HSE Capital & Estates

Infrastructure Decarbonisation Roadmap






June 2024

We're taking climate action

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Introduction

Purpose

The Government's Climate Action Plan sets out the energy efficiency and energy related Green House Gas (GHG) emissions reduction targets which Public Sector Bodies in Ireland are legally obliged to meet, and mandates the HSE as a Public Body to develop a Roadmap setting out how it will deliver these targets.

This second update of the HSE Capital & Estates Infrastructure Decarbonisation Roadmap has been developed by HSE Capital & Estates in response to this obligation and incorporates all updated targets and requirements contained in the third annual update to Ireland's Climate Action Plan (Climate Action Plan 2024 - CAP24).This Roadmap will deal with the sustainable infrastructure actions under the remit of Capital & Estates to meet the energy efficiency and energy related Green House Gas (GHG) emissions reduction targets. Appendix 1 of this roadmap clarifies these actions and any actions not under the remit of Capital & Estates which will be addressed in the implementation of the HSE's wider Climate Action Strategy 2023 – 2050

The Government's Climate Action Plan 2024 and the Climate Action and Low Carbon Development (Amendment) Bill 2021 is aligned with the European Green Deal, which sets out European Commission policy initiatives with the overarching aim of making the European Union (EU) climate neutral by 2050. Energy policy and directives such as the Energy Performance of Buildings Directive (EPBD) and the Energy Efficiency Directive (EED) are being updated under the European Green Deal and will transposed into Irish legislation and reflected in the Irish Government's annual updating of the Climate Action Plan.

This Roadmap outlines the work undertaken by the HSE Capital & Estates to date and our approach to continuing to achieve the targets set out in CAP24 through reduction of carbon emissions from our buildings and their operation by reducing energy usage and shifting the HSE's energy sources from fossil fuels towards renewable and carbon zero energy sources. It also includes an approach to and actions required to address the EU energy policy and directives which are being introduced.

The Roadmap forms an integral part of the HSE Capital & Estates Strategy and Implementation Plan 2022 - 2050 in addressing the strategic objective of achieving an estate that is net Carbon Zero by 2050 and it also supports the objectives of the HSE's wider Climate Action Strategy.

2025 and 2030 Key Performance Indicators

To meet the required level of emissions reduction HSE Capital & Estates will (as per Section 10.2 CAP 24):

By 2025

- Review the Public Sector Climate Action Mandate annually and update Climate Action Roadmaps in line with the updated mandate[1].
- Act towards achieving our buildings and retrofitting targets

By 2030

- Reduce GHG emissions from the sector by 51%
- Improve energy efficiency in the public sector by 50%

[1] Capital & Estates will update the HSE Infrastructure Decarbonisation Roadmap, actions not under the remit of Capital & Estates are addressed in the HSE's Climate Action Strategy 2023 - 2050.

Decarbonisation Targets and Scope

These targets relate to:

- **Scope 1 Emissions:**

  Direct energy related emissions from fuel (Oil, Gas, Coal etc.) used by owned buildings, vehicles and equipment (including energy used for heating, catering, and the delivery of clinical services).

AND

- **Scope 2 Emissions:**

  Indirect energy related emissions from electricity used by owned buildings, vehicles and equipment.

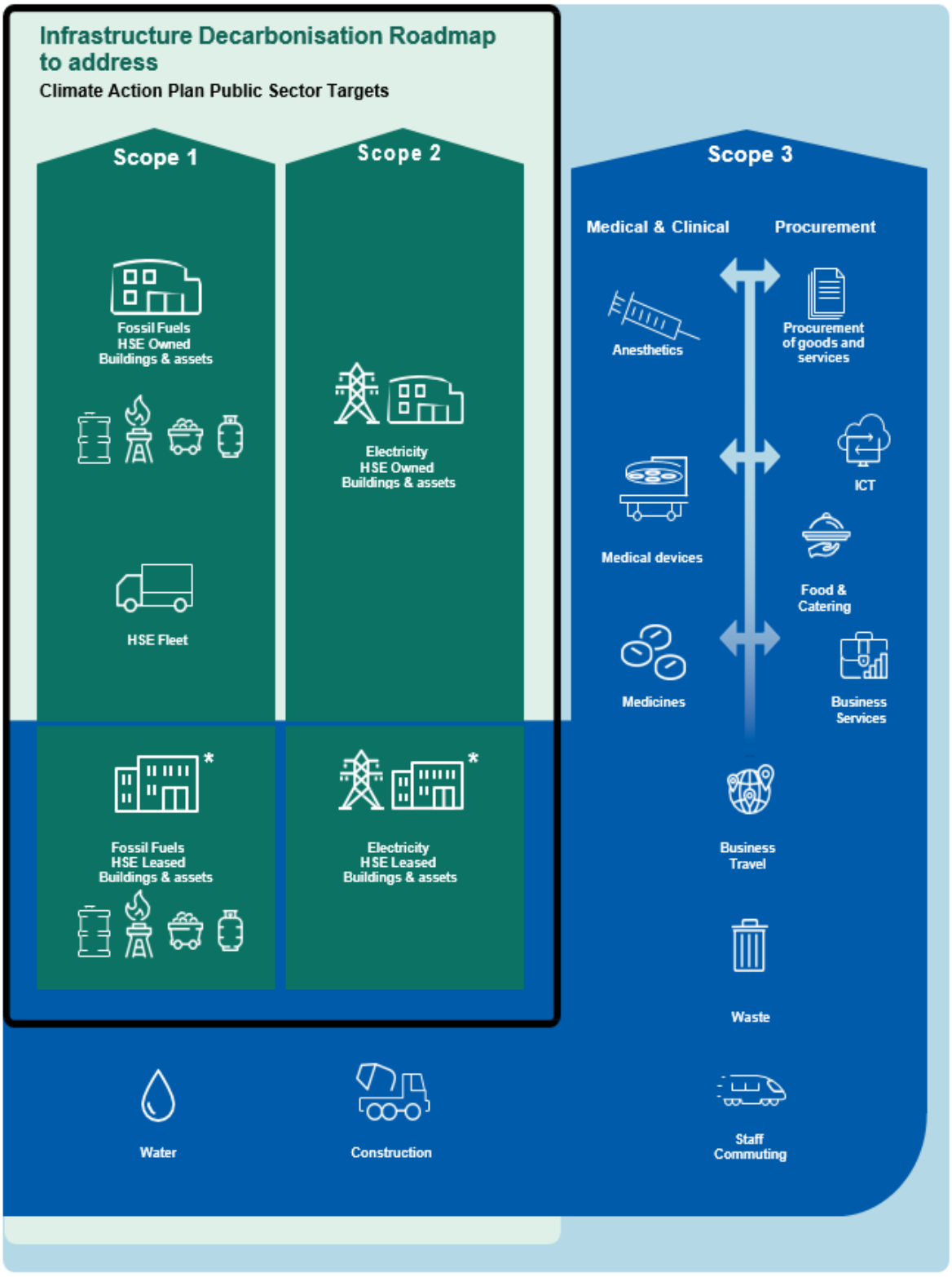
AND

- Energy related emissions from fuel (Oil, Gas, Coal etc.) and electricity used by leased and controlled buildings, vehicles and equipment also.

These emissions associated with buildings and vehicles which the HSE lease are classified as Scope 3 emissions in international GHG protocols but are treated as Scope 1 and Scope 2 emissions by the Irish Government's Climate Action Plan. The HSE treat emissions from leased buildings and vehicles as Scope 1 and Scope 2 emissions within this Infrastructure Decarbonisation Roadmap.

The targets set for the Public Sector do not include any non-energy related Scope 3 emissions. It is anticipated that such emissions may be included in future updates of the Government's Climate Action Plan but they are not currently. The Carbon Budgets that are being developed by Government currently relate to energy emissions only for the commercial and public buildings sector.

HSE Carbon Footprint



Graphic 1: Scope of Climate Action Plan Public Sector Targets & Scope of HSE Infrastructure Decarbonisation Roadmap

* These are classified as Scope 3 emissions in international GHG protocols but are being considered and treated as Scope 1 and Scope 2 emissions by the Irish Governments Climate Action Plan. The HSE are treating these emissions as Scope 1 and Scope 2 emissions within this Infrastructure Decarbonisation Roadmap.

Interrelationships

This Roadmap will be updated annually and will be directed, coordinated and delivered as part of the implementation of the HSE Capital & Estates Strategy, to deliver the strategic objective to develop an estate that is net zero no later than 2050. It will also support the strategic objectives of the wider HSE Climate Action Strategy which will include an approach to reducing supply chain carbon emissions and emissions associated with the provision of medical and clinical services.

This Roadmap builds on existing work streams progressed by HSE Capital & Estates and its partners, particularly the Sustainable Energy Authority of Ireland (SEAI), outlining next steps and significant deeper actions that will be required. Continuation of this SEAI partnership approach and support will be critical to the HSE achieving its decarbonisation targets.

The Government's Climate Action Plan notes that reducing our greenhouse gas emissions will require significant public and private capital investment. The HSE recognises that significant funding will be required to support the actions that are outlined in this Roadmap. Definitive costs are now being established as part of the HSE's Deep Energy Retrofit Pilot Pathfinder Project. This will provide evidence-based costs to inform the HSEs approach to the required large-scale, deep energy renovation of the Health Estate.

Approach and Actions to Date

The HSE has an extensive estate with a large variation in types of services being delivered and buildings from which services are delivered. There are approximately 2,500 sites and approximately 4,500 individual buildings with approximately four million square meters of floor area. Ownership of the estate is made up of circa 67% state-owned freeholds and 33% leaseholds.

In 2018, HSE Capital & Estates, on behalf of the HSE, entered into a partnership arrangement with the Sustainable Energy Authority of Ireland (SEAI), which established a joint co-funding Memorandum of Understanding (MoU) to progress the Energy Efficiency agenda in the HSE. The agreement is based on a shared capital contribution funding arrangement. In 2021 the HSE/SEAI agreement was expanded into a three-year rolling programme, with the initial period being 2021 to 2023 and having an indicative funding envelope of €60 million. The HSE and SEAI are in the process of updating the MoU and developing the 2024 – 2026 work programme.

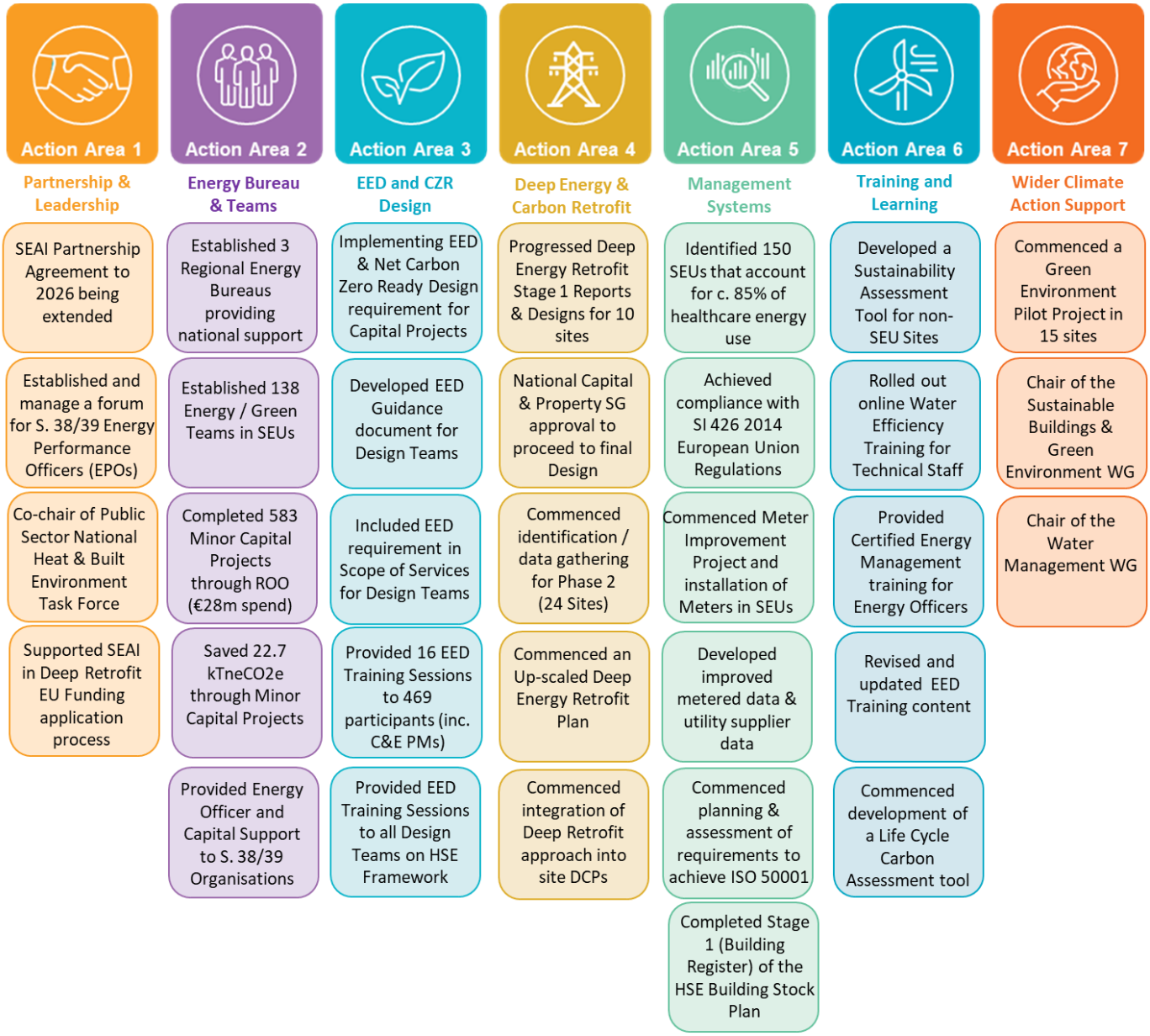
The Capital & Estates Sustainable Infrastructure Office engages with a number of other Key Stakeholders including the Department of Health, Department of the Environment, Climate and Communications, Department of Public Expenditure and Reform, the National Heat & Environment Taskforce and NHS Estates. The HSE Capital & Estates Sustainable Infrastructure Office Lead co-chairs the National Heat & Built Environment Public Sector Sub-Group and the HSEs Climate Action Strategy Built Environment & Green Spaces Working Group.

To better understand energy use across the Healthcare Estate, and focus resources on the largest energy users, the Capital & Estates team developed a Significant Energy User (SEU) database in 2019. In 2023 this database was reviewed and updated based on improved data. The updated SEU list has identified 150 Healthcare sites (HSE and Section 38/39 agencies) which account for 85% of total energy usage, 103 of these sites account for 80% of HSE Usage.

The HSE's approach, through its partnership programme with SEAI, has focused on reducing heating energy use and electricity use across these 150 SEUs through behavioural change, supported engineering retrofit and upgrade works and a forward looking energy efficient design approach for all new capital works. These actions have resulted in significant progress (19.9% progress against 50% improvement in energy efficiency by 2030 target) and reductions in Scope 1 and Scope 2 emissions but it is also clear that the work streams need to be enhanced and expanded to achieve the targets 2030 and 2050 targets.

Highlight of Actions to date

In 2021 the Capital & Estates Sustainable Infrastructure Office was established through a restructuring and augmentation of existing resources. This includes a dedicated Energy Unit to assist and coordinate the Regional Energy Bureaus, support Energy Management Teams and to manage the SEAI partnership programme and capital administration process. Capital and Estates, through its Sustainable Infrastructure Office, have progressed a number of programmes and projects highlighted below.



Timeline of progress to date

2009 +

Local energy initiatives and projects

2016

Included requirement for Energy Efficient Design (EED) in Design Team Scope of Services

2018

Implemented a joint HSE/SEAI Partnership Agreement

Established a Pilot Energy Bureau in East area

2019

Improved Data gathering & identified Significant Energy Users

Established Regional Estates Energy Bureaus (East, South, West) & employed a network of Energy Officers

Started to establish Energy Teams in SEU & support existing Energy Teams

Developed Registers of Opportunity (ROO) for shallow energy retrofit works

Commenced annual shallow energy retrofit works programme

Enhanced requirement for Energy Efficient Design (EED) in Design Team Scope of Services

2020

Restructured HSE Capital & Estates and established Climate Action & Sustainability Office

2021

Progressed National Energy Efficient Design (EED) Training Programme

Updated EED requirements to Net Carbon Zero Ready

Commenced the Pilot Pathfinder Programme – Deep Energy Retrofit

Initiated Meter Improvement Programme

Independent assessment of compliance with legal energy audit obligations set out in SI426

Engaged an approved external provider as an Obligated Party for the HSE to avail EEOS scheme

2022

Published first HSE Capital & Estates Infrastructure Decarbonisation Roadmap

Initiated development of a Sustainability Assessment Tool for non-SEUs

Initiated development of Carbon Impact measurement & assessment tools

Established a forum for S. 38/39 Energy Performance Officers (EPOs)

Continued the work of the Regional Energy Bureaus

Commenced Environment & Sustainability Module of the National Estates Information System (NEIS)

2023

Updated Significant Energy User (SEU) list based on improved data

Completed Stage 1 Designs for 10 Deep Energy Retrofit sites and commenced Stage 2 of project

Completed surveys of 131 Sites for the Metering Project surveyed

Updated Energy Efficient Design (EED) Training in line with new requirements

Commenced ISO 50001 Certification process

Implemented a Green Environment Pilot Project in 15 Sites

Provided input into Climate Action Strategy Working Groups

Established 138 Energy / Green Teams in SEUs and completed total of completed 583 Minor Capital Projects through ROO (€28m spend)

Completed Stage 1 (Building Register) of the HSE Building Stock Plan

Co-chair of Public Sector National Heat & Built Environment Task Force

Performance to Date

Since 2011, Public Sector bodies have been required to report to the Sustainable Energy Authority of Ireland annually on their energy usage and actions taken to reduce consumption in accordance with SI 426 of 2014 (and previously with SI 542 of 2009). This allows SEAI to track progress towards national energy reduction targets. The HSE reports annually on energy consumption for all fuel types (electricity, thermal fuels and transport fuels (including fossil and renewables)) at an organisational level[1]. All information below is provided by SEAI via their Public Sector Monitoring & Reporting System.

HSE Progress to 2030

At the end of 2022 the HSE had reduced its energy consumption by 8.9%, when this was adjusted to take account of activity the HSE reports an energy efficiency improvement of 19.9%.

At the end of 2022 the HSE have achieved a reduction of 27,340,886 kgCO_2 or 11.9% of the 51% by 2030 energy related emissions target and a 7% reduction in the 51% by 2030 of fossil fuel emission target set out in the Climate Action Plan 2024 (against a 2016-2018 average baseline).[2]

Type **Total Primary Energy Requirement TPER**	**Consumption 2009 (Baseline)**	**Consumption 2022**
Thermal	634,846,050 kWh	592,129,810 kWh
Electricity	480,924,026 kWh	435,844,076 kWh
Transport	77,720,963 kWh	58,989,696 kWh
Total Primary Energy Requirement	1,193,491,039 kWh	1,086,963,582 KWh
Reduction in consumption since 2009 baseline (TPER)	Baseline	8.9%
SEAI Activity Adjusted Performance Score against 50% target	Baseline	19.9%

Table 1: HSE Energy Consumption (TPER) – Source: SEAI

[2] . The energy consumed by non-private hospitals (including voluntary hospitals) is considered 'public sector'. Voluntary hospitals and other section 38 & section 39 organisations were treated as separate standalone public bodies for the purpose of achieving their 2030 energy efficiency targets and reporting to SEAI. The same approach is currently being applied for the 2030 and 2050 energy efficiency and GHG reduction targets, i.e. that all voluntary hospitals and other section 38 & section 39 organisations will be required to progress actions and individually track their progress to achieve these targets. The HSE will provide support to voluntary hospitals and other section 38 & section 39 organisations in this regard.

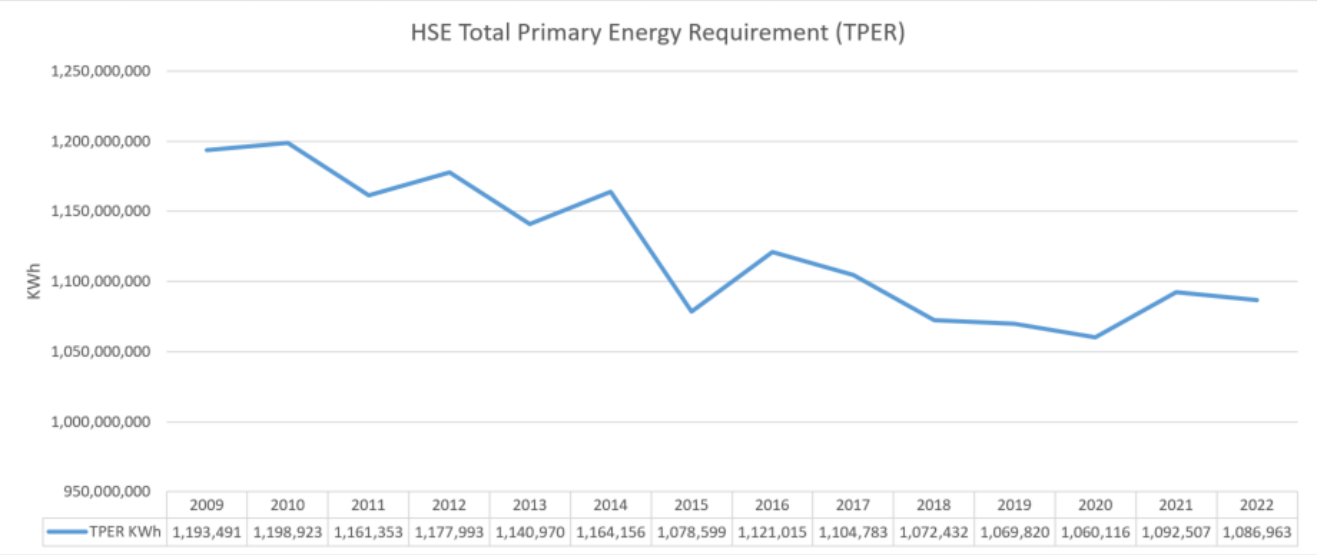


Figure 2: HSE Total Primary Energy Requirement (Baseline 2009 – 2022) – Source: SEAI

CO_2 Emissions	Emissions 2016 – 2018 Average Baseline	Emissions 2022	Progress towards 2030 Target (51% decrease)
Total Energy Related CO_2 Emissions	229,463,014 $kgCO_2$	202,122,128 $kgCO_2$	11.9%

Table 2: Energy Related CO_2 Emissions (Electricity, Thermal and Transport)

CO_2 Emissions	Emissions 2016 – 2018 Average Baseline	Emissions 2022	Progress towards 2030 Target (51% decrease)
Total Fossil CO_2 Emissions	136,422.3 $kgCO_2$	126,883.7 kgCO2	7%

Table 3: Fossil Related CO_2 Emissions

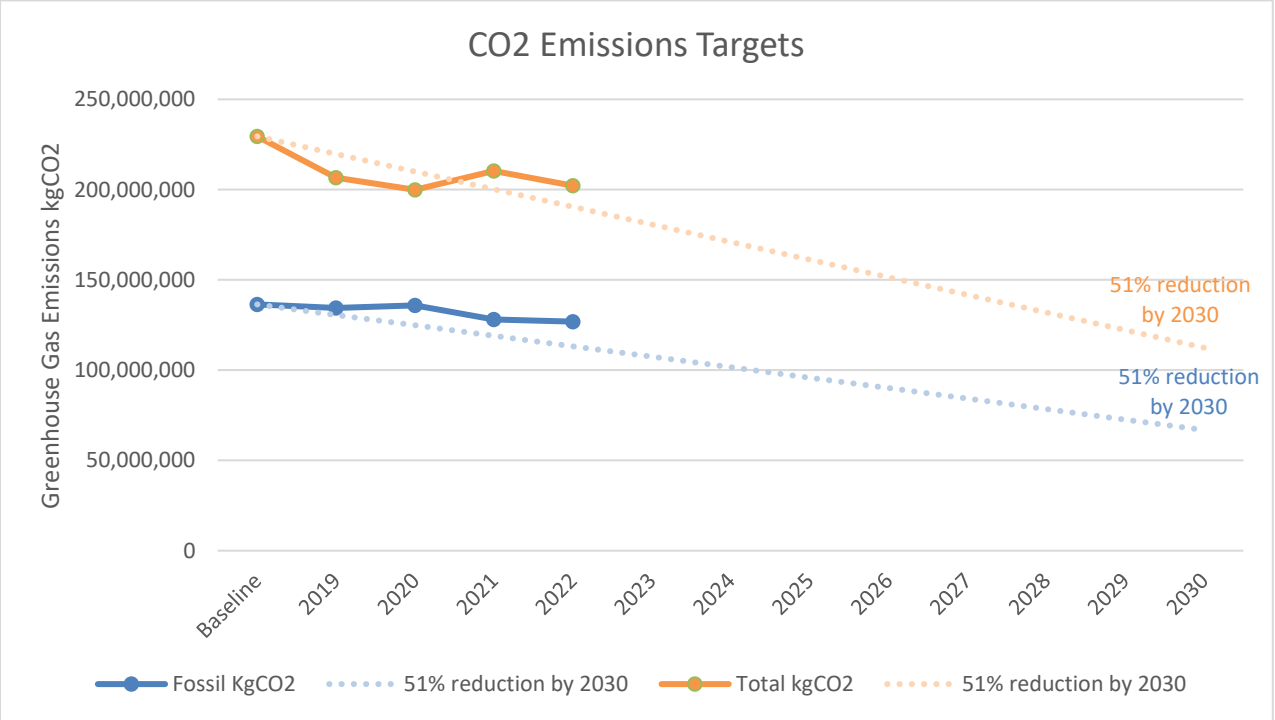


Figure 3: HSE CO2 Emissions Glide Path Source: SEAI

HSE Energy Performance Indicator

SEAI uses an Energy Performance Indicators (EnPI) to determine an organisation's energy performance and track its progress towards the 50% improvement in energy efficiency by 2030 target, as measuring energy use alone does not enable you to determine if energy is being used efficiently or not.

At present the HSE uses a combined EnPi of acute hospital attendances (in-patient, out-patient and ED presentations). Following analysis and review, with guidance from our SEAI Partnership Support Manager (PSM), it was agreed with SEAI in 2023 that the HSE will amend this EnPi to full time employees (FTE). This amended activity metric will be updated in the 2024 reporting cycle.

This EnPi better reflects activity in the HSE and was selected for the following reasons:

- Regression Analysis: Regression analysis of historical data indicates that FTE numbers exhibit a stronger correlation with energy consumption compared to the current combined EnPI of patient bed days. This finding implies that FTE numbers serve as a more dependable predictor of energy usage trends, allowing for more precise energy management decisions.
- Resource Allocation Optimization: As healthcare delivery evolves, HSE facilities are diversifying their services. Fluctuations in patient bed days can occur due to various factors, such as seasonal variations or health trends. Shifting our EnPI to FTE numbers will ensure that our energy management efforts are closely aligned with the actual workforce requirements, thus optimizing resource allocation.
- Facility Benchmarking Enhancement: The adoption of FTE numbers as the primary EnPI will facilitate more meaningful comparisons between different healthcare facilities such as comparisons between Acute and Community facilities. The existing combined EnPI of patient bed days does not take into account HSE Community facilities and impedes effective benchmarking. FTE numbers provide a standardized metric that enables more precise facility-to-facility comparisons.

The Roadmap

Public Sector Climate Action Mandate

The Public Sector Climate Action Mandate applies to all bodies covered by decarbonisation targets (except for Local Authorities, Commercial Semi-State Bodies, and the School Sector). The mandate highlights the main climate action objectives for public bodies and will be reviewed annually.

This Roadmap deals with the sustainable infrastructure actions under the remit of HSE Capital & Estates to meet the energy efficiency and energy related Green House Gas (GHG) emissions reduction targets. **Appendix 1** of this roadmap clarifies these actions and any actions not under the remit of Capital & Estates which will be addressed in the implementation of the HSE's wider Climate Action Strategy 2023 – 2050.

Our Targets

As set out in the Governments Climate Action Plan 2024, the HSE, as a Public Body, is required to lead by example and are mandated to develop a Roadmap setting out how we will deliver our energy efficiency and energy related GHG emissions reduction targets.

1. **Reduce energy related Green House Gas emissions by 51% by 2030 (against a baseline of 2016-2018 average emissions)**
2. **Reduce thermal (heating and transport) related greenhouse gas emissions by 51% by 2030 (against a baseline of 2016-2018 average emissions)**
3. **Increase the improvement in energy efficiency in the Public Sector by 50% by 2030 (against a 2009 baseline**
4. **The public sector will not install heating systems that use fossil fuels after 2023, in new buildings, and "major renovation" retrofit projects (subject to exemptions listed in CAP24)**

These targets as set are based on:

- **Scope 1 Emissions:**

  Direct energy related emissions from fuel (Oil, Gas, Coal etc.) used by owned buildings, vehicles and equipment (including energy used for heating, catering, and the delivery of clinical services)

AND

- **Scope 2 Emissions**:

  Indirect energy related emissions from electricity used by owned buildings, vehicles and equipment (including electricity used for heating, cooling, lighting -indoor & outdoor, catering, ICT and the delivery of clinical services)

AND

Energy related emissions from fuel (Oil, Gas, Coal etc.) and electricity used by leased and controlled buildings, vehicles and equipment also (these emissions associated with buildings and vehicles which the HSE lease are classified as Scope 3 emissions in international GHG protocols are treated as Scope 1 and Scope 2 emissions by the Irish Government's Climate Action Plan). The HSE are treating emissions from leased buildings and vehicles as Scope 1 and Scope 2 emissions within this Infrastructure Decarbonisation Roadmap.

As previously noted the targets set for the Public Sector do not currently include any non-energy related Scope 3 emissions; it is anticipated that such emissions may be included in future updates of the Government's Climate Action Plan. The Carbon Budgets that are being developed by Government currently relate to energy emissions only for the commercial and public buildings sector.

Next Steps

HSE Capital & Estates have identified seven key action areas to continue, enhance and expand on the work and progress made to date. Progression of these action areas provides a Roadmap for the HSE to achieve the targets set out in the Climate Action Plan 2024 and to comply with its mandated obligations.

The Roadmap builds on the approach to date to reduce the HSE's existing energy usage load and shift the HSE's use of energy away from fossil fuels and towards renewable and Carbon Zero energy sources. This Roadmap will be updated annually and will be directed, coordinated and delivered as part of the implementation of the HSE Capital & Estates Strategy to deliver on the strategic objective to develop an estate that is net zero no later than 2050.The actions of the Roadmap will be delivered by the HSE Capital & Estates Sustainable Infrastructure Office.

The Roadmap includes an approach to and actions required to address the EU energy policy and directives which are being introduced.

It will also support the strategic objectives of the wider HSE Climate Action Strategy which will include an approach to reducing supply chain carbon emissions and emissions associated with the provision of medical and clinical services.

Roadmap Action Areas

Action Area 1

Continue & enhance the HSE partnership agreement with SEAI & develop leadership

Continuation and expansion of the HSE and SEAI partnership agreement as part of a 3 year rolling capital programme to fund and support the delivery of the Regional Energy Bureau, Energy Management Teams, shallow retrofit works and the Pilot Pathfinder Programme. The HSE will continue to provide leadership in the area of Energy and Carbon emissions reduction and will update this Infrastructure Decarbonisation Roadmap annually.

Action Area 2

Regional Energy Bureau, Energy Management Teams and Shallow Retrofit Programme

Continued operation and support of HSE Regional Energy Bureaus and a network of supported Energy Management Teams incorporating staff workshops and supported energy shallow retrofit minor capital programmes.

Action Area 3

Energy Efficient Design (EED) Process and Net Carbon Zero Ready Design

Implementation of an Energy Efficient Design (EED) and Carbon Zero Ready Design approach for all capital works including a National Training Programme. Obtain immediate benefits of carbon zero ready design and support the transition to Modern Methods of Construction including, Design for Manufacture and Assembly (DFMA) and the Circular Construction Economy.

Action Area 4

Deep Energy and Carbon Retrofit Programme

Progress a Deep Energy Retrofit Programme targeting existing buildings to decarbonise appropriate elements of the Health portfolio. This will include replacing fossil fuels with renewables and electrifying heat and transport. Prepare a Building Stock Plan for the Health Estates which will identify a route to Net Carbon Zero by 2050.

Action Area 5

Metering, Modelling, Reporting and Energy Management Systems

Develop improved metered data and utility supplier data including integration with the new National Estates Information System (NEIS). Develop improved reporting systems and integrate these programmes as part of the HSE's implementation of ISO 50001 accredited Energy Management Standard.

Action Area 6

Behavioural Training and Learning

Continue a programme to develop advice, guidance and training support programmes to reduce energy (and to conserve water, linked to the HSE's wider Climate Action Strategy). Roll out the Sustainability Assessment and Support Tool for medium and smaller healthcare facilities.

Action Area 7

Support to the wider HSE Climate Action Strategy

As part of the HSE's wider Climate Action Strategy provide input and support to the implementation of the Strategy in the areas of transport and mobility, sustainable procurement, greener models of healthcare, waste management, adaptation and resilience.

Action Area 1

Continue and enhance the HSE partnership agreement with SEAI and Develop Leadership Roles

Action 1.1 **Develop and expand the HSE and SEAI partnership agreement as an ongoing 3-year capital funded rolling programme**

In 2018, HSE Capital & Estates, on behalf of the HSE, entered into a partnership arrangement with the Sustainable Energy Authority of Ireland (SEAI) which established a joint co-funding Memorandum of Understanding to progress the Energy Efficiency agenda in the HSE. The agreement is based on a shared capital funding arrangement. The shared objectives of the SEAI and the HSE are to develop structured energy management and retrofit programmes within the HSE to support the achievement of national policy targets.

In 2018, HSE Capital & Estates, on behalf of the HSE, entered into a partnership arrangement with the Sustainable Energy Authority of Ireland (SEAI), which established a joint co-funding Memorandum of Understanding to progress the Energy Efficiency agenda in the HSE. The agreement is based on a shared capital contribution funding arrangement. In 2021 the HSE/SEAI agreement was expanded into a three-year rolling programme, with the initial period being 2021 to 2023 and having an indicative funding envelope of €60 million. The HSE and SEAI are in the process of developing the 2024 – 2026 agreement and work programme.

The Sustainable Infrastructure Office has supported SEAI in EU Funding applications in relation to the Deep Energy Retrofit Programme.

Continuation of the SEAI partnership approach and support will be an essential component in the achievement of the HSE's Climate Action Plan decarbonisation targets.

Action 1.2 **HSE Climate Action Leadership roles**

The HSE have nominated the Capital & Estates National Lead for Sustainable Infrastructure as the HSE's Energy Performance Officer (EPO)

The HSE's Energy Performance Officer will continue to support the actions of the HSE and Voluntary Hospitals and other Section 38 & Section 39 Organisations Energy Performance Officers on an ongoing basis in their efforts to achieve the Climate Action Plan targets.

Voluntary Hospitals and other Section 38 & Section 39 Organisations are treated as separate standalone public bodies for the purpose of achieving their energy efficiency targets and reporting their performance to SEAI.

The Capital & Estates Sustainable Infrastructure Office co-chairs the Public Sector National Heat & Built Environment Task Force established to focus and examine retrofitting, renewable heat, district heating; and decarbonisation of our building stock.

Action 1.3 **Develop and publish a plan and actions to achieve 2030 and 2050 energy and carbon emissions targets**

The HSE will update this Roadmap annually. The update will be directed and informed by the implementation of the HSE Capital & Estates Strategy and achieving Strategic objective 01, 02 and 09 of the HSE Climate Action Strategy. It will also take on board any updates and amendments which will be contained the annual update to the Government's Climate Action Plan. The annual update of the Roadmap will inform the HSE's ongoing engagement with Government Departments in exploring opportunities to unlock access to capital and other sources of funding for Health Sector energy emissions reduction programmes.

It will also include an approach to and actions required to address the EU energy policy and directives which are being introduced.

Action Area 2

Regional Energy Bureau, Energy Management Teams, Green Teams and Shallow Retrofit Programme

Action 2.1 **Continue to support existing Energy Management Teams, grow the number of Energy Management Teams (currently 138teams)**

The HSE's aim is to increase substantially the number of local Energy Management Teams, with a target of 165 Teams by end-2024 across HSE and Section 38/39 Significant Energy Users (SEUs). There were 138 Energy Teams in place and supported at the end of Q4 2023.

The HSE currently have three Regional Energy Bureaus (East, West and South). In 2024 these Regional Energy Bureaus will be restructured into 6 Capital & Estates Climate Action Sub-Groups in line with the new Regional Health Area (RHA) structure aligned to the 6 new HSE Health Regions. These sub-groups are part of a wider RHA Green Committee structure which is being established as part of the implementation of the HSE Climate Action Strategy.

The Bureaus will co-ordinate and provide standardised approaches and regional support to the newly established RHA Green Committees and local Energy Management Teams who consolidate and embed energy management best practices in healthcare facilities. The Bureaus will continue to support existing and new Energy Management Teams progression of strengthened energy management practices, including:

- Provision of staff awareness activities and workshops on energy and climate action
- Continuation and expansion of the HSE/SEAI joint funded minor capital energy shallow retrofit project programme
- Increased utilisation of the National Energy Efficiency Obligation Scheme (EEOS)
- Continuation and expansion of the Office of Public Works Optimising Power at Work Programme

We will continue to support the effective integration of the Regional Energy Bureaus into the existing Estates Offices, which have well-established relationships, capital delivery systems and service support procedures in place with all of the local service users and health facilities.

Action 2.2 **Continue Shallow Retrofit Energy Minor Capital Upgrade Programme**

The HSE and SEAI have developed a joint minor capital funding arrangement for shallow retrofit energy minor capital upgrade works to support the works of local Energy Management Teams.

In 2018, HSE Capital & Estates, on behalf of the HSE, entered into a partnership arrangement with the Sustainable Energy Authority of Ireland (SEAI), which established a joint co-funding Memorandum of Understanding to progress the Energy Efficiency agenda in the HSE. The agreement is based on a shared capital contribution funding arrangement. In 2021 the HSE/SEAI agreement was expanded into a three-year rolling programme, with the initial period being 2021 to 2023 and having an indicative funding envelope of €60 million. The HSE and SEAI are in the process of developing the 2024 – 2026 work programme. Shallow retrofit minor capital works will be identified and proposed by local Energy Management Teams and Regional Energy Bureaus as Registers of Opportunities (ROO). These proposed works will be assessed by HSE Capital & Estates Office using a standardised assessment tool which has been developed and agreed with SEAI. The assessment and prioritisation tool is aligned with SEAI criteria and assesses and prioritises the carbon reduction benefits and returns on investment for proposed works.

The following will be progressed by Regional Energy Bureaus and Energy Officers in support to local Energy Management Teams:

- Undertaking of energy audits and collating energy trend data and information to inform the development of registers of opportunity
- Scoping and development of potential projects with capital funding proposals and applications for projects being included on the on the register of opportunities
- Providing technical and project support to local energy management teams in the development of the pipeline of shallow retrofit projects
- Application of the ROO assessment methodology to all proposed works
- Allocation of Capital funding to support agreed works
- Support local Capital & Estates offices and healthcare facility management teams in the specification, procurement, management and delivery of shallow retrofit and energy projects.

Action Area 3
Energy Efficient Design (EED) Process and Net Carbon Zero Ready *

Action 3.1 **Design and construct all capital works using an Energy Efficient Design Process and Net Carbon Zero Design approach**

It is essential that best-practice sustainability and Energy Efficiency Design (EED) principles, aligned with Irish Standard IS399, are incorporated immediately into the design of all new facilities to ensure that, they are not only designed to exceed the current building regulation requirements but that they are also designed to achieve net carbon zero (ready) status and do not add to the HSE's carbon load. Every kilogram of GHG emissions incorporated into the design of a new facility becomes a kilogram of emissions that must be eliminated from somewhere else in the HSE's portfolio due to the absolute nature of the Climate Action Plan targets.

EED is fundamentally a structured process to ensure that both energy and carbon performance are fully considered and implemented by Design Teams at the earliest points in the design decision making process. This is best achieved by focusing on the lowest Life Cycle Costs through a 'Fabric First' approach. The HSE requires its Design Teams to undertake the development of dynamic simulation modelling to model environmental conditions for proposed facilities, predict the facility's energy performance and GHG footprints and to optimise their designs accordingly.

To reflect the importance of this approach, the HSE amended its Design Team Technical Requirements and Scope of Service in 2021 to require Design Teams to adapt the EED process to a Net Carbon Zero Ready Design approach to clearly demonstrate the buildings design 'Route to Carbon Zero'.

New Design Team Frameworks are currently being developed by HSE Capital & Estates and the Technical Requirements and Scope of Services are being revised to further enhance and embed EED as part of the Design Process for Capital Projects.

This will ensure that all HSE buildings will be designed so that they are Net Carbon Zero ready and that they will be carbon zero in use once the electricity grid decarbonises.

Following the success of a National EED Training programme for HSE Capital & Estates Technical staff and for members on the HSE Design Team framework which rolled out in 2021 and 2022 (Phase 1 training programme), a revised half day training programme was developed in 2023. This revised training incorporates feedback and learnings from the Phase 1 training. Two training sessions were held in late 2023 and it is proposed that training will be rolled out as part of the new Design Team Frameworks in 2024 to all successful companies on the new Design Team Framework as a mandatory requirement

HSE Capital & Estates have also developed an EED guide for Design Teams and provide a pre-project design initiation information session focusing on the EED approach for new projects.

Action 3.2 **Adapt the Energy Efficient Design (EED) and Net Carbon Zero Ready processes on an ongoing basis to support the transition to Modern Methods of Construction, Design for manufacture and Assembly, and the Circular Construction Economy**

The HSE Capital & Estates Property Strategy includes decarbonisation objectives to enable the HSE achieve net zero by 2050 at the latest and to progress the delivery of the estate through Modern Methods of Design and Construction which aligns with the Circular Construction Economy (CCE).

The HSE will continue to roll out, embed and adapt the Energy Efficient Design and Net Carbon Zero Ready Design approach on an ongoing basis to reflect and support the transition to Modern Methods of Construction including, Design for Manufacture and Assembly (DFMA) and the Circular Construction Economy (CCE).

Adaptation and Implementation of Modern Methods of Construction and Design for Manufacture and Assembly will benefit significantly from of having an accepted, early design decision making process which is established and being implemented fully by HSE Capital & Estates Offices and all of the HSE's Design Teams.

Action 3.3 **Further incorporate Carbon Impact Assessments into the HSE's Capital Planning process**

The operational and embodied carbon impact of all activities and planned capital works and property acquisitions must be assessed at the earliest possible project appraisal stage. The impact of any proposed project or property acquisition must be understood and its potential impact on the HSE's carbon budget quantified prior to progression.

The HSE will develop a carbon assessment tool aligned with its development of a Dynamic Decarbonisation Modeling Tool to assess and evaluate the carbon impact of planned works with the intention of incorporating these criteria into the HSE Capital applications, planning and approvals process.

Action 3.4 **Integration of energy related Green Public Procurement (GPP) into Infrastructure and Construction Design**

Green Public Procurement criteria will be incorporated into Infrastructure Design and Construction as they relate to energy emissions reduction and particularly in the GPP Categories of:

- Design, Construction & Management of Office Buildings
- Indoor & Outdoor Lighting
- Heating Equipment (Boilers, Heat Pumps etc.)

HSE Capital & Estates will specify low carbon construction methods and low carbon cement material, as far as practicable, for directly procured or supported construction projects (from 2023) and adhere to the best practice Guidelines for the preparation of Resource & Waste Management Plans for Construction & Demolition Projects for directly procured or supported construction projects from 2024.

Action Area 4
Deep Energy and Carbon Retrofit Programme

Action 4.1 **Continue the Deep Energy Retrofit Programme**

A comprehensive renovation programme involving deep building fabric and energy systems retrofit across the HSE's portfolio of facilities will be required to achieve the targets set out in the Irish Government's Climate Action Plan.

The HSE have identified 10 representative healthcare sites and have commenced a Deep Energy and Carbon Retrofit Pilot Pathfinder Programme in partnership with SEAI. Technical Advisors, Design Teams and Energy Performance Contracting advisors have been engaged to progress designs and to advise on retrofit works necessary to improve energy and emissions performance towards achieving the targets set. This exercise will also assess and evaluate viable technical solutions which would be suitable for use in healthcare environments.

Definitive costs associated with a deep energy retrofit of healthcare buildings are not yet established; this Pathfinder Programme will provide detailed cost estimates associated with proposed solutions.

The Stage 1 Designs have been completed for the 10 Pilot Pathfinder Programme sites and it is proposed that works will be funded under the HSE/SEAI partnership agreement and Energy Efficiency Support Programme Memorandum of Understanding.

Stage 1 learnings are being collated into a summary report to inform an application for a Phase 2 Deep Retrofit Programme – focusing on Site DCP, Building Stock Plan and coordination with Capital Plan and Infrastructure Resilience Plans

National Capital and Property Steering Group approval has been received to progress Stage 2 design across all the 10 Pathfinder Sites and Business Cases / Project Briefs have been completed for 5 of the sites.

The Pilot Pathfinder is programmed to progress though Statutory Approvals / Detail Design / Procurement in 2024 with on site-construction to progress in 2025 & 2026.

Action 4.2 **Prepare an up-scaled Major Deep Energy and Carbon Retrofit approach for the Health Estate**

A key objective of the Pilot Pathfinder Programme is to utilise the data from the 10 Pilot sites to prepare a report detailing an approach to, and costs for, a large scale renovation of the Health Estate which will be required as part of the HSE's pathway to complying with the Government's Climate Action Plan targets.

The Pilot Pathfinder Programme will also include consideration of financing, financial modelling, analysis of costs, cost optimal solutions, and consideration of public and private funding options and delivery models. This will include consideration of Energy Performance Contracting (EPC) and evaluation of the role that EPC may play in financing Health Sector Deep Energy Retrofit.

All 10 sites are being progressed through the necessary HSE Capital Funding Protocol and Public Spending Code Processes.

Action 4.3 **Update and inform the HSE Capital & Estates Strategy with learnings from the Pilot Pathfinder Programme**

The Pilot Pathfinder Programme currently being progressed to establish the parameters (both technical and financial) to achieve compliance with the Climate Action Plan targets will also provide key strategic information and data that will be essential in informing the HSE's Capital & Estates Property Strategy on an ongoing basis. These include:

- The operational carbon reduction of deep energy retrofit of existing Healthcare buildings
- The level of energy performance that can be achieved by retrofitting existing buildings
- Recommended sustainable technological solutions for healthcare environments
- The cost of deep energy retrofit compared with new builds costs and establishment of cost optimal positions
- The embodied carbon impact of both (1) retrofit and (2) of new build approaches for healthcare buildings
- An assessment of the operational and embodied whole lifecycle carbon impacts of existing building deep energy retrofits and of new build projects and an objective comparison between both.

This information and data will allow the HSE set out a clear strategic direction for the future management and development of the HSE Estate. This strategic direction will include the cost optimal balance between retrofit and retaining existing facilities as necessary, disposal of facilities deemed surplus to requirements and supplementing new developments to meet service needs.

Action 4.4 Commence Phase 2 of the Pilot Pathfinder Programme

This second phase of the Deep Retrofit Programme will apply the learnings from the Phase 1 Pathfinder Programme to progress site studies and appropriate infrastructure upgrades, deep retrofit and decarbonisation works on 24 of the largest healthcare campuses.

This Phase 2 combined with the Phase 1 Pathfinder and the Shallow Retrofit programme would address 50% of the overall Healthcare sector's energy use and make a hugely significant inroad on the 2030 Climate Action Plan targets.

It will take a 6-7-year timeline to deliver this project necessitating a meaningful start in Q1 2024. The majority of the Phase 1 Programme would be completed by 2027 and this information would feed into the detailed design and procurement process. A Draft List of potentially suitable sites has been prepared for discussion and agreement. The Phase 2 sites will include projects across all 6 new HSE Regions.

Action Area 5
Metering, Modelling, Reporting & Energy Management Systems

Action 5.1 **Continue development and consolidation of energy data**

In order to better understand energy use across the Healthcare Estate, and focus resources on the largest energy users, the HSE Capital & Estates Sustainable Infrastructure Office has developed a Significant Energy User (SEU) database.

In 2023 the SEU list was reviewed and using updated information produced a refined SEU list. This list identified 150 Healthcare sites (103 HSE and 47 Section 38/39 Agencies sites) which account for 85% of Healthcare usage. This SEU database will be continuously updated as part of the annual energy review under the requirements of ISO50001 and to support continued targeting of largest users and direction of limited resources to achieve the greatest benefit. Consolidated data also provides a key resource to local Energy Management Teams to assess, monitor and manage energy reduction initiatives. Energy data is now being uploaded to the HSE Capital & Estates National Estates Information System (NEIS) as part of the Environment & Sustainability module.

The initial focus will be on SEUs but data for smaller sites will also be collated on an ongoing basis. Smaller energy users will be assisted with data gathering, advice and support in the areas of energy, water and waste management.

Action 5.2 **Progress the HSE's metering and monitoring enhancement programme**

The availability of accurate metered utility information and data is an essential to the development of an effective structured energy management system.

HSE Capital & Estates have commenced a project to survey the utility metering capacity at SEU facilities in order to develop a programme to enhance the HSE's metered data and to install additional utility meters. By end of 2023 75% of the 131 Sites identified for the Metering Project have been surveyed.

The meter systems will be compatible with and incorporated into the Environment and Sustainability Module of the HSE's National Estates Information System (NEIS) In collaboration with the NEIS Team a suitable Energy Management System and software compatible with both proposed new metering infrastructure and the NEIS (EnMS)Tririga system has been identified. In 2024 it is planned to embed new EnMS system and software, and progress the installation of metering and provision of energy data in line with ISO50001

A number of meters have been installed at Health facilities (circa 20 in the past 5 years) under the Public Sector, Optimising Power at Work Programme which is led by the Office of Public Works (OPW). The development of the HSE's Metering Enhancement Programme has been informed by the OPW programme and the scale of metering and meter specification and system compatibility has drawn on the OPW's experience and learnings.

Action 5.3 **Develop a Dynamic Decarbonisation Modelling Tool**

The HSE will develop a Dynamic Decarbonisation Modelling Tool to enable it to evaluate emissions and energy performance scenarios and monitor its trajectory to 2030 and beyond.

The carbon impact assessment methodologies will be aligned with nationally agreed and standardised assessment methodologies. It will be incorporated into the HSE's National Estates Information System (NEIS) to track progress towards the national targets utilising metered consumption and measured data.

The modelling tool will enable the HSE to:

1. Model its energy and emissions trajectory to 2030 (and beyond) based on the most recently available consumption and emissions data and, where relevant, national projections for the carbon intensity of networked energy supplies
2. Model the impact on the energy and emissions trajectory from changes to the HSE's activity levels and new service developments and additions or replacements to its portfolio of facilities
3. Model and predict the projected carbon emissions for new developments and use this information as part of the assessment criteria as defined under the HSE's Capital Application and Approvals Process
4. Model the impact of implementing future GHG-reduction and energy-saving projects on the gap to achieving the targets. This will help identify what facilities or technology solutions offer the best return on investment for compliance with Climate Action Targets
5. Develop this model as a management tool to establish and track progress with a decarbonisation pathway for the organisation.

Action 5.4 **Develop HSE Utility Monitoring & Reporting Systems, incorporating the digitisation and automation of energy data collation and reporting**

The HSE will develop utility monitoring and reporting systems for the purposes of improvement of organisational energy and emissions management and control.

The Environment and Sustainability Module of the National Estates Information System (NEIS) has been developed to accept metered utility usage information and generate energy and utility reports. These reports will provide up to date data to assist local Energy Management Teams and will improve organisational and national reporting capabilities. All CASO Staff are now trained in using the system. This will allow the HSE transition from manual and paper based metering and data collation systems to a digital and automated energy and carbon emissions collation, monitoring and reporting platform.

The Energy Management System identified as an extension of NEIS will accept and present near real time utility data made available through the Meter Improvement Project and has sophisticated reporting capabilities.

Action 5.5 **Develop a plan for the progression to and achievement of formal accreditation of ISO 50001 Energy Management Standard**

The HSE will develop a plan for the progression to and achievement of formal accreditation of ISO 50001 Energy Management Standard. Additional resources will be required to achieve and maintain an ISO 50001 accredited Energy Management Standard, these resources will be quantified in the plan as it is developed.

In 2023 HSE Capital & Estates Sustainable Infrastructure Office staff took part in an SEAI provided training course "ISO50001 Accelerator Masterclass". This course mapped the HSE's route to successful certification and helped refine the existing list of SEU's.

In 2024 the focus will be on advancing the implementation of ISO50001 along with organising and completing the Stage 1 Audit. Appropriate resource and senior management commitment to energy management will be required to successfully achieve certification.

Action 5.6 **Comply with reporting requirements as outlined in the Climate Action Plan 2024**

This Roadmap and reporting by HSE Capital & Estates will deal with all infrastructure and energy related actions and mandates in the Climate Action Plan that are under the remit of Capital & Estates, other actions are addressed in the HSE's Climate Action Strategy 2023 – 2050 (see appendix 1)

HSE Capital & Estates will continue to provide information for the HSE Annual Report on

GHG Emissions and implementation of CAP 24 Public Sector Mandated Requirements in relation to Infrastructure Decarbonisation.

Using SEAI's Public Sector Monitoring and Reporting System, HSE Capital & Estates will commence reporting annually on implementation of the individual mandated requirements using a 'comply or explain' approach (for actions under its remit)

Action 5.7 **Develop a building register and building stock plan as mandated in the Climate Action Plan.**

EU Directive 2023/1791 on energy efficiency obliges Ireland to develop an inventory of public sector buildings, and to update and publish it annually. As part of the preparation of the Stage 1 Building Stock Plan, we have identified and classified our buildings using M&R data to quantify the energy use in each building and understand our largest users and completed the process of uploading this information to the SEAI Building Register. The initial focus is on data gathering to inform planning at organisational and national levels.

The Building Stock Plan will be updated and refined each year as the HSE accumulates more data and knowledge to inform its planning and decision making. The Building Stock Plan will evolve and become more comprehensive and focused over time.

In 2024 focus will be on commencing Stage 2 of Building Stock Plan and liaising with the SEAI and our PSM to ensure alignment with new directive targets

Action Area 6
Behavioural Training and Learning

Action 6.1 **Continue to develop advice, guidance and training programmes in the areas of Energy and Climate Action**

The HSE engaged the Clean Technology Centre (CTC), Cork in 2020 to develop advice, guidance and training programmes in energy, waste and water conservation as part of the Green Healthcare Programme.

Best practice guidance developed as part of this programme has been developed into Training (water efficiency, waste reduction and food waste reduction). The roll out of this training to HSE Staff commenced in 2023.

The HSE will continue this programme and convert energy and water conservation guidance into online and blended training programmes.

Action 6.2 **Roll out a Sustainability Assessment and Support Tool for medium and smaller healthcare facilities**

An online Healthcare Sustainability Training, Assessment and Support Tool has been developed for the HSE by the Clean Technology Centre (CTC) under the Green Healthcare Programme, for use by all medium and smaller users (outside of the top SEUs) in the health sector. The tool is designed to initiate sustainable action in each location by asking basic questions and providing site specific advice, training and support on energy efficiency, carbon reduction, waste reduction and water conservation and is aimed specifically at Community Healthcare and non-acute locations.

A pilot was completed in 2023 in Community Health Organisation Area 4 (Cork/Kerry). The HSE will continue this programme in 2024 and will progress the national rollout of this support tool for smaller (non-SEU) users through the Green Healthcare Programme.

Action Area 7
Support to the wider HSE Climate Action and Sustainability Strategy and Implementation Plan

Action 7.1 **Support the development of a transport framework and implementation plan for moving to low and zero emission vehicles or alternatives for both emergency and non-emergency fleets**

As part of the wider HSE Climate Action Strategy and Implementation Plan, the HSE will 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.

HSE Capital & Estates will work with the Transport Working Group, formed as part of the implementation of the HSE Climate Action Strategy, to provide support and guidance in the following areas:

- the development of a plan for installation of charging infrastructure in relevant locations. The focus will be on provision of charging infrastructure for HSE Fleet at locations identified by the National Ambulance Service. While a priority, implementation must not detract from the HSE's primary aim which is to replace its thermal load with renewable resources such as electricity,
- The installation of charging infrastructure in new builds and refurbishments as required by Building Regulation

Action 7.2 **Provide ongoing Support to HSE Procurement of Energy and Utilities and improve information and data availability from National Utility Contracts**

A HSE Utilities and Energy related Procurement Steering Group has been established with representation from Capital & Estates, Finance and Procurement. This Group will co-ordinate a programme, including interaction with the Office of Government Procurement (OGP), in the procurement of Energy related Supplies and Services to ensure that all carbon reduction opportunities are maximized and that all suppliers contribute to the HSE's energy and carbon reduction programmes.

It will also ensure that supplier reporting requirements are considered as part of Energy and Utilities contracts.

Action 7.3 **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 Capital & Estates are currently progressing an innovative Green Environment Pilot Project in 15 healthcare sites.

The purpose of the project is to develop an implementation plan and "how – to" guidance to optimise the use of green space for the promotion of the health and wellbeing of patients, staff and the local communities.

Action 7.4 **Provide ongoing support in relation to Water Conservation advice and projects via HSE Capital & Estates Sustainability Officers and the Green Healthcare Programme**

Conserving water goes beyond just saving water, it plays a vital role in conserving energy and reducing greenhouse gas emissions (GHGs).

HSE Capital & Estates have commenced development of a Significant Water User (SWU) list through the Green Healthcare Programme. This involves working with Irish Water to validate water meters in larger healthcare sites with a view to incorporating water data into the National Estates Management System.

HSE Capital & Estates Sustainability Officers also provide guidance to healthcare facilities on water conservation and support water conservation projects (i.e. low flow tap installations etc.) through a minor capital support programme which is coordinated in conjunction with the Green Healthcare Programme.

Action 7.5 **Provide ongoing support to the wider HSE Climate Action and Sustainability Strategy and Implementation Plan in relation to the following priority areas of focus**

- Transport and Mobility
- Sustainable Procurement
- Greener Models of Healthcare
- Water & Waste Management
- Adaptation & Resilience

Appendix 1: Public Sector Mandate - Summary of Actions & Responsibilities

Overview of actions from the CAP 24 Public Sector Mandate that are fully or partially under the remit of Capital & Estates and which are actioned through this Infrastructure Decarbonisation Roadmap.

*Changes in text from 2023 Plan in bold

Targets and Our People

	Capital & Estates – Sustainable Infrastructure Responsibility	Shared Responsibility (C&E / HSE Climate Action Strategy)	HSE Climate Action Strategy Responsibility
TARGETS	1.1: Reduce energy related GHG emissions by 51% in 2030 1.2: Improve energy efficiency in the public sector by 50% by 2030	1.3: Update Climate Action Roadmaps annually **within 6 months of the publication of the Climate Action Plan. Develop Climate Action Roadmaps if none are in place** *1.3 (a): Update C&E Infrastructure Decarbonisation Roadmap annually (Sustainable Infrastructure and Energy actions)* *1.3 (b): Develop Climate Action Roadmap for other non Infrastructure CAP 24 mandated requirements and update annually*	
OUR PEOPLE		2.1: Establish and resource Green Teams, reporting to senior management, to become integrated drivers of sustainability in every public sector body *2.1 (a): Continue to establish and resource Energy Teams via C&E Energy Bureau focused on Significant Energy Users (SEU's)* *2.1 (b): Establish and resource Green Teams* 2.3: Incorporate appropriate climate action and sustainability training (technical and behavioural, including green procurement training) into learning and development strategies for staff *2.3 (a): Continue the incorporation of Sustainable Infrastructure related training i.e. EED, CEM etc. into L&D strategies* *2.3 (b): Incorporate appropriate climate action and non infrastructure sustainability training into L&D strategies* 2.4: Organise staff workshops (at least annually) to engage on climate issues, including a focus on decreasing the organisation's carbon footprint *2.4 (a): Organise staff workshops (at least annually)* *2.4 (b): Organise staff workshops (at least annually)*	2.2: Nominate a member of the Management Board as the Climate and Sustainability Champion with responsibility for implementing and reporting on the mandate 2.5: Ensure all senior management (P.O. level or equivalent and above), **and members of state boards**, complete a climate action leadership training course

Our Ways of Working

	Capital & Estates – Sustainable Infrastructure Responsibility	Shared Responsibility (C&E / HSE Climate Action Strategy)	HSE Climate Action Strategy Responsibility
OUR WAYS OF WORKING	3.3: All public sector bodies with an energy spend greater than €2m per annum to achieve ISO 50001 certification by end-2024 Construction: 3.5.1: Specify low carbon construction methods and low carbon cement material as far as practicable for directly procured or supported construction projects from 2023 3.5.2: **Adhere to the Best practice Guidelines for the preparation of Resource & Waste Management Plans for Construction & Demolition Projects for directly procured or supported construction projects from 2024**	3.1: Report on the following in the Annual Report of **the public sector body**: *3.1 (a): GHG emissions* *3.2 (b): Sustainability activities report and Procedures for offsetting the emissions associated with official air travel* 3.2: Using SEAI's Public Sector Monitoring and Reporting System, public bodies are to report annually on implementation of the individual mandate requirements using a 'comply or explain' approach *3.2 (a): Report on mandated Infrastructure and energy related requirements under the remit of C&E (Green). C&E will input & report via M&R on energy consumption also (SI 426)* *3.2 (b): Report on other mandated requirements (Blue)* Green Public Procurement 3.4: GPP: Implement Green Public Procurement (GPP**), using the EPA Green Public Procurement Guidance and criteria sets/OGP's online GPP Criteria Search tool as resources** *3.4 (a): C&E to apply EED approach to ensure that that GPP principles set out in the EPA GPP Guidance for the Irish Public Sector are considered and applied as part of the design, specification, procurement and construction process for new HSE projects and particularly in the referenced GPP areas of : Energy Related Products, Heating Equipment, Indoor and Outdoor Lighting, Design, construction and management of Office Buildings* *3.4 (b): GPP: Implement Green Public Procurement (GPP), using the EPA Green Public Procurement Guidance and criteria sets/OGP's online GPP Criteria Search tool as resources* Water: 3.8: **Provide suitable drinking water refill points for all staff and in any premises accessed by the public and measure and monitor usage of the refill points** *3.8 (a): C&E will provide advice and support to local maintenance teams in relation to installation of refill points as identified by Climate Action Strategy* *3.8 (b): Develop a Strategy and Implementation Plan to provide suitable drinking water refill points and in any premises accessed by the public and measure and monitor usage of the refill points*	Food waste: 3.6.1: **Measure and monitor the food waste generated on their premises from 2024, using a standardised approach to food waste measurement set out in the EPA Protocol/Pathway** 3.6.2: **All new contract arrangements related to canteen or food services, including events and conferences, to include measures that are targeted at addressing food waste, with a specific focus on food waste prevention and food waste segregation** Paper: 3.7.1: Review any paper-based processes and evaluate the possibilities for digitisation so it becomes the default approach. Eliminate paper-based processes as far as is practicable. Where paper must be procured, ensure that recycled paper is the default 3.7.2: **Measure and monitor paper consumption** Single Use: 3.9.1: Cease using disposable cups, plates and cutlery from any public sector canteen or closed facility, excluding clinical (i.e., non-canteen healthcare) environments, and **in public funded advertising or broadcasting, where feasible** 3.9.2: **Progressively eliminate all single use items within the organisation and from events organised, funded, or sponsored** Other materials: 3.10.1: **Support Ireland's 6 Producer Responsibility Initiatives in the collection and recycling of products** 3.10.2: **Use waste collection services that are segregated into a minimum of 3 streams – residual/general waste, recycling waste and organic/biowaste"**

Our Buildings and Vehicles

	Capital & Estates Responsibility	Shared Responsibility (C&E / HSE Climate Action Strategy)	HSE Climate Action Strategy Responsibility
OUR BUILDINGS & VEHICLES	4.3: Display an up-to-date Display Energy Certificate in every public building that is open to the public to clearly show energy use 4.4: The public sector will not install heating systems that use fossil fuels after 2023, in (1) new buildings, and (2) major renovation retrofit projects (as defined in the EPBD) unless at least one of the exceptions applies In relation to existing buildings: 4.5.1: Public sector bodies and sectoral groups with a large estate should commence a deep retrofit of at least one building in **2024** in pursuit of the 2030 51% target 4.5.2: Public sector bodies and sectoral groups with a large estate should develop a **portfolio** building stock plan, in line with guidance published by SEAI, by end 2024 to mobilise large scale programmes towards meeting the CAP targets 4.5.3: **As part of the building stock plan, large public sector bodies and sectoral groups with a large estate should undertake data gathering and consider the long term (to 2050) retrofit key performance indicators to upgrade their building stock to Nearly Zero Energy Buildings (NZEB) or Zero Emission Buildings (ZEB) as outlined in the EPBD proposal and recast Energy Efficiency Directive**	4.2: Phase out the use of parking in buildings that have access to a range of public transport services and active/shared mobility options for the majority of staff/visitors while providing that sufficient accessible parking is maintained for those with physical mobility issues (4.2) *4.2 (a): C&E will incorporate this into the design of Capital projects being progressed through the HSE capital Plan* *4.2 (b): Climate Action Strategy will identify actions required for existing locations - C&E will then support implementation* 4.6.1: **As an enabler for the switch to zero-emission vehicles and meeting CAP targets, in 2024 public sector bodies with a vehicle fleet should develop a plan for installation of charging infrastructure in relevant locations. The plan should align installation of infrastructure with timelines for decarbonisation of the body's fleet. The plan should be included in the body's Climate Action Roadmap** *4.6.1 (a): C&E will incorporate this into the design of National Ambulance Service Projects being progressed through the HSE capital Plan* *4.6.1 (b): Climate Action Strategy will identify the locations that Fleet EV charging points are required – C&E will then progress installations*	4.1: Promote the use of bicycles (including push bikes, electric bikes, and cargo bikes) and shared mobility options as an alternative to car use among employees and visitors by creating and maintaining facilities (both inside and outside of buildings) that support such options, including secure and accessible bicycle parking, shared mobility parking, and charging stations, as appropriate, with a view to achieving the Smarter Travel Mark, which is currently being developed as part of the Sustainable Mobility Pathfinder Programme 4.6 Procure (purchase or lease) only zero-emission vehicles from the end of 2022, enabling Ireland to go beyond the requirements of the EU Directive, amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles (EU Directive 2019/1161, the Clean Vehicle Directive) and act as an international leader in this area. An exception applies where the vehicle is exempt under European Communities (Clean and Energy-Efficient Road Transport Vehicles) (Amendment) Regulations (S.I. 381 of 2021). [1] Public sector procurement contracts for delivery and haulage should specify zero emissions vehicles where possible

Appendix 2: Roadmap Actions Summary

Action Area		Action		Sub- Action	Steps Necessary for Delivery	Time line
Action Area 1	Continue and enhance the HSE partnership agreement with SEAI and develop Leadership roles	Action 1.1	Develop and expand the HSE and SEAI partnership agreement as an ongoing 3 year capital funded rolling programme	Action 1.1.1	Continue to develop and expand the HSE and SEAI partnership Agreement as an ongoing 3-year capital funded rolling programme.	Ongoing (review annually)
		Action 1.2	HSE Climate Action Leadership Roles	Action 1.2.1	The National Director of Capital & Estates and the HSE Energy Performance Officer (EPO) will continue as advocates and champions for climate change along with implementing infrastructure and energy related Public Sector Mandated Actions under the remit of Capital & Estates.	Ongoing
				Action 1.2.2	HSE Energy Performance Officer (EPO) will continue to support the actions of Voluntary hospitals and other Section 38 & Section 39 Organisations and their EPO's in their efforts to achieve the Climate Action Plan targets.	Ongoing
		Action 1.3	Develop and publish a plan and actions to achieve 2030 and 2050 energy and carbon emissions targets	Action 1.3.1	Update and publish the HSE's Infrastructure Decarbonisation Roadmap with in six months of the publication of the Climate Action Plan.	Q2 2024 (2nd Update) (Review annually)
Action Area 2	Regional Energy Bureau, Energy Management Teams, and Shallow Retrofit Programme	Action 2.1	Continue to support the existing Energy Management Teams, grow the number of Energy Management Teams (currently 138 teams)	Action 2.1.1	Have a total of 165 supported Energy Management Teams across the HSE and Section 38 and 39 organisations.	Q4 2024
				Action 2.1.2	Continue to establish and support Energy Management Teams across HSE and Section 38 and 39 organisation SEUs (which account for approximately 85% of Energy Usage and emissions)	Q4 2024
				Action 2.1.3	Continue coordination of the OPW Optimising Power at Work Scheme at Healthcare facilities.	Ongoing (annually)
				Action 2.1.4	Continue and enhance utilisation of the National Energy Efficiency Obligation Scheme.	Ongoing
				Action 2.1.5	Continue to progress the engagement of Green/ Sustainability 'Champions' on a pilot contract basis through the HSE/SEAI partnership agreement, to support Healthcare Facility Management Teams in establishing Energy Management Teams.	Ongoing
				Action 2.1.6	Restructure regional Energy Bureaus from 3 to 6 in line with new RHA Structure.	Q3 2024
				Action 2.1.7	Continue the work of the Regional Energy Bureaus co-ordinate and provide standardised approaches, training and regional support to local Energy Management Teams.	Ongoing
		Action 2.2	Continue Shallow Retrofit Energy Minor Capital Upgrade Programme	Action 2.2.1	Continue to develop the HSE's Shallow Energy Retrofit Programme in 2024 utilising the agreed Register of Opportunity assessment methodology with the 3-year rolling programme.	Q4 2024
				Action 2.2.2	Complete annual HSE/SEAI review of multi-annual programme.	Q2 2024
Action Area 3	Energy Efficient Design (EED) and Net Carbon Zero Ready Design	Action 3.1	Design and construct all capital works using an Energy Efficient Design and Net Carbon Zero Design Approach	Action 3.1.1	The HSE will continue to monitor ongoing developments in the area of Energy Efficient Design (EED) and Net Carbon Zero Ready Design and will revise and update its Design Team Technical Requirements and Scope of Service and its Risk Management processes accordingly.	Q4 2024 (TR & SoS Update) & ongoing
				Action 3.1.2	Continue to utilise the use of Dynamic Simulation for all new developments utilising design summer year weather data (with built in weather algorithms to project the impact of climate change) to accurately predict building performance against predicted future weather trends.	Ongoing

				Action 3.1.3	Mandate the utilisation of the HSE's EED and Net Carbon Zero Ready Design approach and Guidance document (included in the HSE Design Team Technical Requirements and Scope of Services) for all HSE funded Capital Projects in line with IS 399 and any other relevant developments or improvements in this area.	Q1 2024
				Action 3.1.4	Continue roll out of the revised (half day) National EED training programme. Programme progressed in collaboration with partners SEAI for all members of the HSE National Design Team Framework, HSE Estates Staff, section 38/39 organisations.	Q4 2024 & ongoing
				Action 3.1.5	Continue pre-project specific information sessions for all HSE capital projects.	Q4 2024 & ongoing
				Action 3.1.6	Not install heating systems that use fossil fuels (after 2023), in (1) new buildings, and (2) "major renovation" retrofit projects (as defined in the Energy Performance of Buildings Directive (EPBD)) unless at least one of the exceptions applies)	Q1 2024
		Action 3.2	Adapt the Energy Efficient Design (EED) Process and Net Carbon Zero Ready processes on an ongoing basis to support transition to Design for Manufacture and Assembly (DfMA) and the Circular Construction Economy(CCE)	Action 3.2.1	Roll out, embed and adapt the Energy Efficient Design and Carbon Zero Ready Design approach and process on an ongoing basis to have an accepted early design decision making process established and operational to support the transition to Modern methods of Construction (MMC) Design for Manufacture and Assembly (DfMA) and the Circular Construction Economy (CCE).	Ongoing
		Action 3.3	Further incorporate Carbon Impact Assessments into the HSE's Capital Planning process	Action 3.3.1	Develop a Carbon Impact Assessment Tool as part of the National Estates Information System (NEIS) Environment and Sustainability Module.	Q4 2024
				Action 3.3.2	Incorporate the embodied carbon impact learnings from the HSE's Deep Retrofit Pathfinder Programme into the HSE's Carbon Impact Assessment Tool. Incorporate the learnings from the Irish Green Buildings Council study on the operational and embodied carbon impact of energy retrofit works and new and emerging low carbon construction methods for new builds.	Q4 2024
				Action 3.3.3	Carbon Impact Assessments based on data generated by the Carbon Impact Assessment Tool will be incorporated into the HSE's Capital Application and Approvals Protocol.	Q4 2024
				Action 3.3.4	Carbon Impact assessments based on data generated by the Carbon Impact Assessment Tool will be incorporated into the HSE's Property Protocol.	Q4 2024
		Action 3.4	Integrate energy related Green Public Procurement (GPP) into Infrastructure and Construction Design	Action 3.4.1	Green Public Procurement criteria will be incorporated into Infrastructure Design and Construction as they relate to energy emissions reduction through continued application of the Energy Efficient Design Process.	ongoing
				Action 3.4.2	Incorporate the requirement to specify low carbon construction methods and low carbon cement material as far as practicable for directly procured or supported construction projects (from 2023) into Design Team Technical Requirements and Scope of Services.	Q4 2024
				Action 3.4.3	Incorporate the requirement to adhere to the Best practice Guidelines for the preparation of Resource & Waste Management Plans for Construction & Demolition Projects for directly procured or supported construction projects from 2024 into Design Team Technical Requirements and Scope of Services.	Q4 2024

Action Area 4	Deep Energy and Carbon Retrofit Programme	Action 4.1	Continue the Deep Energy Retrofit Programme	Action 4.1.1	Manage the Technical Advisors (TA), Design Teams (DT) and Energy Performance Contracting (EPC) advisors to progress the Building Deep Energy and Carbon Retrofit Programme.	Q4 2024 (and ongoing)
				Action 4.1.2	Compete all necessary Capital Funding Applications as required by HSE Capital Funding Protocol and Public Spending Code for all Pilot Pathfinder Sites.	Q2 2024
				Action 4.1.3	Progress Final design across the 10 Pathfinder Sites.	Q4 2024
				Action 4.1.4	Progress though Statutory Approvals / Detail Design / Procurement for Pilot Sites in 2025 (with on site-construction to progress in 2025 & 2026). *Commence a deep retrofit of at least one building in 2024 in pursuit of the 2030 51% target*	2025
				Action 4.1.5	Commence progression of elements of the Deep Energy and Carbon Retrofit Works at Pilot Pathfinder sites. Each element of work will incorporate continual review of lessons learned, measurement and verification (M&V) to ensure that operational performance aligns with design intent, and ongoing innovation and design review.	2025 / 2026
		Action 4.2	Prepare an up-scaled Major Deep Energy and Carbon Retrofit Programme for the Health Estate.	Action 4.2.1	Complete the Technical Advisor Report on up- scaled Deep Energy and Carbon retrofit for the Health Estate.	Q3 2024
		Action 4.3	Inform the HSE Capital & Estates Strategy with learnings from the Deep Energy and Carbon Retrofit Programme	Action 4.3.1	Inform the HSE Capital & Estates Strategy with learnings from the Deep Energy and Carbon Retrofit Programme in the area of the operational and embodied carbon impact of energy retrofit works and of new and emerging low carbon construction methods for new builds.	Ongoing
		Action 4.4	Commence Phase 2 of the Pilot Pathfinder Programme.	Action 4.4.1	Complete process of selection of Phase 2 Deep Energy Retrofit Sites.	Q4 2024
				Action 4.4.2	Commence Data Gathering and Preparation for Phase 2 Pilot Pathfinder Programme.	Q4 2024
Action Area 5	Metering, Modelling Reporting & Energy Management Systems	Action 5.1	Continue development and consolidation of energy data	Action 5.1.1	Continually Update the Significant Energy User (SEU) database for the top 150 HSE (and section 38/39 Organisations) as part of the annual energy review under the requirements of ISO 50001.	Ongoing
		Action 5.2	Progress a HSE metering and monitoring enhancement programme	Action 5.2.1	Complete Metering Project survey (remaining 25% of sites).	Q3 2024
				Action 5.2.2	Progress Programme to install additional utility meters. These meters will be protocol compatible with NEIS so that all key utility data will be gathered within the NEIS and the real time utility information will be available for improved reporting, usage reconciliation and management.	Ongoing
				Action 5.2.3	Develop KPIs and Monthly Consumption Reports for SEUs.	Q4 2024
		Action 5.3	Develop a Dynamic Decarbonisation Model	Action 5.3.1	Commence development of a Dynamic Decarbonisation Modelling tool, referencing nationally agreed and standardised carbon impact assessment methodologies, to enable the calculation and evaluation of scenarios for tracking the HSE's emissions and energy performance trajectory to 2030 and 2050. This will be NEIS compatible.	Q3 2024
		Action 5.4	Develop HSE Utility Monitoring and Reporting Systems, incorporating the digitisation and automation of energy data collation and reporting.	Action 5.4.1	Embed new EnMS system and software identified as extension of NEIS (system identified as compatible with NEIS and new metering infrastructure).	Q4 2024
				Action 5.4.2	Explore with SEAI the ability to generate Display Energy Certificates (DEC) for HSE SEU's via SEAI Building Register System.	Ongoing

				Action 5.4.3	Develop NEIS to improve digital input to National Monitoring and Recording Systems and for an improved DEC generation methodology.	2025
		Action 5.5	Develop a plan for the progression to and achievement of formal accreditation of ISO 50001 Energy Management Standard	Action 5.5.1	Achieve ISO 50001 certification by of end-2024.	Q4 2024
		Action 5.6	Report Energy Performance annually on SEAI M&R Systems to track progress towards 2030 and 2050 Targets	Action 5.6.1	Report Energy Consumption Data annually on SEAI M&R Systems to track progress towards 2030 and 2050 Targets.	Annually
				Action 5.6.1	Update HSE Energy Performance Indicator criteria on SEAI M&R.	Q3 2024
		Action 5.7	Comply with reporting requirements as outlined in the Climate Action Plan 2024	Action 5.7.1	Provide information for HSE Annual Report on GHG Emissions and implementation of CAP 24 Public Sector Mandated Requirements in relation to Infrastructure Decarbonisation.	Annually
				Action 5.7.2	Using SEAI's Public Sector Monitoring and Reporting System, report annually on implementation of the individual mandate requirements using a 'comply or explain' approach.	Annually
		Action 5.8	Develop a building register and building stock plan as mandated in the Climate Action Plan.	Action 5.8.1	Complete Building Register (Stage 1 of Building Stock Plan).	Q1 2024
				Action 5.8.2	Commence Stage 2 of Building Stock Plan and liaising with the SEAI and our PSM to ensure alignment with new directive targets.	Q4 2024
				Action 5.8.3	As part of the building stock plan, undertake data gathering and consider the long term (to 2050) retrofit key performance indicators to upgrade their building stock to Nearly Zero Energy Buildings (NZEB) or Zero Emission Buildings (ZEB) as outlined in the EPBD proposal and recast Energy Efficiency Directive.	Q4 2024
		Action 6.1	Continue to develop advice, guidance and training to all healthcare facilities in the areas of Energy and Climate Action	Action 6.1.1	Continue to deliver online and blended training programmes (Green Healthcare Programme Water and Waste Training).	Q4 2024
		Action 6.2	Roll out a sustainability assessment and support tool for medium and smaller healthcare facilities.	Action 6.2.1	Roll out the Green Healthcare Programme (GHP) Sustainability Assessment & Support Tool for medium and smaller users to: - CHO 4 (Q1 2024) - DNE (Q2 2024) - Rest of HSE	Q4 2024
				Action 6.2.2	Develop ROO and commence roll-out projects identified through Pilot Sustainability Assessment Tool Pilot in 10 sites (CHO 4).	Q4 2024
		Action 7.1	Support the development of a Transport framework and implementation plan for moving to low and zero emission vehicles or alternatives for both emergency and non-emergency fleets.	Action 7.1.2	Provide advise and guidance to the HSE Climate Action Strategy Transport Working Group in relation to the phasing out of parking in buildings that have access to a range of public transport services and active/shared mobility options for the majority of staff/visitors while providing that sufficient accessible parking is maintained for those with physical mobility issues.	ongoing
				Action 7.1.3	As an enabler for the switch to zero-emission vehicles and meeting CAP targets, support the development of a plan for installation of charging infrastructure in relevant locations via the HSE Climate Action Strategy Transport Working Group. (The plan should align installation of infrastructure with timelines for decarbonisation of the body's fleet. The plan should be included in the HSE's Climate Action Roadmap).	ongoing

		Action 7.2	Provide ongoing Support to HSE Procurement of Energy and Utilities and improve information and data availability from National Utility Contracts	Action 7.2.1	Continue to support the HSE Utilities and Energy related Procurement Steering Group has been established to co- ordinate the procurement of Energy related Supplies and Services and interaction with the Office of Government Procurement (OGP) to ensure that all carbon reduction opportunities are maximized and that utility suppliers contribute to the HSE's energy and carbon reduction programmes.	ongoing
		Action 7.3	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.	Action 7.3.1	Progress Green Environments Pilot Project in no. 15 sites.	ongoing
				Action 7.3.2	How To Guide & Design Guidance for improving existing green spaces.	2025
				Action 7.3.3	Develop Best Practice Guidance for Design Team Scope of Service for new facilities.	2025
				Action 7.3.4	Develop a Framework of Landscape Designers & Contractors for each Region.	2025
		Action 7.4	Provide ongoing support in relation to Water Conservation advice and projects via HSE Capital & Estates Sustainability Officers and the Green Healthcare Programme	Action 7.4.1	Continue, through the Green Healthcare Programme and in conjunction with Irish Water, the identification of Significant Water Users to allow water data to be incorporated into NEIS.	Q4 2024
				Action 7.4.2	Provide guidance to healthcare facilities on Water Conservation and support water conservation projects (i.e. low flow tap installations etc.) through a Green Healthcare Programme ROO.	Ongoing
		Action 7.5	Provide ongoing support to the wider HSE Climate Action Strategy and Implementation Plans	Action 7.5.1	Provide ongoing support to the wider HSE Climate Action Strategy and Implementation Plans.	ongoing
				Action 7.5.2	Support local maintenance teams, where necessary, in installing drinking water refill points where identified by HSE Climate Action Strategy Implementation.	ongoing

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