Sustainable Energy Authority of Ireland, *Energy in Ireland: 2021 Report*. (December 2021).

Figure 2: Overview of total measured Scope 1 and Scope 2 emissions 2020

Central to the successful development and delivery of these milestones is the three Regional Energy Bureaus currently in place, which provide regional support to local Energy Teams who, with healthcare facilities, consolidate and embed energy management best practices. In the short- to medium-term, the role of these HSE “Energy Teams” will broaden to also include a focus on water conservation, waste management, environmental compliance, food waste reduction, carbon reduction and active travel.

Moreover, the HSE has developed a detailed HSE Decarbonisation Roadmap focused on achieving the public sector decarbonisation targets, mandated in the Government’s Climate Action Plan 2021 for energy-related Scope 1 and Scope 2 emissions. These decarbonisation targets and scope include:

- Reduce energy-related GHG emissions by 51% by 2030 (against a baseline of 2016-2018 average emissions).
- Increase the improvement in energy efficiency in the public sector from the 33% target in 2020 to 50% by 2030 (against a 2009 baseline).
- A net-zero energy-related emissions target for 2050 at the latest.

Further details outlining at a high-level the HSE emission reduction pathway to 2050 are included in the HSE Decarbonisation Roadmap.

Green Environment

Across the HSE Estate there are several ongoing initiatives – both top-down and grassroots – taking place at local, community and hospital level in HSE-owned green spaces and many in collaboration with Local Authorities and local communities. Some initiatives include, but are not limited to, the following:

- In 2022, Cork University Hospital became the first Irish hospital to be reawarded a Green Flag for the third time by An Taisce (a charity working to conserve Ireland’s natural environment and the built heritage) for developing wildflower zones including beehives, a catering herb garden, and providing recycled plastic outdoor seating for staff.
- Clarke’s Place Community Group Home in Merville for people with disabilities won an Outstanding Community Disability Service Award in 2022 for their involvement in planting in and tending to the home’s gardens.
- University of Limerick has made static spin bikes available along with outdoor picnic tables and a cultivated garden in the grounds of St. John’s Hospital, Limerick.
- HSE’s academic partner, The Royal College of Surgeons Ireland, has recently installed bike racks for cyclist commuters, built an outdoor gym, provided eco-friendly garden furniture for staff and cultivated pollinator-friendly wildflower gardens.

At present, however, there is no database on open green sites across the HSE. Therefore, one important step will be to develop a framework to understand how best to create an enabling environment to support action on the ground.

2.1.3. Actions We Will Take

Table 2 outlines the Strategic Objective relating to Sustainable Buildings along with corresponding key next steps with an approximate timeframe for delivery. Note that the next steps identified support and align with those outlined in the HSE Decarbonisation Roadmap, some of which are initiated.

Sustainable Buildings

Table 2: Sustainable Buildings Strategic Objective (SO) and Key Next Steps

No.	SO	Key Next Steps	Delivered By
1	Achieve a 50% reduction in energy usage, a 51% reduction in energy-related GHG emissions by 2030 and a net-zero emission target by 2050 (at latest) under the requirement set out for Public Sector Bodies in the Climate Action Plan 2021.	Implementation of HSE Decarbonisation Roadmap The HSE Decarbonisation Roadmap outlines actions to achieve the targets set out in the Climate Action plan and to build on the approach to date to reduce the HSE's existing energy usage load and shift the HSE's use of energy from fossil fuels towards renewable and carbon zero sources. These include: • Continue operations and support of HSE Energy Bureau and a network of supported Energy and Green Teams incorporating behavioural change, training, staff workshops and supported energy shallow retrofit programmes. • Adapt both the EED and Towards Zero Carbon (TZC) design processes, which will help facilitate transition to circular construction principles. • Continue to progress shallow retrofit programmes and promote behavioural change initiatives to reduce energy usage. • Progress deep energy and carbon retrofit programme of existing buildings to reduce energy usage and shift away from fossil fuels to renewable energy technologies. • Develop improved utility measurement and transition to digital systems (including integration with the new National Estates Information System). • Achieve ISO 50001 energy management system accreditation. • Where applicable, display an up-to-date Display Energy Certificate on publicly accessible HSE buildings to clearly show energy use.	2030 / 2050
		Collaboration and Engagement • Continue and enhance partnership approach with the SEAI. • Working with appropriate partners, develop an understanding and approach to evaluate the whole life carbon emissions for Capital funded programmes. • In consultation with staff, partners and other Government and Public Sector Bodies, update the HSE Decarbonisation Roadmap on an annual basis to incorporate any further updates to the requirements and mandates set out for Public Sector bodies in the Government's Climate Action Plan.	Ongoing

Table 3 outlines the Strategic Objective relating to Green Environments along with corresponding key next steps with an approximate timeframe for delivery.

Green Environment

Table 3: Green Environments Strategic Objective (SO) and Key Next Steps

No.	SO	Key Next Steps	Delivered By
2	Develop a HSE green space framework and supporting implementation plan to optimise the use of green space for the promotion of the health and wellbeing of patients, staff and the local communities.	HSE Green Space Framework and Implementation plan - Baseline all green space initiatives currently underway at both a local and national level. - Work with staff to develop a green space framework and supporting implementation plan to optimise HSE green space, which incorporates all Development Control Plans and all future works. The framework will include: » Site-based action guides to promote and remove barriers to local action. Guides will include suggested models to employ best practices, suggested accreditations, and a 'toolkit' of resource and targets (while accounting for site specific complexities). » A biodiversity plan which identifies opportunities for restoring natural habitats, increasing biodiversity value and delivering nature-based solutions to halt biodiversity loss. The plan will reference national and international guidance and climate adaptation principles and include a baseline and goal for further biodiversity improvements to 2030 and 2050.	End of 2023
		Engagement and Collaboration - Provide opportunities for staff, patients, and local community volunteers to be actively involved in the development and maintenance of local green spaces (e.g., local gardening projects, growing of vegetables etc). - Create new and continue to build existing partnerships to facilitate and integrate all initiatives with local community, Local Authority and National Park and Wildlife agendas, and promote shared benefits.	Ongoing

2.2. Transport and Mobility

2.2.1. Introduction

Emissions from the Irish transport sector currently account for about 30% of the public sector's overall GHG emissions, the second largest portion after Buildings (Commercial and Public).⁸ However, for the HSE, transport-related emissions are relatively smaller and accounted for approximately 7% of the total HSE Scope 1 and Scope 2 emissions in 2020. Nationally, the transport sector has been mandated to reduce emissions by 50% by 2030,⁹ which will be achieved by the transition to zero or low emission vehicles, coupled with the improvement and increased use of public transport and promotion of active travel.

The HSE will support the transition by promoting active travel and reduce the need to travel where appropriate by promoting digital interactions. It will also meet all National and Public Sector energy transport and infrastructure obligations. For example, per the Government's Climate Action Plan 2021, public bodies are mandated to purchase zero-emission vehicles, where available and operationally feasible, from the end of 2022 onwards. The HSE will also work collaboratively and in conjunction with all relevant stakeholders such as Zero Emission Vehicle Ireland to help decarbonise the transport sector.

2.2.2. Where We Are Now

The HSE has piloted hybrid and electric vehicles (EVs) for the emergency fleet (i.e., ambulances) to varying degrees of success with certain challenges identified from weight to range issues for regionally based services. In addition, several 'green' initiatives have been implemented by the HSE National Ambulance Service to reduce fuel burn and promote behavioural change to reduce fleet emissions. A number of HSE workplaces are also actively involved with the Transport for Ireland Smarter Travel Programme, which promotes behavioural change and active travel.

The HSE is committed to reforming and improving the delivery of care to help reduce emissions and is aligned with the Sláintecare Reform Programme, which prioritises digital healthcare, promotes social prescribing and facilitates patient care closer to home. The impact of COVID-19 over the last two years has led to a large increase in the use of digital services, not just for provision of healthcare services, but also enabling people to work from home as far as is reasonably possible. Working from home or remotely 20% of the time is a mandate target for public sector bodies per the Climate Action Plan 2021.

8 Department of the Environment, Climate and Communications, Climate Action Plan 2021 (Dublin: Department of the Taoiseach, 2021).

9 Department of the Taoiseach, "Government announces sectoral emissions ceilings, setting Ireland on a pathway to turn the tide on climate change," gov.ie, 28 July 2022, <https://www.gov.ie/en/press-release/dab6d-government-announces-sectoral-emissions-ceilings-setting-ireland-on-a-pathway-to-turn-the-tide-on-climate-change/>

2.2.3. Actions We Will Take

Table 4 outlines the Strategic Objectives relating to Transport and Mobility along with corresponding key next steps with an approximate timeframe for delivery.

Table 4: Transport and Mobility Strategic Objectives (SO) and Key Next Steps

No.	SO	Key Next Steps	Delivered By
3	Develop a HSE Transport framework and supporting implementation plan to eliminate, reduce, and substitute transport emission sources associated with delivering and accessing healthcare.	HSE Transport Framework and Implementation Plan • Gather baseline data for both emergency and non-emergency fleets. • Develop a coherent transport framework and implementation plan for moving to low and zero-emission vehicles or alternatives for both emergency and non-emergency fleets. The framework will include: » The impact of the finalised Government EV Charging Infrastructure Strategy on HSE operations. » The challenges associated with operationalisation of the introduction of clean vehicles / EVs as per the Climate Action Mandate. » Consideration of options to purchase only zero-emission vehicles where available and operationally feasible from the end of 2022 onwards. » Consideration of where low or zero-emission vehicles will be used across different regions and Departments considering fleet inventory and replacement cycles.	End of 2023
		Engagement and Collaboration • Participate in national forums / groups to establish the HSE EV charging infrastructure framework. • Mobilise feedback from patient groups, wider community, Public Body representatives, and others.	Ongoing

No.	SO	Key Next Steps	Delivered By
4	Develop a mobility framework and implementation plan to promote travel initiatives to avoid unnecessary patient and staff journeys. Where journeys are required, support and encourage active travel, low carbon or public transport alternatives.	Mobility Framework and Implementation Plan - Investigate and baseline staff and patient kilometres travelled delivering and accessing healthcare along with all travel initiatives currently underway at a local and national level. - Work with staff to develop a mobility framework and implementation plan to promote travel initiatives to avoid unnecessary patient and staff journeys where possible. The framework will: - Investigate and provide options to make HSE outdoor spaces and sites more accessible and enjoyable for the workforce, visitors, patients, and local community to walk, cycle, and run. - Investigate and provide options to promote public transport travel alternatives. - Review and encourage mechanisms to incentivise low carbon travel solutions. - Promote the bike-to-work scheme and consider plans to create bicycle-friendly buildings for employees and visitors by improving bicycle parking requirements / storage and security to all HSE employees.	End of 2023
		Engagement and Collaboration - Mobilise feedback from staff, patient groups, wider community, public body representatives and others to discuss barriers and solutions to active travel infrastructure and public transport services. - Work alongside local authorities and relevant Government stakeholders to make HSE clinical sites active and public transport hubs in communities.	Ongoing

Note that:

Charging infrastructure implementation is contingent on engagement with The Department of Transport, Electricity Supply Board, and others. While a priority, implementation must not detract from the HSE's mandated responsibility to electrify its thermal load.

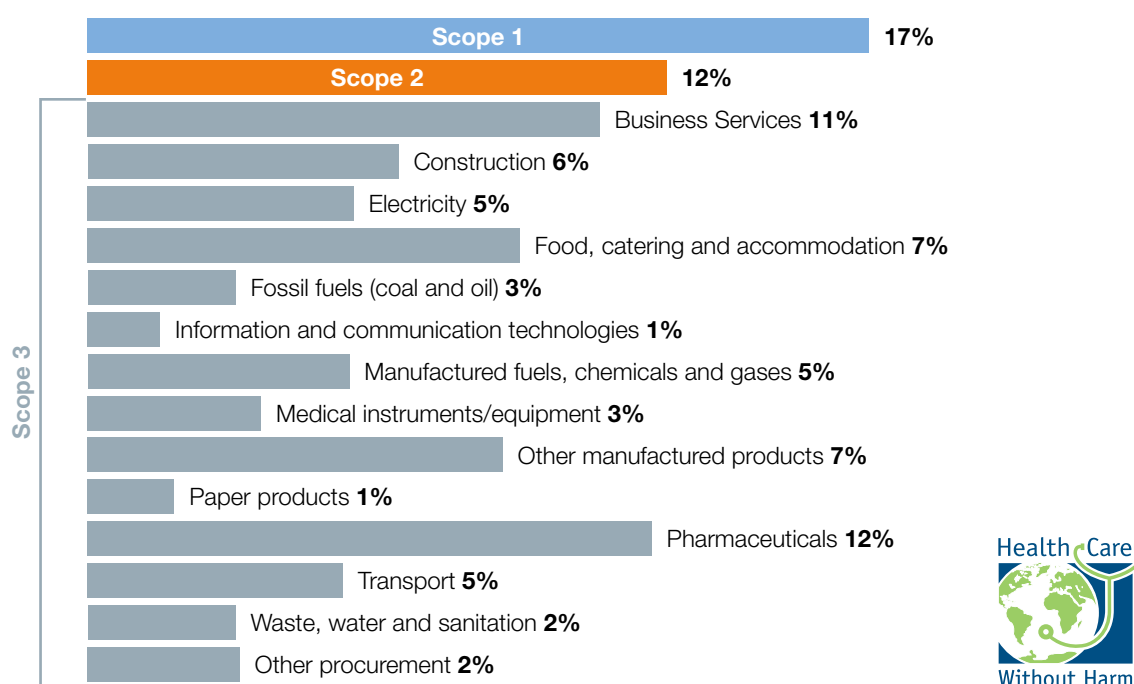
2.3. Sustainable Procurement

2.3.1. Introduction

As a key strategic buyer with an annual spend of nearly €4 billion a year, HSE Procurement is a key enabler and support service to deliver climate action. It is a key mechanism for influencing the environmental and social impact of the products (both clinical and non-clinical) necessary to ensure the safe delivery of healthcare.

According to recent studies conducted by Health Care Without Harm, 70% of a healthcare organisation's climate footprint is derived from Scope 3 emissions, which includes production, packaging, and transport of products (see annotated Figure 3). This, however, would be closer to approximately 63% in the Irish context as electricity and fossil fuels associated with leased buildings and assets are counted and treated as Scope 1 and Scope 2 emissions under the Government's Climate Action Plan 2021. An overview of the main drivers of emissions in the healthcare sector in relation to Scope 1, 2 and 3 are summarised in Appendix E.

Figure 3: Health Care Without Harm global emissions by supply chain categories¹⁰



Note that:

- the approximate electricity and fossil fuel emissions shown above under Scope 3 correspond to supply chain emissions relating to tier one supplier factories and leased buildings.
- under the Government's Climate Action Plan 2021, energy-related emissions from fuel (i.e., oil, gas, coal etc.) and electricity used by leased and controlled buildings and assets are being considered and treated as Scope 1 and Scope 2 emissions. These are classified as Scope 3 emissions in international GHG protocols.

While Scope 3 emission targets are not mandated at present in the Government's Climate Action Plan 2021 for Public Sector bodies, this Strategy aims to tackle Scope 3 emissions as a priority given the magnitude of their contribution of emissions. The HSE is committed to engaging with its suppliers and partners to work towards meaningful emission and waste reduction. Where necessary, the HSE will leverage the sector's collective influence and pool purchasing power across countries and will be led and guided by national partners, particularly the Office of Government Procurement (OGP) in best practice, principles, and target-setting.

¹⁰ HCWH Road Map for Healthcare Decarbonisation - Chapter 5.pdf (healthcareclimateaction.org)

2.3.2. Where We Are Now

The HSE annual capital expenditure is assessed by the Department of Health in line with the Public Spending Code, which considers a number of areas including climate action. However, at present, the HSE does not actively integrate environmental considerations into contract and procurement decisions. Going forward, environmental and sustainability criteria, together with compliance measures, will be prioritised and integrated into all purchases and procurement decision-making. The HSE has identified the weighting of such award criteria as an important next step, taking guidance from the health sector European Union (EU) green procurement toolkit, OGP Guidelines, and others.

The HSE is at an early stage in understanding its Scope 3 emissions arising from the procurement of all HSE products and services. To build a baseline, the HSE has developed a proof-of-concept for Scope 3 emissions using a sample set of procurement spend data. Developing this further, the HSE will work closely with its vendors and suppliers (comprising approximately 18,000 in total of which circa 400 account for approx. 80% of spend) and other global healthcare organisations to reduce the carbon footprint of goods and services procured.

2.3.3. Actions We Will Take

Table 5 outlines the Strategic Objectives relating to Sustainable Procurement along with corresponding key next steps with an approximate timeframe for delivery.

Table 5: Sustainable Procurement Strategic Objectives (SO) and Key Next Steps

No.	SO	Key Next Steps	Delivered By
5	Develop a procured goods and services waste reduction framework and supporting implementation plan to reduce waste and related emissions, strengthen supply chain resilience and support the transition towards a circular economy.	Procured Goods and Services Waste Reduction Framework and Implementation Plan - Investigate and baseline all current green procurement initiatives, policies and procedures currently underway. - Work with staff, suppliers and relevant stakeholders to develop a procured goods and services waste reduction framework. The framework will: » Review and identify processes and procedures to effectively implement all relevant EU Green Public Procurement criteria etc. into all public tenders. » Include a Sustainable Procurement Code of Practice and corresponding Framework to support measurement and weighting of sustainability practices in tender process (to be compliant with all EU and National Procurement Guidelines and recommendations). » Investigate options and develop an overall approach to how HSE procurement can positively contribute to the circular economy. » Review, map, understand and, if needed, enact change to ensure the integrity and security of all critical HSE supply chains in the face of potential disruption caused by climate change impacts. » Identify key climate-related physical and transitional risks in the HSE's supply chain and identify mitigation measures to be taken to ensure the resilience of all critical supply chains over the short-, medium- and longer- term.	End of 2023

No.	SO	Key Next Steps	Delivered By
5		Engagement and Collaboration - Engage with relevant stakeholders including the OGP, HSE suppliers (national and global) and marketplace to understand current sustainability and carbon footprint practices, identify challenges, collaborate in driving net-zero procurement, and establish pathways for improvement in accordance with regulation. - Work with suppliers to understand circular economy advances and encourage further improvements.	Ongoing
6	Develop a baseline for all HSE supply chain emissions and work in consultation with key supply chain and product partners to include sustainability criteria in all tender procurement processes and establish a credible decarbonisation trajectory.	Supply Chain Emissions Framework and Implementation Plan - Baseline emission data using a spend-based approach initially, progressing to a bottom-up approach, where possible, through data collection. - In collaboration with relevant partner(s), develop a supply chain emissions framework and corresponding implementation plan. The framework will: » Model a decarbonisation pathway to set a Scope 3 emissions net-zero roadmap to include short-, medium- and longer-term actions. » Identify and target high-impact categories across HSE supply chain emissions for action.	End of 2023 for baseline (Decarbonisation trajectory 2025)
		Engagement and Collaboration Engage with relevant stakeholders and work with high-impact suppliers / partners across the HSE supply chain to drive actions to decarbonise and minimise environmental impact.	Ongoing

2.4. Greener Models of Healthcare

2.4.1. Introduction

Providing medical care and prescribing medication to improve the health and wellbeing of patients is a fundamental role of any healthcare provider. The delivery of this care and medicines prescribed have an associated carbon footprint, which the HSE wants to reduce in a safe and patient-friendly manner. This cannot be achieved without close collaboration with patients, suppliers and medical / pharmaceutical partners, coupled with a change in behavioural practices in the delivery of care by clinicians and practitioners. The majority of emissions associated with medicines are typically generated during the manufacturing and freight stages with a select few “high-emission” medicines (i.e., anaesthetic gases and inhalers) occurring at ‘point of use’. For example, commonly used Metered-Dose Inhalers (MDIs) contain a high volume of hydrofluorocarbons, a potent greenhouse gas. Switching from an MDI to a Dry Powder Inhaler is estimated to achieve carbon savings equivalent to driving 275 kilometres in a standard petrol car.¹¹

The HSE is committed to reforming and improving the delivery of care to help reduce emissions and is aligned with the Sláintecare Reform Programme, which prioritises digital healthcare, promotes social prescribing and facilitates patient care closer to home. Disease prevention is also seen as one of the key enablers to improve population health, while also being a complementary climate action support.

2.4.2. Where We Are Now

To date, many HSE clinicians have advanced their knowledge of the link between emissions and medication and clinician practices, but more widespread education is required. Organisations like the College of Anaesthesiologists of Ireland and Irish College of General Practitioners have led efforts to support this need. The latter Group established a Sustainability Committee, which have developed and successfully implemented a practical toolkit aimed at minimising the environmental impact of emissions from anaesthetic gases.

There have been examples where intervention and education has reduced the carbon footprint from inhalational anaesthetic gases. For context, the Global Warming Potential of the most used anaesthetic agents such as desflurane, nitrous oxide, isoflurane and sevoflurane are 2,540 times, 310 times, 510 times and 130 times, respectively, greater than the most abundant and common greenhouse gas – CO₂.¹² In the National University of Ireland Galway, the review and repair of nitrous oxide (N₂O) piping leaks has led to a circa 80% reduction in CO₂e from N₂O. At a national level, 20% of anaesthetic departments that used desflurane in 2019 have ceased its use completely.

Social prescribing is known to reduce hospital admissions, outpatient appointments and reliance on medical prescriptions, which has indirect benefits for both social and environmental factors. The expansion of social prescribing in Ireland is a commitment in the 2021 Programme for Government and is an action in many recent strategies and policies, including Sharing the Vision 2020-2030, the Sláintecare Implementation Strategy and Action Plan 2021-2023, and the Healthy Ireland Action Plan 2021-2025. It is now being delivered in 30 locations around the country.

Significant digital reform is also underway within the Health Service to support more efficient and responsive care delivery. There has been advancement in telehealth and remote digital practices since the onset of the COVID-19 pandemic. Advancement is also supported by the eHealth Strategy for Ireland, which aims to bring improved population wellbeing and health service efficiencies using technology-enabled solutions and through the implementation of the eHealth National Programme, which reduces the carbon footprint of outpatient and community-based care.

¹¹ “The Problem with Inhalers”, Green Inhaler, <https://greeninhaler.org/the-problem-with-inhalers/>

¹² “Anaesthetic gases calculator,” Resources and Publications, Association of Anaesthetists, [https://anaesthetists.org/Home/Resources-publications/Environment/Guide-to-green-anaesthesia/Anaesthetic-gases-calculator#:~:text=The%20global%20warming%20potential%20\(GWP,Sevoflurane%3A%20130](https://anaesthetists.org/Home/Resources-publications/Environment/Guide-to-green-anaesthesia/Anaesthetic-gases-calculator#:~:text=The%20global%20warming%20potential%20(GWP,Sevoflurane%3A%20130)

2.4.3. Actions We Will Take

Table 6 outlines the Strategic Objective relating to Greener Models of Healthcare along with corresponding key next steps with an approximate timeframe for delivery.

Table 6: Greener Models of Healthcare Strategic Objective (SO) and Key Next Steps

No.	SO	Key Next Steps	Delivered By
7	Develop a framework for greener models of healthcare delivery and supporting implementation plan to reduce the environmental impact of the delivery of models of care, pharmaceutical products / services used while continuing to prioritise patient safety, prevention, and population health.	Framework and Implementation Plan - Investigate and baseline the environmental footprint of medical and clinical products / services to include leveraging existing approaches for Scope 3 (top-down) and engagement with suppliers (bottom-up). - Work with staff, patients, and partners to develop a framework for greener models of healthcare delivery and implementation plan to reduce the environmental impact of the delivery of models of care, pharmaceutical products / services used while continuing to prioritise patient safety, prevention, and population health. The framework will: » Optimise HSE behavioural practices to reduce waste and encourage reuse of clinical / medical products. » Provide clinical staff and service users with the information needed to consider environmental impacts when making decisions about patient care and prioritise low carbon alternatives. » Include a life cycle assessment for all products used for the five most common HSE surgical procedures with the aim of addressing those high carbon intensive products. » Support the establishment and rollout of a national Green Theatre Programme, including improved recycling and waste practices, reduction of single-use products where feasible, and best practice for energy and resource efficiency (e.g., turn off equipment such as ventilation, scavenging and lighting when theatres are not in use). » Identify measures to reduce the CO₂e emissions from inhalational anaesthetic agents by 50% by 2030. » Identify measures to reduce the prescription and use of inhalers containing propellants where clinically appropriate and support the innovation and acceptance of lower carbon propellants among clinicians and patients. » Review any paper-based processes and evaluate the possibilities for digitalisation so it becomes the default approach. » Identify options to enhance technology availability and provide clinicians, service users and staff with supports to work more efficiently with technology enabled solutions.	End of 2023

No.	SO	Key Next Steps	Delivered By
7		Engagement and Collaboration • Mobilise feedback from staff and patient groups to discuss options to provide greener models of care. • Work with staff and patients to build awareness and promote use of digital health modalities such as telehealth, remote technology, online therapies and social prescribing where clinically appropriate, and as per the eHealth Strategy. • Engage with relevant stakeholders and key supply chain and product partners to discuss the environmental impacts in relation to the various models of care, identify challenges and areas for improvement in accordance with regulation.	Ongoing

2.5. Water and Waste Management

2.5.1. Introduction

Water conservation and waste management are key environmental focus areas for health services. In terms of waste management, waste products and used clinical items are typically sent to landfill or incinerated in accordance with the relevant infection prevention and control measures, Government legislation and best practice techniques and processes available. The volume of waste items generated in healthcare settings can be substantial: for example, it is estimated that up to one box of gloves and eight incontinence pads can be used per day per patient. Landfilling and incinerating these waste products along with other clinical waste can result in adverse impacts through the release of toxic chemicals or potent GHGs such as methane. This issue has been exacerbated over the last number of years by the high consumption of single-use plastics during the emergency response to COVID-19. Such single-use plastics also breakdown into tiny particles known as 'microplastics' and release endocrine disrupting chemicals, posing a threat to human health.

Clean water is a key resource for health services not only for heating, ventilation, cleaning, and cooking, but also for dialysis, sterilisation, and pharmaceutical practices. Therefore, a reliable source of clean, potable water is necessary to safeguard patients' health and comfort. The HSE will continue to comply with best practice wastewater management processes, legislation and licensing obligations and requirements to help limit the risk of spreading anti-microbial resistance through wastewater release into the environment.

2.5.2. Where We Are Now

Waste management has been a priority for the HSE, as addressed within guidance documents, principles, and policies such as the Waste Management Awareness Handbook (2014), the HSE Waste Policy (2016) and the Whole of Government Circular Economy Strategy (2022-2023). National contracts are in place for collection, treatment and disposal of healthcare risk waste and measures are underway to reduce single-use plastics.

Waste management and the progression of waste reduction programmes are led by hospital and healthcare facility management teams. Each hospital and healthcare facility is responsible and accountable for its own waste handling and waste reduction is achieved through a combination of changing of care delivery practices (i.e., doing things differently to reduce waste) and through the use of materials and resources that are designed to be reusable or recyclable.

HSE Procurement has established a national contract for the management and disposal of clinical waste and the HSE Green Healthcare Programme, which is funded through HSE Capital and Estates. Through this Programme, surveys and recommendations on domestic and non-clinical waste management have been shared with and implemented by several HSE Acute Hospital Management Teams. This has resulted in many examples of improvement practices and cost reduction through practice change. For example, Midlands Tullamore Hospital produced 0.5 kg less clinical waste per bed per day, saving €26,000 per annum compared to the average acute facility. The Dispose of Unused Medicines Properly (DUMP) campaign, in partnership with Cork and Kerry based pharmacists, has encouraged the responsible disposal of expired and used medicines since its inception in 2009.

In terms of water usage, the HSE has a programme in place and has developed Enhanced Guidance and training in the areas of water conservation through the HSE's Energy and Green Teams and the Green Healthcare Programme. Presently, Irish Water does not have 'one' HSE database for all Estate sites and work is currently ongoing to consolidate water data for the largest 150 HSE users along with surveying unmetered locations with a view to minimising water leaks and focusing on water monitoring, meter installations and benchmarking to create a data-driven methodology for water management.

2.5.3. Actions We Will Take

Table 7 outlines the Strategic Objective relating to Waste Management along with corresponding key next steps with an approximate timeframe for delivery.

Waste Management

Table 7: Waste Management Strategic Objective (SO) and Key Next Steps

No.	SO	Key Next Steps	Delivered By
8	Develop a HSE waste management framework and supporting implementation plan to minimise food waste generation, increase recycling and reduce the amount of clinical waste generated.	Framework and Implementation Plan - Establish a baseline for all waste generated across the HSE and benchmark local healthcare facilities. - Develop a dedicated HSE waste management framework and corresponding implementation plan. The framework will: - Identify and include all credible options and strategies to reduce environmental impact in care. - Identify opportunities to reduce waste per waste category across the HSE. For example, explore the clinical feasibility of safely replacing single-use items e.g., plastic personal protective equipment (PPE) and drapes with more sustainable alternatives. - Outline measures to increase waste segregation at point of use across HSE Estates by continuing to encourage the waste hierarchy approach to waste management (i.e., first reduce the amount of waste that is produced by HSE facilities, reprocess items for re-use, identify waste streams for recycling, and as a last resort recovering the energy generated from waste incineration). - Update and augment existing clinical and non-clinical Waste Policy and HSE Guidance documents and drive their implementation throughout our service. - Incorporate packaging reduction, circularity concept thinking, and the exclusion of hazardous chemicals, where possible, in procurement criteria. - Measure and monitor food waste by weight and cost, identifying which food items and areas bring about the most waste (e.g., kitchen, canteen, wards). - Design and roll out a HSE-wide campaign amongst staff to encourage practice change in waste reduction. - Develop tailored training to medical and clinical staff to curb the use of single-use items in medical practices.	End of 2023

No.	SO	Key Next Steps	Delivered By
8		Engagement and Collaboration - Mobilise feedback from staff and patient groups to discuss options to reduce waste. - Work in partnership with medical and clinical executive management to identify areas where circular economy principles can be safely integrated into medical practices. - Collaborate and work with authorities and third parties to improve the reuse and recycling of healthcare products and materials as well as reducing the need for incineration. - Engage with suppliers on some of most notable environmentally harmful products.	Ongoing

Water Management

Table 8 outlines the Strategic Objective relating to Water Management along with corresponding key next steps with an approximate timeframe for delivery.

Table 8: Water Management Strategic Objective (SO) and Key Next Steps

No.	SO	Key Next Steps	Delivered By
9	Develop a data-driven water consumption framework and implementation plan to report and manage water consumption and conservation measures to reduce wastage.	Water Conservation Framework and Implementation Plan - Establish a baseline for current water usage across the HSE and benchmark local healthcare facilities. - Develop a water conservation framework and corresponding implementation plan to report and manage water consumption and conservation measures to reduce wastage. The framework will: » Identify measures to promote water conservation and reduce water wastage to include best practice conservation and reduction measures. » Include details of a standardised data-driven function for intelligent water conservation planning, benchmarking, and annual reporting. » Develop a HSE-wide campaign amongst staff to encourage practice change in water reduction.	End of 2023
		Engagement and Collaboration - Mobilise feedback from staff and patient groups to discuss options to reduce water usage and identify conservation measures. - Collaborate with Green Teams, Infection Prevention and Control etc. to improve water quality management and conservation.	Ongoing

2.6. Adaptation and Resilience

2.6.1. Introduction

While the reduction of carbon emissions and the minimisation of harm on the environment (i.e. climate mitigation) is a primary focus of the global agenda for climate action, there is an equally pressing need to adapt to the many and escalating changes that are already locked in (i.e. climate adaptation). These include physical and mental health effects resulting from extreme weather events, air and water pollution, climate-related diseases, and vital resource shortages (e.g., food, water, electricity). Beyond the instances of extreme weather events (such as Storm Ophelia in 2017), a fast-changing climate creates risks of a higher prevalence of vector-borne (i.e., diseases that can be transmitted directly or indirectly between animals and humans) and water-borne diseases such as the increased rate of Verocytotoxin-producing *Escherichia coli* (VTEC) as a result of contaminated drinking water. For instance, Ireland has the highest rate of VTEC in Europe – nearly 10 times the EU average¹³ – much of which is an existing vulnerability associated with contaminated drinking water.

In broad terms, the challenge of adapting to the effects of climate change are threefold for the Health Service, namely:

- the Health Service must protect the health of the population from the onset of climate-attributable health impacts.
- the Health Service must build resilience into its human resourcing, operations, and critical infrastructure to enable continuance of safe and effective healthcare delivery in the face of a changing climate.
- the Health Service must cope with increased volumes and different patterns of demand on healthcare services, including from the massive climate migration related to loss of habitability on much of the planet.

Salient to adaptation and resilience building is ensuring equal and timely access to healthcare, a central tenet of Sláintecare reforms. The effects of climate change are not spread evenly among populations and are most pronounced for the most vulnerable citizens, including the elderly, children, those with pre-existing medical conditions, the urban poor, farmers, migrants, and coastal populations.

2.6.2. Where We Are Now

The priority areas and high-impact actions on which to focus healthcare's adaptation efforts have been identified under the Department of Health's Health Climate Change Sectoral Adaptation Plan (2019-2024). The implementation of this plan is ongoing, and it remains the key guiding adaptation strategy for the HSE. Through the implementation of the Department of Health's Health Climate Change Sectoral Adaptation Plan (2019-2024) plan, the HSE:

- plays a crucial role in informing the public on how to stay safe and healthy during climate-mediated events (including event-specific emergency management, public health risk assessment and advice and coordinated action to protect all, especially specific vulnerable groups).
- is in the process of implementing a Skin Cancer Prevention Plan as per the Climate Adaptation Plan for the Health Sector.
- is in the process of a vulnerability assessment of health infrastructure to severe weather events (i.e., extreme heat, drought, high winds, extreme participation).

Progress in implementing the plan since its inception in 2019 has been slow because of the COVID-19 pandemic and the HSE acknowledges that there are many areas needing advancement. For example, IT improvements could support the management of the regional systems in place to track and support vulnerable categories of patients. This in turn may support this data being captured and used at a national level to identify and improve resourcing needs. There is also a need to further ensure systematic retrospective reviews and anticipation of events (i.e., power outages, heavy snow etc.) and provide appropriate guidance to health service staff. It is also necessary to expand the review of resilience beyond buildings to include transportation, equipment used and supply chains.

¹³ Dearbháile Morris, Siobhán Kavanagh and Martin Cormican, *CapE-Capture, Extract, Amplify: A Rapid Method for Monitoring Large Water Volumes for Pathogenic Contaminants*, no. 151. (Wexford: Environmental Protection Agency, 2015).

The HSE will continue to implement the Department of Health Climate Change Sectoral Adaptation Plan (2019-2024) and will continue to protect and promote the health and welfare of the public and optimise resilience of critical infrastructure and resources to ensure healthcare delivery amidst a changing climate.

2.6.3. Actions We Will Take

Table 9 outlines the Strategic Objective relating to Adaptation and Resilience along with corresponding key next steps with an approximate timeframe for delivery. Note that, the next steps identified support and align with those outlined in the Department of Health's Health Climate Change Sectoral Adaptation Plan (2019-2024) are currently in progress – refer to Appendix F for the full list of actions.

Table 9: Adaptation and Resilience Strategic Objective (SO) and Key Next Steps

No.	SO	Key Next Steps	Delivered By
10	Ongoing implementation of the measures set out in the Department of Health Sectoral Adaptation Plan 2019-24 and all subsequent plans.	Ongoing implementation of the Department of Health's Health Climate Change Sectoral Adaptation Plan (2019-2024) - Complete an analysis of progress made to date by the HSE on relevant commitments set out in the Health Climate Change Sectoral Adaptation Plan. - Continue to prioritise and implement the Climate Change Adaptation Plan for the Health Sector and update for 2025 onwards when appropriate (refer to Appendix F and Table 17 for a complete set of actions).	Ongoing
		Engagement and Collaboration - Mobilise feedback from staff and patient groups to improve the implementation and measures set out in the Health Climate Change Sectoral Adaptation Plan. - Through engagement with relevant national and global stakeholders, further develop an understanding of the anticipated impacts of climate change in an Irish context and begin the process of identifying actions aimed at minimising their health impacts.	Ongoing

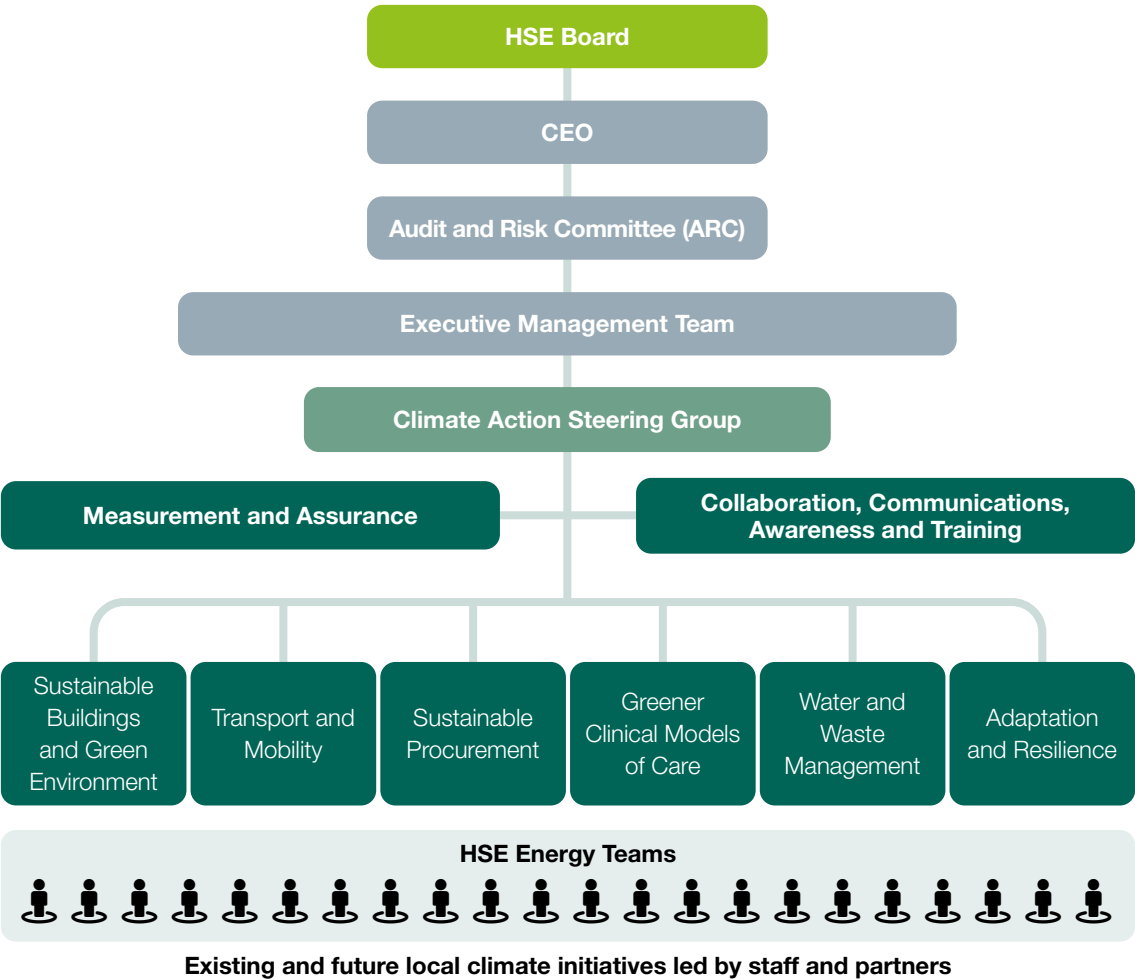
3. Strategy Implementation – Delivery Issues

This Strategy highlights the large number of sustainability and climate action related initiatives and plans under development, in progress, or planned across the HSE and the wider Health Service. This Strategy aims to unify and seeks to build on existing progress and leadership shown to date such that all initiatives and priority areas are advanced in an integrated and cohesive manner under one Climate Action Roadmap. The following sets out some key delivery issues that will support the successful and timely delivery of this Strategy.

3.1. Governance

Delivering on the ambition of the Strategy will require appropriate leadership and governance structures coupled with continuous alignment of the Strategy with revised policies and objectives at local and national levels with due consideration of risk planning processes. It is proposed that implementation of the Strategy will be governed by an overarching Climate Action Steering Group, reporting to the Executive Management Team, the HSE Audit and Risk Committee (ARC) and Board of the HSE (refer to Figure 4 outlining the high-level governance structure proposed).

Figure 4: Proposed Climate Action Implementation Governance Structure



The Climate Action Steering Group will be responsible for providing governance, direction and support to all Workstreams required to implement the Strategy. Each Workstream will be comprised of suitably qualified and experienced persons with a range of applicable expertise, working with relevant internal functions such as the: HSE Energy Teams; HSE Energy Bureau; Capital and Estates Climate Action & Sustainability Office; Health, Promotion and Improvement; and the Health and Wellbeing Division. Where effective and appropriate governance arrangements are already in place e.g., in relation to healthcare infrastructure decarbonisation as part of the wider Capital and Estates Strategy, update reports will be provided with a view to avoiding any duplication or overlap. It is also proposed to establish and appropriately resource a Programme Management Office that will support the implementation of the Strategy and have overall responsibility for reporting on the Climate Action Roadmap.

To support the delivery of the Strategic Objectives, a detailed Implementation Plan will immediately be developed to support the delivery of this Strategy and, as it progresses, more specific and time-bound targets with corresponding dedicated resources will be agreed. Where possible, supporting delivery frameworks will also be developed and shared for adaptation at a local level to help foster an enabling environment between Community Healthcare Organisations, Hospital Groups, Regional Health Areas (from 2024) and Voluntaries etc. A key implementation success factor will also be the development of or integration with local governance structures (if available).

This Strategy and implementation will be reviewed periodically with ARC and the Board of the HSE and embedded into future HSE strategies, policies, goals, and ways of working. GHG emissions and sustainability activities will also be reported over time in the annual report. This will help embed and promote ownership of sustainability issues to enable everyone to make sustainability part of their job.

3.2. Measurement and Assurance

The Measurement and Assurance Workstream will play a key role in the Strategy implementation and is responsible for:

- Providing oversight and guidance of the data capture of HSE carbon footprint (Scope 1, 2 and 3), environmental impact, and contribution to the sustainability goals across all priority areas of focus (i.e., integrate HSE Decarbonisation Roadmap with procurement, green space roadmaps etc.). Data capture will be in line with national and international standards.
- Identifying metrics and key performance indicators for corporate reporting, while setting out new operating and risk management processes, to best manage and monitor the Strategy in a timely manner.
- Effectively tracking the progress of the implementation of the Strategy on a regular basis and setting measurement rules for set data fields (this may include the development and integration of an IT platform / system to support data management and engagement with staff and suppliers).
- Regularly monitoring the success of the Implementation Plan, refining targets, reviewing best practice, reviewing lessons learnt and publishing updates as required.
- Assisting in achieving formal environmental accreditation such as ISO 14001 (Environmental Management System), with a view to going beyond ISO 14001 to adopt EMAS (Eco Management and Audit Scheme).
- On an ongoing basis provide corporate reporting update to EMT, ARC and the Board.

At present, the Measurement and Assurance Workstream is in the process of developing a measurement process and corresponding plan to measure all Scope 1, 2 and 3 HSE emissions to facilitate the implementation of the Strategy. An overview of this document highlighting the categories of emissions as per the Greenhouse Gas Protocol and the reporting requirements as per Ireland's Action Plans are shown in Table 18 in Appendix G.

3.3. Collaboration, Communication, Awareness and Training

In a rapidly evolving healthcare environment, it is essential that the HSE inspires and upskills the workforce to embrace sustainability and adapt dynamically. The HSE is Ireland's largest employer, with just under 135,000 staff comprising a diverse range of skilled professionals. This poses a unique opportunity to educate and upskill a large workforce to act as climate activists and to equip staff with the knowledge and confidence to have conversations and share inputs on how services and communities can be healthy, sustainable, and resilient. Accordingly, we will incorporate appropriate climate action training (technical and behavioural) into learning and development strategies for all staff. Training will be updated on a regular basis to keep in tune with emerging best practice and to match the skills needed to drive the successful implementation of the Strategy and to promote an overall culture of sustainability awareness. Training and awareness campaigns will cover climate issues, including a focus on reducing the organisation's carbon footprint. These staff communications could be conducted through staff workshops or pre-recorded webinars available on a dedicated climate action site to enable collaboration, promote lessons learned and generally act as a platform to support an organisational wide engagement for all staff interested in making sustainability part of their day-to-day work.

The HSE will also develop a supplier communication strategy on climate action that will assist suppliers in their understanding of the sustainability requirements. Regular staff and supplier surveys will also be issued to measure engagement with the Strategy, identify issues, chart progress, and promote empowerment and engagement. A digital information management system will be developed to support implementation with a number of purposes, namely:

- To serve as a robust data management system for Scope 1, 2 and 3 measurements.
- To allow staff engagement and sharing of learning and successful ideas.
- To allow engagement with suppliers and assist with campaigning.

Furthermore, the implementation of the Strategy will require changes to the Health Service in how it operates, how it makes decisions, and how it delivers healthcare. During the mobilisation and implementation of the Strategy, it will be imperative that stakeholder relationships remain robust, and staff, voluntary agencies, the public, public bodies, national and global peer healthcare organisations, Government, local authorities, and third-party suppliers are engaged with in a meaningful manner. The HSE has taken a collaborative approach to developing this Strategy and will continue to engage and empower stakeholders to deliver the Strategy in an inclusive and transparent manner.

Stakeholder input will also be particularly important when implementing and continuously improving the priority areas of focus. Strengthening existing partnerships and developing new relationships with stakeholders will lead to improved engagement and communication, increased trust and transparency and a growing understanding of the Strategy. At a global level, the HSE will continue to engage with suppliers and partners to share learning and collaborate on actions to protect the environment, while continuing to engage with least developed countries through the HSE Global Health Programme. This helps strengthen their health services, improve health outcomes, promote low-carbon and sustainable solutions, and adapt to the impacts of climate change.

As part of the Strategy implementation, a specific Collaboration, Communication, Awareness and Training Workstream will be established with responsibility for:

- Maintaining effective communication between all Workstreams and between various stakeholder groups to help inform the implementation of the Strategy and encourage a culture of sustainability and climate awareness.
- Identifying key stakeholders and developing associated communication plans to proactively engage with stakeholders and keep people informed of progress as well as engaging on the relevant subject matter.
- Providing communication support and assisting each Workstream in the development of engagement plans etc. with different stakeholders.
- Encouraging collaboration and learning by ensuring all aspects of the Strategy are embedded into the applicable HSE communication channels (internal and external) and training courses etc.
- Delivering Climate Action communication campaigns and activities in collaboration with the Workstreams.
- Help mobilise our workforce to tackle climate challenges in their local environment and making sustainability part of their daily routine.

3.4. Resourcing and Funding

In consultation with the Department of Health, the HSE will support the successful implementation of the Strategy by addressing the requirements for a climate action team along with key roles within the delivery system with the appropriate skills and supporting finance, where required, to ensure successful delivery. Investment in climate solutions will be prioritised based on relative impact and will be reviewed on a regular basis. In addition, consideration may be given to a Climate Transformation Fund (or similar) where support is provided over a defined period for specific tasks relating to climate action measures.

4. Conclusion

The HSE appreciates and looks forward to the significant role it will play in tackling the climate crisis, helping to reverse biodiversity loss, limit pollution and support and protect the health and wellbeing of future generations. Our workforce is central to the successful development and delivery of this Strategy. With the required governance structures in place, staff and service users will act as sustainability and climate action activists and will be supported to lead the transformation to make the Health Service a more sustainable provider.

This Strategy will be updated as additional guidance and policy information becomes available and will be followed promptly with a detailed Implementation Plan outlining all project aspects required to achieve the HSE's climate action ambitions.

5. Bibliography

Austin, Stephanie E., Robbert, Biesbroek., Lea Berrang-Ford, James D. Ford, Stephen Parker, and Manon D. Fleury. "Public health adaptation to climate change in OECD countries." *International journal of environmental research and public health* 13, no. 9 (2016): 889.

Association of Anaesthetists. "Anaesthetic gases calculator", Resources and publications. [https://anaesthetists.org/Home/Resources-publications/Environment/Guide-to-green-anaesthesia/Anaesthetic-gases-calculator#:~:text=The%20global%20warming%20potential%20\(GWP,Sevoflurane%3A%20130](https://anaesthetists.org/Home/Resources-publications/Environment/Guide-to-green-anaesthesia/Anaesthetic-gases-calculator#:~:text=The%20global%20warming%20potential%20(GWP,Sevoflurane%3A%20130)

Bell, Michelle, and Michael R. Greenberg. "Climate change and human health: links between history, policy, and science." *American journal of public health* 108, no. S2 (2018): S54-S55.

Bickerdike, Liz, Alison Booth, Paul M. Wilson, Kate Farley, and Kath Wright. "Social prescribing: less rhetoric and more reality. A systematic review of the evidence." *BMJ open* 7, no. 4 (2017): e013384.

Bosello, Francesco., Roberto, Roson., Richard, Tol. "Economy-wide estimates of the implications of climate change: human health." *Ecological Economica* 58, no. 3 (2006).

Confalonieri, U., B. Menne, R. Akhtar, K.L. Ebi, M. Hauengue, R.S. Kovats, B. Revich, A. Woodward. "Human Health" in *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II for the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, UK: Cambridge University Press, 2007.

Department of Health (2019c) National Skin Cancer Prevention Plan (2019-2022). Dublin: Department of Health.

Department of the Environment, Climate, and Communications. *Climate Action Plan 2021*. Dublin: Department of the Taoiseach, 2021.

Department of the Taoiseach. "Government announces sectoral emissions ceilings, setting Ireland on a pathway to turn the tide on climate change." Gov.ie. 28 July 2022. <https://www.gov.ie/en/press-release/dab6d-government-announces-sectoral-emissions-ceilings-setting-ireland-on-a-pathway-to-turn-the-tide-on-climate-change/>

Diamanti-Kandarakis, Evanthia, Jean-Pierre Bourguignon, Linda C. Giudice, Russ Hauser, Gail S. Prins, Ana M. Soto, R. Thomas Zoeller, and Andrea C. Gore. "Endocrine-disrupting chemicals: an Endocrine Society scientific statement." *Endocrine reviews* 30, no. 4 (2009): 293-342.

Gore, Andrea C., Vesna A. Chappell, Suzanne E. Fenton, Jodi Anne Flaws, Angel Nadal, Gail S. Prins, Jorma Toppari, and R. Thomas Zoeller. "EDC-2: the Endocrine Society's second scientific statement on endocrine-disrupting chemicals." *Endocrine reviews* 36, no. 6 (2015): E1-E150.

Government of Ireland. *Health Act*. Dublin: Stationary Office, 2004.

Green Inhaler. "The Problem with Inhalers". <https://greeninhaler.org/the-problem-with-inhalers/>

Healthcare without Harm. *Global Roadmap for Healthcare Decarbonisation: A navigational tool for achieving zero emissions with climate resilience and health equity*, Green Paper 2 (Healthcare without Harm, 2021).

Intergovernmental Panel on Climate Change. *Climate Change 2022: Mitigation of Climate Change*.

Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. UK: Cambridge University Press, 2022. doi: 10.1017/9781009157926.

IMEA. *Pathways to Net Zero: Using the IEMA GHG Management Hierarchy*, 2020.

Jeswani, Harish Kumar., Azapagic, Adisa. "Life cycle environmental impacts of inhalers." *Journal of Cleaner Production* 237, no. 117733 (November 2019). <https://doi.org/10.1016/j.jclepro.2019.117733>

Karliner, Josh., Slotterback, Scott., Boyd, Richard., Ashby, Ben., Steele, Kristian. "Healthcare's Climate Footprint: How the Health Sector Contributes to the Global Climate Crisis and Opportunities for Action". Healthcare Without Harm, 2019.

Karliner, Josh., Slotterback, Scott., Boyd, Richard., Ashby, Ben., Steele, Kristian., Wang, J. "Healthcare's climate footprint: the health sector contribution and opportunities for action." *European Journal of Public Health* 30, no. 5 (September 2020). <https://doi.org/10.1093/eurpub/ckaa165.843>.

-
- Kiang, Karen Minnie., Behne, Carol. "Delivering environmental sustainability in healthcare for future generations: Time to clean up our own cubby house." *Journal of Paediatrics and Child Health* 57, no. 11 (November 2021). <https://doi.org/10.1111/jpc.15746>
-
- Logue, P. et al. (2017) 'Hurricane Ophelia: three dead and 295,000 without power as storm enters final hours', *Irish Times*, 16 October. Available at: <https://www.irishtimes.com/news/environment/hurricaneophelia-three-dead-and-295-000-without-power-as-storm-enters-final-hours-1.3257434>. (5 August 2022)
-
- Morris, Dearbháile., Kavanagh, Siobhán., Cormican, Martin. "CapE-Capture, Extract, Amplify: A Rapid Method for Monitoring Large Water Volumes for Pathogenic Contaminants", no. 151. Wexford: Environmental Protection Agency, 2015.
-
- Mortimer, Frances, Jennifer Isherwood, Alexander Wilkinson, and Emma Vaux. "Sustainability in quality improvement: redefining value." *Future healthcare journal* 5, no. 2 (2018): 88.
-
- Nordrum, Ola Løkken, Aoife Kirk, Sathbh A. Lee, Kathryn Haley, David Killilea, Iffat Khalid, Esmeralda Cecilie Pérez et al. "Planetary health education in medical curricula in the Republic of Ireland." *Medical Teacher* (2022): 1-7.
-
- Pichler, Peter-Paul., S Jaccard, Ingram., Weisz, Ulli., Weisz, Helga. "International comparison of healthcare carbon footprints." *Environmental Research Letters* 14, no. 064004 (May 2019).
-
- Rowan, Neil J., Laffety, John G. "Unlocking the surge in demand for personal and protective equipment (PPE) and improvised face coverings arising from coronavirus disease (COVID-19) pandemic – Implications for efficacy, re-use and sustainable waste management." *Science of The Total Environment* 752, no. 142259 (January 2021). <https://doi.org/10.1016/j.scitotenv.2020.142259>
-
- Semenza, Jan C., and Bettina Menne. "Climate change and infectious diseases in Europe." *The Lancet infectious diseases* 9, no. 6 (2009): 365-375.
-
- Smith, Gillian Adair., McNair, Helen A., Barnes, Helen. "An environmentally friendly alternative to single-use plastics for radiotherapy bladder preparation." *Technical Innovations & Patient Support in Radiation Oncology* 18 (June 2021). <https://doi.org/10.1016/j.tipsro.2021.04.001>
-
- Sustainable Energy Authority of Ireland, *Energy in Ireland: 2021 Report*. (December 2021).
-
- Tseng, Ming Lang, Anthony SF Chiu, Weslyne Ashton, and Vincent Moreau. "Sustainable management of natural resources toward sustainable development goals." *Resources Conservation and Recycling* 145, no. ARTICLE (2019): 419-421.
-
- Walsh, J., and D. M. Murphy. "Combination Inhaled Corticosteroid/Long Acting Beta Agonist Therapy – An Evolving Role in Asthma Care." *Irish Medical Journal* 112, no. 2 (2019): 864-864.
-
- Watts N, Amann M, Ayeb-Karlsson S, et al. The Lancet Countdown on health and climate change: from 25 years of inaction to a global transformation for public health. *Lancet (London, England)*. (2018)
-
- Wilkinson, Alexander JK, Rory Braggins, Ingeborg Steinbach, and James Smith. "Costs of switching to low global warming potential inhalers. An economic and carbon footprint analysis of NHS prescription data in England." *BMJ open* 9, no. 10 (2019): e028763.
-
- World Health Organisation. "WHO guidance for climate-resilient and environmentally sustainable healthcare facilities." Geneva: World Health Organisation, 2020.
-
- World Health Organisation. "COP26 Special report on climate change and health: The health argument for climate action." (2021).
-

Appendix A – Overview of Alignment with UN Sustainable Development Goals

Table 10 below provides an overview of the alignment of the Strategic Objectives with the relevant UN SDGs.

Table 10: Overview of Alignment with UN SDGs.

Priority Area of Focus	Corresponding Strategic Objectives	Relevant SDGs
Sustainable Buildings and the Green Environment	SO1 – Achieve a 50% reduction in energy usage, a 51% reduction in energy-related GHG emissions by 2030 and a net-zero emission target by 2050 (at latest) under the requirement set out for Public Sector Bodies in the Climate Action Plan 2021. SO2 – Develop a HSE green space framework and supporting implementation plan to optimise the use of green space for the promotion of the health and wellbeing of patients, staff and the local communities.	     
Transport and Mobility	SO3 – Develop a HSE Transport framework and supporting implementation plan to eliminate, reduce, and substitute transport emission sources associated with delivering and accessing healthcare. SO4 – Develop a mobility framework and implementation plan to promote travel initiatives to avoid unnecessary patient and staff journeys. Where journeys are required, support and encourage active travel, low carbon or public transport alternatives.	   
Sustainable Procurement	SO5 – Develop a procured goods and services waste reduction framework and supporting implementation plan to reduce waste and related emissions, strengthen supply chain resilience and support the transition towards a circular economy. SO6 – Develop a baseline for all HSE supply chain emissions and work in consultation with key supply chain and product partners to include sustainability criteria in all tender procurement processes and establish a credible decarbonisation trajectory (no later than 2025).	  

Priority Area of Focus	Corresponding Strategic Objectives	Relevant SDGs
Greener Models of Healthcare	SO7 – Develop a framework for greener models of healthcare delivery and supporting implementation plan to reduce the environmental impact of the delivery of models of care, pharmaceutical products / services used while continuing to prioritise patient safety, prevention, and population health.	  
Water and Waste Management	SO8 – Develop a HSE waste management framework and supporting implementation plan to minimise food waste generation, increase recycling and reduce the amount of clinical waste generated. SO9 – Develop a data-driven water consumption framework and implementation plan to report and manage water consumption and conservation measures to reduce wastage.	  
Adaptation and Resilience	SO10 – Ongoing implementation of the measures set out in the Department of Health Sectoral Adaptation Plan 2019-24 and all subsequent plans.	   

Appendix B – How the Strategy was developed

Six Workstreams with diverse membership overseen by a Climate Action Steering Group with direct report to the Executive Management Team (EMT) were established at the outset of the Strategy development process. An overview of the governance structure is provided in Figure 5 below, while a summary of the initial scope of each Workstream is outlined in Table 11.

Figure 5: Climate Action Strategy Governance Structure

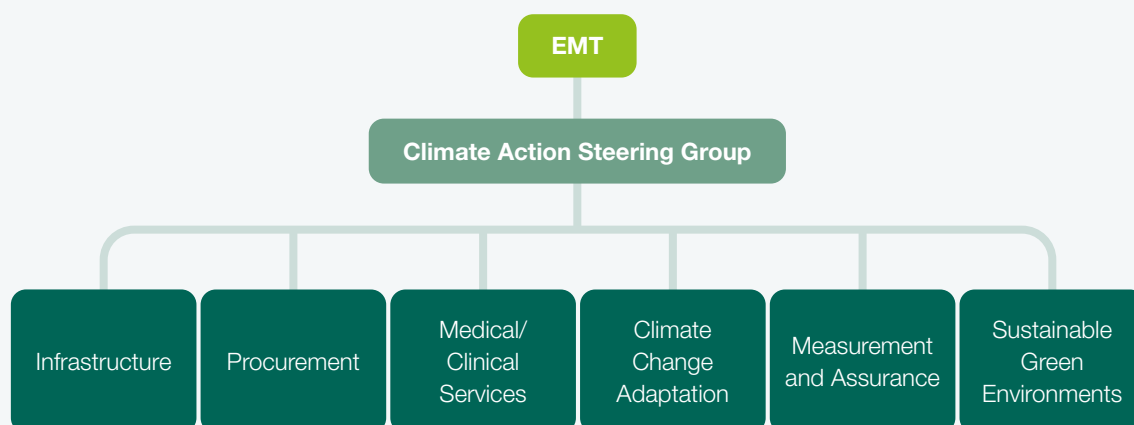


Table 11: Workstream High-Level Scope of Works

Workstream	Initial High-level Scope of Workstream
Infrastructure	• Scope 1 & 2 emissions. • Energy efficiency and new capital infrastructure. • Renewable energy. • Scope 3 emissions relating to construction services and the circular economy. • Waste and water reduction programmes. • EV strategy.
Procurement	• Scope 3 emissions relating to procurement. • Consideration of measurement issues relating to procurement. • Waste reduction (including plastics) and the circular economy. • Supply chain security.
Medical and Clinical	• Scope 3 emissions in relation to anaesthetic gases, inhalers, medicines / chemicals / medical equipment / waste, digital care delivery to reduce patient travel. • Integration of green principles in models of care: green theatres, primary care, PPE, preventative care. • Waste and plastics reduction.

Workstream	Initial High-level Scope of Workstream
Climate Change Adaptation	- Climate change impacts on health infrastructure, services, and population health with specific reference to ultraviolet (UV) radiation, worsening air pollution and severe weather events. - Business continuity and climate resilience.
Sustainable Green Environments	- Develop a framework / set of actions to improve provision, access, quality, and regular use of green spaces. - Delivery of staff engagement to promote / benefit from green spaces. - Biodiversity, restoration of natural habitats, and nature-based solutions. - Public and community transport, active travel, reduction of the need to travel.
Measurement and Assurance	- Understanding the HSE carbon footprint, environmental impacts and contribution to sustainability and climate goals. - Effective measurement and tracking of progress of the implementation of the Strategy. - Standardisation / setting of measurement rules for set data fields.

To support the development of the Strategic Objectives and supporting implementation action areas for their specific category of focus, each Workstream was focused on the following areas within their scope:

- Where are we now?
- Where do we want to be?
- How do we get there?

Significant consultation took place through both presentation-based and interactive workshops to stakeholders, over the period of June to August 2022, with vital contributions from a wide range of both internal and external stakeholders. In all, over 100 colleagues participated in the development of the Strategy over the course of 20 Workstream workshops with approximately 70 written submissions received in relation to the development of the Strategic Objectives and refinement of the Strategy.

Extensive desktop research was also conducted to benchmark peer organisations, review current policy, legislation, international standards, and best practice, which was considered and adopted where applicable, to strengthen the evidence base for the Strategy.

Appendix C – Definitions and Glossary of Terms

Table 12 provides definitions for the key terms used throughout the Strategy.

Table 12: Definitions & Glossary of Terms

Term	Definition
Carbon footprint	The total amount of GHGs which are produced, either directly or indirectly, as a result of an organisation's activities across all emission categories – Scope 1, 2 and 3.
Carbon offset	The action or process of compensating for carbon dioxide (CO ₂) emissions arising from industrial or other human activity, by participating in schemes designed to make equivalent reductions of CO ₂ in the atmosphere.
Carbon sequestration	A natural or artificial process by which CO ₂ is removed from the atmosphere and held in solid or liquid form.
Climate adaptation	The adjustment and integration of resilience to current or anticipated climate change impacts.
Climate mitigation	The prevention or reduction of GHG emissions to limit the pace and magnitude of climate change.
Climate-related physical risks	Risks arising when natural systems are compromised, due to the impact of climatic (e.g., extremes of weather) or geologic (e.g., seismic) events or changes in ecosystem equilibria, such as soil quality or marine ecology.
Climate-related transition risks	Risks that result from a misalignment between an organisation's strategy and management and the changing regulatory and policy landscape in which it operates. Developments aimed at halting / reversing the damage to nature, such as government measures, technological breakthroughs, market changes, litigation and changing consumer preferences can all impact risks.
Circular economy	A closed-loop system of production and consumption which decouples economic activity from the (over) consumption of finite resources and the generation of waste. Collaborative models of ownership (e.g., leasing) and the prioritisation of reuse, repair and reprocessing are key features of a circular economy.
Decarbonisation	The process of reducing CO ₂ emissions through the use of renewable and low carbon energy.
Deep retrofits	A deep retrofit involves making multiple energy upgrades to the building with the aim of achieving a Building Energy Rating of A.
Ecosystem services	The natural processes of plants and animals which provide co-benefits for human life and wellbeing. These include provisioning services (e.g., food and fuel), regulating services (e.g., water quality), supporting services (e.g., soil formation), and cultural services (e.g., tourism and recreation).
Energy efficiency	The use of less energy to produce the same output.
Global Warming Potential	Global Warming Potential has been developed as a metric to compare (relative to another gas) the ability of each greenhouse gas to trap heat in the atmosphere. CO ₂ was chosen as the reference gas to be consistent with the guidelines of the Intergovernmental Panel on Climate Change.
Low carbon	Energy, a product, or process that produces less CO ₂ than the mainstream.

Term	Definition
Net-zero	Achieving a balance between the carbon emitted into the atmosphere, and the carbon removed from it. As per Science Based Targets initiative (SBTi), to contribute to societal net-zero goals, organisations must deeply reduce emissions and counterbalance the impact of any emissions that remain. The SBTi Net-Zero Standard defines corporate net-zero as: - Reducing Scope 1, 2, and 3 emissions to zero or to a residual level that is consistent with reaching net-zero emissions at the global or sector level in eligible 1.5°C-aligned pathways. - Neutralising any residual emissions at the net-zero target year and any GHG emissions released into the atmosphere thereafter.
Preventative care	The prevention of illness to alleviate the burden of disease and associated health risk factors.
Science-based target	Emissions reductions targets adopted by companies to reduce GHG emissions are considered “science-based” if they are in line with the level of decarbonisation required to keep global temperature increase in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement – limiting global warming to well-below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C. This level of decarbonisation is also known as “net-zero”.
Scope 1 emissions	Direct GHG emissions that occur from sources that are controlled or owned by an organisation (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles).
Scope 2 emissions	Indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling.
Scope 3 emissions	The result of activities from assets not owned or controlled by the reporting organisation, but that the organisation indirectly impacts in its value chain. Scope 3 emissions include all sources not within an organisation’s Scope 1 and 2 boundaries.
Shallow retrofits	A shallow retrofit involves making minimal energy upgrades to a building to improve its energy efficiency. This includes measures such as installing insulation, heating controls, efficient lighting, and draught-proofing.
Sláintecare	The ten-year programme designed by the Department of Health to transform Ireland’s health and social care services.
Supply chain	A network of individuals, suppliers, resources, and processes involved in the delivery of a product or service.
Zero emissions vehicles	A vehicle that does not emit exhaust gas or harmful pollutants.

Appendix D – Drivers of Change

There is an appetite for climate action both within the Health Service and across the wider public. From a regulatory perspective, a myriad of policies is identified as driving the commitment outlined in the Strategy. These comprise internal policies of the HSE, as well as policies, strategies, and legislation that are adopted at a national and EU level.

An overview of key national policy drivers is outlined in Table 13. Please note that the Table is provided for information purposes only and should not be taken as a complete list of requirements to which the Health Service is subject.

Table 13: National Drivers of Change

National Drivers	Key elements for the Health Service	Link
Climate Action and Low Carbon Development (Amendment) Bill (2021)	A legally binding framework with clear targets and commitments set in law, to support Ireland's transition to net-zero and achieve a carbon neutral economy by no later than 2050.	Link
The Government's Climate Action Plans 2021 and 2023	Climate Action Mandate for public bodies.	Link (2021) Link (2023)
National Development Plan (2021-2030)	Addresses the opportunities and challenges faced by Ireland over the coming years from issues such as COVID-19, Brexit, housing, health, climate change and a population projected to grow by one million people between 2016 and 2040.	Link
Climate Change Adaptation Plan for the Health Sector (2019-2024)	The Plan identifies the main climate change-related impacts and risks expected in the health sector in the coming years and identifies concrete measures we can take to build resilience and to reduce our vulnerabilities. The main areas of focus are as follows: • UV radiation and sun exposure. • A worsening of air pollution due to climate change. • Severe weather events that are likely to become more frequent (windstorms, heatwaves, flooding and extreme cold snaps.)	Link
Circular Economy and Miscellaneous Provisions Bill (2022)	The Bill consolidates the requirements set out in the Waste Action Plan for a Circular Economy 2020. It enshrines the circular economy in Irish law, incentivising the use of reusable and recyclable materials in the place of single-use items. It sets out a requirement for mandatory segregation by commercial bodies.	Link
National Policy Framework on Alternative Fuels Infrastructure for Transport in Ireland (2017)	The Framework sets out a vision for Ireland for renewable transport. It requires that by 2030, all new cars and vans sold in Ireland will be zero-emission vehicles.	Link
Draft Electric Charging Infrastructure Strategy (2022-2025)	The Government strategy for the delivery of EV charging points, which will support Ireland in achieving its climate targets. The strategy is currently available in its draft form and is open to public consultation.	Link
OGP Public Procurement Guidelines	Rules for best practice and standardised public procurement standards, ranging from routine purchasing to more large-scale contracts. The HSE is subject to these rules.	Link

National Drivers	Key elements for the Health Service	Link
Sláintecare	The Department of Health's Sláintecare Programme is centred around the delivery of safe, high-quality health and social care that meets the needs of Ireland's growing population. The Sláintecare Implementation Strategy and Action Plan 2021-2023 focuses on two reform programmes: 1. Improving safe, timely access to care and promoting health and wellbeing. 2. Addressing health inequalities – towards universal healthcare.	Link
Healthy Ireland Action Plan (2021-2025)	Building on the success of the Healthy Ireland Framework (2013) and implementing the actions of Sláintecare, the plan sets out targets including: • Develop 18 Sláintecare healthy communities in disadvantaged areas. • Help 4,500 people to live independently, and with dignity, in their own home through the Sláintecare age-friendly healthy homes scheme. • Implement a healthy campus programme in 30 third level institutions. • Develop new policies and action plans addressing sexual health, physical health, nutrition, obesity, and mental health promotion.	Link
Whole of Government Circular Economy Strategy	As the first national circular economy strategy in Ireland, the strategy builds on the commitment of the Waste Action Plan for a Circular Economy. The strategy aims to: • Establish a policy framework for the national transition to a circular economy and promote public sector leadership in adopting circular policies and practices. • Raise awareness of the benefits of a circular economy among individuals, households, and businesses. • Support Ireland's increased investment in the transition to a circular economy to deliver sustainable and regionally balanced economic growth and employment.	Link
Sharing the Vision – A Mental Health Policy for Everyone (2020-2030)	'Sharing the Vision' is the successor to 'A Vision for Change' (2006). This policy integrates inter-departmental recommendations to support development of a whole system mental health policy that aligns with the 10-year vision for transformation of health and social care services outlined in Sláintecare. The policy places emphasis on recovery-oriented care, integrated services, inclusion, and service delivery that addresses promotion, prevention, and early intervention.	Link

An overview of key internal national policy drivers is outlined in Table 14. Please note again that the Table is provided for information purposes only and should not be taken as a complete list of requirements to which the Health Service is subject.

Table 14: EU and International Drivers of Change

EU and International Drivers	Key elements for the Health Service	Link
Agenda for Sustainable Development	Shared vision to promote the health and wellbeing of the global population.	Link
The European Green Deal	In response to climate change and environmental degradation challenges, the European Green Deal aims to transform the EU into a modern, resource-efficient, and competitive economy, ensuring: • no net emissions of greenhouse gases by 2050. • economic growth decoupled from resource use. • no person and no place left behind. The European Green Deal set the blueprint for this transformational change. Current European environmental strategies and action plans that aim to contribute to the objectives of the European Green Deal include, but are not limited to, the following: • Biodiversity Strategy for 2030 – sets out a long-term plan to protect nature and reverse the degradation of ecosystems. • Circular Economy Action Plan – promotes the concept of circularity and paves the way for a more competitive and cleaner Europe. • Environmental Action Programme to 2030 – sets out Europe's environmental policy to 2030. • Plastics Strategy – considers microplastics, plastic waste, and single-use plastics and aims to contribute to the circular economy. • Zero Pollution Action Plan – focuses on air, soil, and water as part of the European Green Deal. All 27 EU Member States committed to turning the EU into the first climate neutral continent by 2050. To get there, they pledged to reduce emissions by at least 55% by 2030, compared to 1990 levels.	Link

Internal Policy Context

The Health Service has a myriad of internal policies, strategies, and action plans which establish its strategic ambitions and set a context of strong governance for the current Climate Action Strategy. These include and are not limited to those outlined in Table 15.

Table 15: HSE Policies and Strategies

HSE Policy / Strategy	Brief Description	Link
HSE Corporate Plan (2021-2024)	Sets out a vision and strategy for service delivery, focusing on enabling the delivery of Sláintecare by moving care from a hospital to community setting, addressing access to care and ensuring value for money. The Corporate Plan provides the context for necessary capital developments in primary, community and acute settings, including the construction of new or expanded facilities.	Link
Draft HSE Property Management Strategy	An essential enabler to providing safe, secure, and high-quality healthcare infrastructure, which can support current and future service needs, while setting out a clear strategic direction for the future management and development of the estate. The strategy adopts a longer-term perspective (2022 – 2050) of the estate with an aim to support the delivery of key HSE strategic priorities. It explicitly calls out the ambition to achieve net-zero carbon emissions no later than 2050.	Link to follow
HSE Decarbonisation Roadmap	The strategy and roadmap to decarbonise HSE buildings and energy systems is directly linked to the emissions reduction requirement of the Climate Action Plan 2021 and Climate Action and Low Carbon Development (Amendment) Bill. It outlines seven priority Workstreams to accelerate to achieve decarbonisation of both new and existing facilities: 1. Continue and enhance the HSE partnership agreement with the SEAI. 2. Energy Bureau, Energy Teams and Shallow Retrofit Programme. 3. EED and TZC Design. 4. Deep Energy and Carbon Retrofit Programme. 5. Metering, Modelling and Data Consolidation. 6. Sustainability and the Green Healthcare Programme. 7. Support wider Healthcare Decarbonisation.	Link

HSE Policy / Strategy	Brief Description	Link
HSE Corporate Procurement Plan (2022-2024)	The plan sets out the key priorities to be delivered over the next three years to improve and enhance procurement activities within the health service and is a requirement under Section 8.20 of the 2016 Code of Practice for the Governance of State Bodies. It aims to address existing challenges in HSE procurement activities to achieve the procurement mission and objectives to: • Support service delivery across the health sector. • Maintain effective governance and compliance. • Achieve greater value for money to support reinvestment into patient care and service delivery. • Facilitate environmental, societal, and economic objectives through procurement. The plan outlines its vision for the future of procurement, which is centred around the implementation of the new Integrated Financial Management System, the enablement of procurement self-service, and new ways of working with suppliers. In addition, sustainable and green procurement will form a major part of this vision, with a commitment to align evaluation criteria to climate and wider sustainability goals.	Link
HSE's Green Healthcare Programme	Driven by the Estates Climate Action and Sustainability Office, the Programme provides hospitals with information resources on how to conserve water, reduce medical and food waste, and increase recycling levels. These resources include fact sheets, how-to guides, best practice examples and case studies.	Link
Waste Management Awareness Handbook (2014)	This handbook supports awareness of good practice in waste management for all staff working in the healthcare sector. It aims to reduce the health and safety risk associated with healthcare waste and support compliance with relevant policies and statutory requirements. It also supports reduction of the environmental impact of waste through more efficient waste management practices.	Link
HSE Waste Policy (2016)	This policy supports maintenance of “a waste management system that is safe, efficient, cost-effective and respectful of the environment”. Guiding principles are outlined to meet the primary aim of the policy, ensuring safe handling of healthcare waste, and minimising the environmental impact of waste. The secondary aims of the policy: (a) appropriate treatment and recovery methods for healthcare waste, (b) integration of services to minimise costs and optimise resources, (c) consistent application of standards across the health services, and (d) smooth implementation of new Regulations and European Directives are also addressed within the policy.	Link
eHealth Strategy for Ireland	This strategy provides an outline of eHealth and demonstrates how it can support delivery of accessible patient centred care, service reform, optimised efficiency practices and resource utilisation and overall economic growth and development.	Link

Appendix E – Drivers of Emissions in Healthcare

Table 16 provides some details and definitions of Scope 1, 2 and 3 emissions typical of healthcare environments.

Table 16: An Overview of Drivers of Emissions in Healthcare

Scope	Category as per Greenhouse Gas Protocol	Subcategory	Definition
Scope 1	Fuels used in buildings	N/A	Direct GHG Emissions: Emissions from buildings, vehicles and equipment owned or controlled by the HSE.
	Fuels used in vehicles	N/A	
	Fuels used in equipment	N/A	
Scope 2	Electricity used in own buildings	N/A	Indirect GHG Emissions: Emissions from the generation of purchased electricity, steam, heating, or cooling consumed by the HSE.
	Electricity used in own vehicles	N/A	
	Electricity used in own equipment	N/A	
Scope 3	Purchased goods and services	• Medicines and chemicals • Medical Equipment • Non-Medical Equipment • Inhalers • Anaesthetic gases • Food, catering, and nutrition • Construction • Professional Services • Computers, electronic and optical equipment • Others	This category includes all upstream (i.e., cradle-to-gate) emissions from the production of products purchased or acquired by the HSE in the reporting year. Products include both goods (tangible products) and services (intangible products).
	Capital goods	N/A	This category includes all upstream (i.e., cradle-to-gate) emissions from the production of capital goods purchased or acquired by the HSE in the reporting year. Emissions from the use of capital goods by the HSE are accounted for in either Scope 1 (e.g., for fuel use) or Scope 2 (e.g., for electricity use), rather than in Scope 3.

Scope	Category as per Greenhouse Gas Protocol	Subcategory	Definition
Scope 3	Fuel- and energy-related activities not included under Scope 1 & 2	Well-to-tank emissions	This category includes emissions related to the production of fuels and energy purchased and consumed by the reporting company in the reporting year that are not included in Scope 1 or Scope 2. Well-to-tank emissions are generally included under this category. A well-to-tank emissions factor, also known as upstream or indirect emissions, is an average of all the GHG emissions released into the atmosphere from the production, processing and delivery of a fuel or energy vector.
	Transportation and distribution	Tier 1 suppliers	Transportation and distribution of products purchased in the reporting year, between the HSE's tier 1 suppliers and its own operations in vehicles not owned or operated by the HSE (including multi-modal shipping where multiple carriers are involved in the delivery of a product but excluding fuel and energy products).
		Third-party transportation and distribution services	Third-party transportation and distribution services purchased by the HSE in the reporting year (either directly or through an intermediary), including inbound logistics, outbound logistics (e.g., of sold products), and third-party transportation and distribution between a company's own facilities.
	Waste	N/A	This category includes emissions from third-party disposal and treatment of waste generated in the HSE's owned or controlled operations in the reporting year. This category includes emissions from disposal of both solid waste and waste water.
	Business travel	N/A	This category includes emissions from the transportation of HSE employees for business-related activities in vehicles owned or operated by third parties, such as aircrafts, trains, buses, and passenger cars.

Scope	Category as per Greenhouse Gas Protocol	Subcategory	Definition
Scope 3	Employee commuting		This category includes emissions from the transportation of employees between their homes and their worksites. Emissions from employee commuting may arise from: • Automobile travel • Bus travel • Rail travel • Air travel • Other modes of transportation (e.g., subway, cycling, walking). The HSE may include emissions from teleworking (i.e., employees working remotely) in this category. A reporting company's Scope 3 emissions from employee commuting include the Scope 1 and Scope 2 emissions of employees and third-party transportation providers.
	Leased assets	Companies that operate leased assets (i.e., lessees)	This category includes emissions from the operation of assets that are leased by the HSE in the reporting year and not already included in the reporting company's Scope 1 or Scope 2 inventories. This category is applicable only to companies that operate leased assets.
		For companies that own and lease assets to others (i.e., lessors)	This category includes emissions from the operation of assets that are owned by the HSE (acting as lessor) and leased to other entities in the reporting year that are not already included in Scope 1 or Scope 2. This category is applicable to lessors (i.e., companies that receive payments from lessees).

Appendix F – Climate Adaptation Plan Actions for the Health Sector

The Government's Climate Action Plan 2021 outlines the main climate change-related risks and vulnerabilities expected to be faced in the health sector and identifies priority actions to be implemented to protect public health, promote workforce and organisation preparedness, and ensure infrastructure resilience.

An overview of priority areas and high-impact actions on which to focus healthcare's adaptation efforts have been identified under the Department of Health's Health Climate Change Sectoral Adaptation Plan (2019-2024) and is outlined in Table 17.

Table 17: Climate Change Sectoral Adaptation Plan Priority Areas and High-Impact Actions.

Leadership and Oversight
Actions
1.1. A structured, dynamic, and inclusive approach to climate change action in the health sector driven by a new Climate Change Oversight Group.
1.2. Clear, whole-of-organisation leadership demonstrated by the Department of Health and by the HSE, including: specific responsibilities outlined by relevant divisions; future proofing health investment including major infrastructure projects to prevent costly mal-adaptation; and climate change risks to feature in organisational risk registers (<i>aligns with action 477 of Climate Action Plan</i>).
1.3. To help ensure that a Health in All Policies approach is applied, identify, review, and mobilise relevant cross-sectoral mechanisms.
1.4. Priority focus on research and data to develop a better understanding of the health impacts of climate change in Ireland (<i>aligns with action 478 of Climate Action Plan</i>).
1.5. Ensure effective health service planning for climate resilience (<i>aligns with action 479 of Climate Action Plan</i>).
1.6. The new Climate Change Oversight Group to identify and build collaborative relationships with key stakeholders to guide implementation of this health sector adaptation plan (<i>aligns with action 480 of Climate Action Plan</i>).
Severe weather events
Actions
2.1. Development of a new public health heat wave plan (<i>aligns with action 481 of Climate Action Plan</i>).
2.2. Conduct a major survey of health infrastructure resilience to severe weather events: wind events, heat waves, flooding, extreme cold snaps (<i>aligns with action 482 of Climate Action Plan</i>).
2.3. Identify and put in place appropriate business continuity measures to ensure continuity of service provision during severe weather events.
2.4. As standard, conduct and widely share lessons learned (effectiveness of actions, cost, new risks) following each severe weather event.
UV
Actions
3.1. Full implementation of the recently launched National Skin Cancer Prevention Plan that includes multiple actions pertinent to climate change (<i>aligns with action 483 of Climate Action Plan</i>).
3.2. Continue UV-related cancer registration and epidemiology and expand based on emerging climate change requirements (<i>aligns with action 484 of Climate Action Plan</i>).
3.3. As part of the infrastructure survey (Action 2.2 above), review the current and emerging building infrastructure and its potential associations with climate-sensitive UV health impacts in the indoor and outdoor architectural environment (<i>aligns with action 485 of Climate Action Plan</i>).

Air Pollution**Actions**

- 4.1. Build and refine Irish-specific climate change epidemiology relating to air pollution and identify risk groups (*aligns with action 486 of Climate Action Plan*).
- 4.2. Improve public education for vulnerable populations (asthma, COPD) on the use of the Environmental Protection Agency's Air Quality Index for Health, on the causes of air pollution and aeroallergens, and on what they can do to reduce exposure.
- 4.3. Advocate the adoption of policies in all sectors to reduce emissions that negatively impact on air quality and public health.

Monitoring, Research and Evaluation**Actions**

- 5.1. Climate Change Oversight Group (CCOG) early work to include:
 - early identification of resources for effective implementation.
 - agree performance indicators / outcome measures and develop a monitoring framework (in line with statutory requirements).
 - identify data requirements to support and monitor implementation of the plan.
- 5.2. Identify and progress research agenda to develop a better understanding of health impacts of climate change and support ongoing climate change planning and action.
- 5.3. Research to determine a baseline for awareness and behaviours that relate to Action Areas 1-4 above, inform communications strategies, and measure the impact of engagement through a subsequent survey.
- 5.4. Review plan after 3 years.

Appendix G – DRAFT Outline of Measurement and Assurance Approach

Table 18 below highlights the first draft of the categories of emissions as per the Greenhouse gas protocol.

Table 18: DRAFT Outline of Measurement and Assurance Approach

Scope Category	Categories as per Greenhouse gas protocol	Subcategories	Included in Ireland Climate Action Plan 2021 for reporting (Yes/No)	Included in Ireland Climate Action Plan 2021 for Net-Zero Target (Yes/No)	Baseline CO ₂ emissions (t CO ₂ e)	Responsible Lead
Scope 1	Fuels used by own buildings and vehicles	N/A	Yes	Yes	230,000	Infrastructure
Scope 3	Leased assets	Fuels used in leased buildings and vehicles	Yes	Yes		Infrastructure
Scope 2	Electricity used in leased buildings, vehicles, and equipment	N/A	Yes	Yes		Infrastructure
Scope 3	Leased assets	Electricity used in leased buildings, vehicles, and equipment	Yes	Yes		Infrastructure
Scope 3	Purchased goods and services	Medicines & Chemicals	No/Optional Reporting	Currently not included under Climate Action target	Baseline to be developed	Procurement/ Medical & Clinical
	**The list of subcategories is non-exhaustive	Medical Equipment	No/Optional Reporting			Procurement/ Medical & Clinical
		Non-Medical Equipment	No/Optional Reporting			Procurement/ Medical & Clinical
		Inhalers	No/Optional Reporting			Procurement/ Medical & Clinical

Scope Category	Categories as per Greenhouse gas protocol	Subcategories	Included in Ireland Climate Action Plan 2021 for reporting (Yes/No)	Included in Ireland Climate Action Plan 2021 for Net-Zero Target (Yes/No)	Baseline CO ₂ emissions (t CO ₂ e)	Responsible Lead
		Anaesthetic gases	No/Optional Reporting			Procurement/ Medical & Clinical
		Food, catering, and nutrition	No/Optional Reporting			Procurement
		Construction	No/Optional Reporting			Procurement/ Infrastructure
		Professional Services, Agency	No/Optional Reporting			Procurement
		Others	No/Optional Reporting			Procurement
		N/A	No/Optional Reporting			Procurement
	Capital goods	N/A	No/Optional Reporting	Currently not included under Climate Action target	Baseline to be developed	Procurement
	Fuel- and energy-related activities not included under Scope 1 & 2	Transmission and distribution losses	No/Optional Reporting		Baseline to be developed	Infrastructure
		Well-to-tank emissions	No/Optional Reporting			Infrastructure
		Others	No/Optional Reporting			Infrastructure
	Transportation and distribution	N/A	No/Optional Reporting		Baseline to be developed	Procurement
	Waste generated in operations and Water	N/A	No/Optional Reporting		Baseline to be developed	Procurement/ Infrastructure
	Business travel	N/A	Yes		Baseline to be developed	Procurement
	Employee commuting	N/A	No/Optional Reporting		Baseline to be developed	TBC
	Patient, Visitor travel	N/A	No/Optional Reporting		Baseline to be developed	TBC

Scope Category	Categories as per Greenhouse gas protocol	Subcategories	Included in Ireland Climate Action Plan 2021 for reporting (Yes/No)	Included in Ireland Climate Action Plan 2021 for Net-Zero Target (Yes/No)	Baseline CO ₂ emissions (t CO ₂ e)	Responsible Lead
	Processing of sold products	N/A	No/Optional Reporting		Baseline to be developed	TBC
	Use of sold products	N/A	No/Optional Reporting		Baseline to be developed	TBC
	End-of-life treatment of sold products	N/A	No/Optional Reporting		Baseline to be developed	TBC
	Franchises	N/A	No/Optional Reporting		Baseline to be developed	TBC
	Investments	N/A	No/Optional Reporting		Baseline to be developed	TBC

