
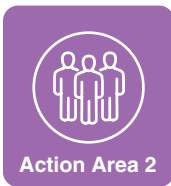


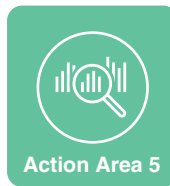






HSE Infrastructure Decarbonisation Roadmap



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Introduction



Introduction



Purpose

The Government's Climate Action Plan 2021 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 and the Energy Efficiency Directive are being updated under the European Green Deal and will be reflected in the Irish Government's annual updating of the Climate Action Plan.

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 Infrastructure Decarbonisation Roadmap has been developed by the HSE in response to this obligation. It outlines the work undertaken by the HSE to date and our approach to continuing to reduce 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.

The HSE's Infrastructure Decarbonisation Roadmap forms an integral part of the HSE Capital & Estates Property Strategy and Implementation Plan and the HSE's wider Climate Action and Sustainability Strategy.

Decarbonisation Targets and Scope

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

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.

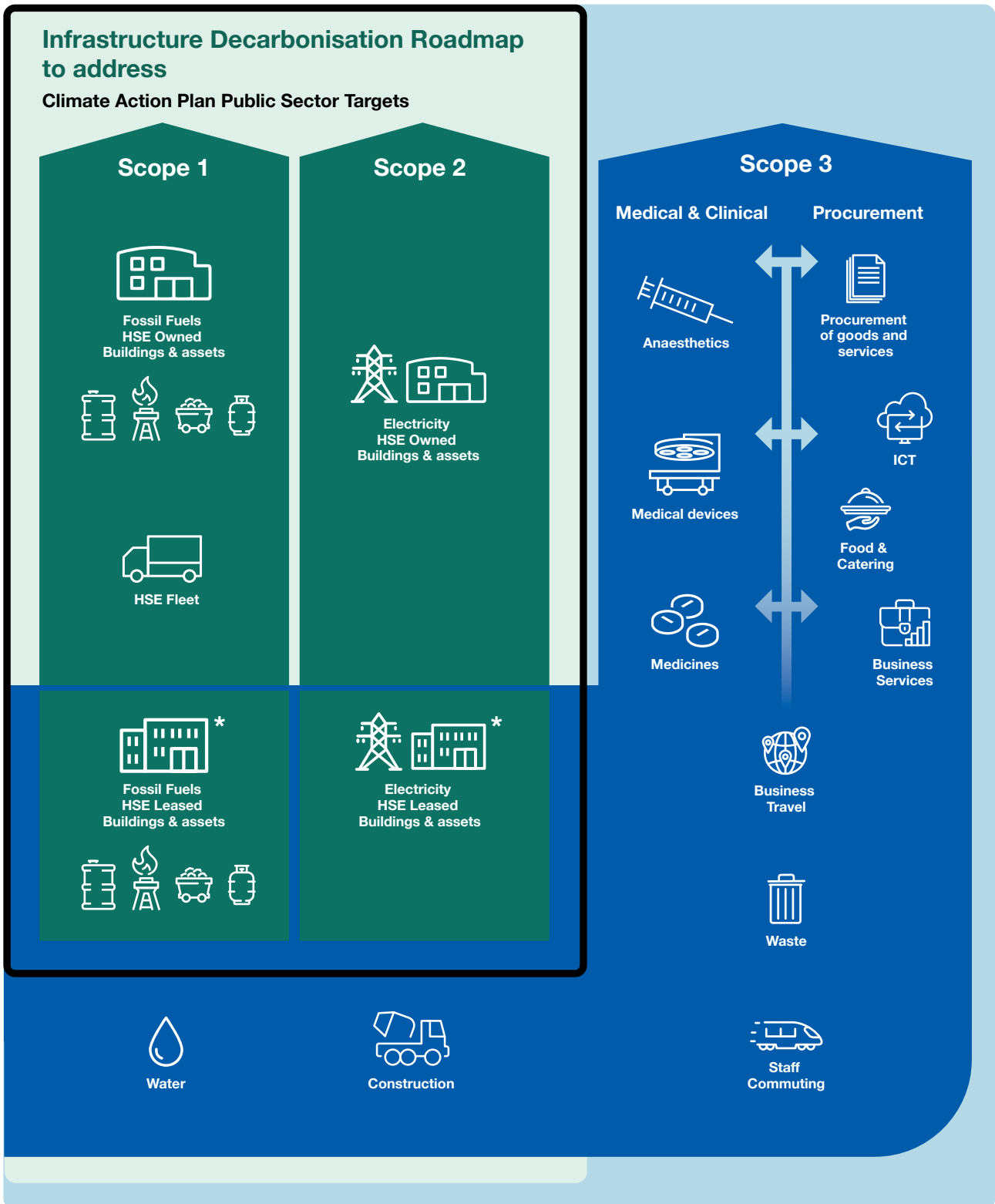
AND

- 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 being considered and 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.

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.

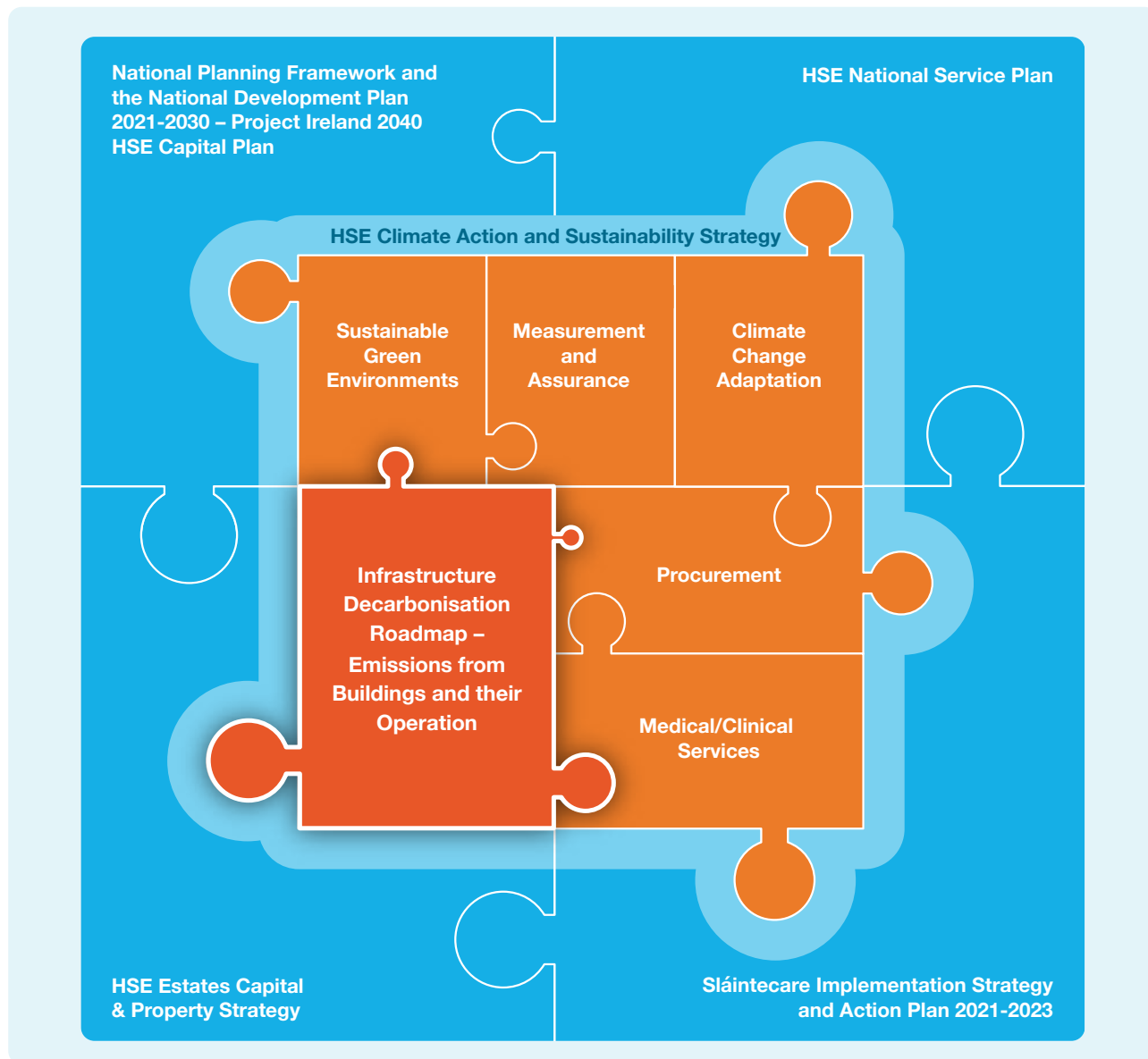
HSE Carbon Footprint



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

Interrelationships

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



Graphic 2: Infrastructure Decarbonisation Roadmap linkage to other HSE Strategies & Plans

This Roadmap builds on existing workstreams progressed by the HSE 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 recognise that significant funding will be required to support the actions that are outlined in this Roadmap. At this initiation stage, definitive costs are not yet established but the taking forward of the programme of work outlined in this Roadmap will provide an evidence-based, costed report which will inform for the HSEs approach to the required large-scale, deep energy renovation of the Health Estate.

Approach and actions to date



Approach and actions to date



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.

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.

To better understand energy use across the Healthcare Estate, and focus resources on the largest energy users, one of the first tasks for the Capital & Estates team was to develop a Significant Energy User (SEU) database. This has identified that c.170 HSE sites, Section 38/39 Acute Hospitals and Community Organisations account for approximately 75% of energy use and carbon emissions across the health sector.

The HSE's approach, through its partnership programme with SEAI, has focused on reducing heating energy use and electricity use across these top 170 (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 and reductions in Scope 1 and Scope 2 emissions but it also clear that the workstreams need to be enhanced and expanded to achieve the targets set. 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.

To date the HSE have:

1. Progressed the collation and consolidation of energy usage data and identified 170 SEUs which together account for c. 75% of energy use and carbon emissions across the health sector.
2. Established three Regional Energy Bureaus in 2019 (aligned to the four Capital & Estates Regional Offices). These Regional Energy Bureaus provide support to local Energy Management Teams at the HSE's SEU facilities and at the largest Section 38 and 39 Organisation facilities. These Energy Bureaus co-ordinate a network of 11 dedicated Energy Officers. In 2022 the HSE approved making these Energy Officer positions permanent in recognition of the success of the programme and to ensure that the decarbonisation agenda is consolidated and embedded into the operation of our buildings and services on a permanent basis.

3. Established the Capital & Estates, Climate Action & Sustainability Office (CASO) in 2021, 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.
4. Progressed the establishment of Energy Management Teams at SEUs, with the 11 Energy Officers supporting local Healthcare Management Teams to progress energy performance improvement and reductions through behavioural change programmes. There were 111 Energy Management Teams in place and supported at the end of Q2 2022.
5. Worked with SEAI to tailor their Engaging People Energy Awareness Programme specifically for Healthcare and commenced roll out of this training and awareness programme to participating local Healthcare Management Teams.
6. Developed and delivered a Shallow Retrofit Energy Minor Capital Upgrade Programme to support the work of the Energy Management Teams. The shallow retrofit programme progresses engineering works such as LED lighting upgrades, window and insulation upgrades, heat pump installations, improved control systems, building management systems (BMS) upgrades, meter upgrades, pump upgrades and photovoltaic (PV) installations and has spent approx. approx. €14.7million between 2019 and 2021 with 27,105,950 kWh and 7,012 tonnes of CO₂ reductions. The projected spend for 2022 is €12.5m.
7. Developed and implemented an Energy Efficient Design (EED) process aligned with Irish Standard IS.399 and integrated it into the design of all new and replacement Capital Projects. EED is fundamentally a structured process to ensure that both energy and carbon performance are fully considered in all design decisions and are implemented and modelled by all members of the Design Team at the earliest points in the design process. The HSE is one of the first Public Sector bodies to have mandated the inclusion of this innovative process as part of its design process and its introduction aids the HSE in delivering on energy, emissions, environmental, quality objectives and in the futureproofing of its buildings.
8. In 2021, the HSE amended its Design Team Technical Requirements and Scope of Service to require Design Teams to clearly demonstrate each buildings design 'Route to Carbon Zero' as part of the EED process to ensure that all HSE buildings are designed to be carbon zero ready. A training programme has been developed in partnership with SEAI, the roll out of which has commenced for HSE Capital & Estates, Section 38/39 Technical Staff and HSE Design Team Framework Members.
9. Completed a compliance assessment as part of the HSE commitment to comply with their legal obligations under Part 3 of the Statutory Instrument SI426 of 2014 (European Union (Energy Efficiency) Regulations 2014). This independent assessment was completed in 2021 and confirmed that the energy activities, audits and energy performance improvement activities carried out by the HSE satisfy the requirements of Annex VI of Directive 2012/27/EU on energy efficiency.

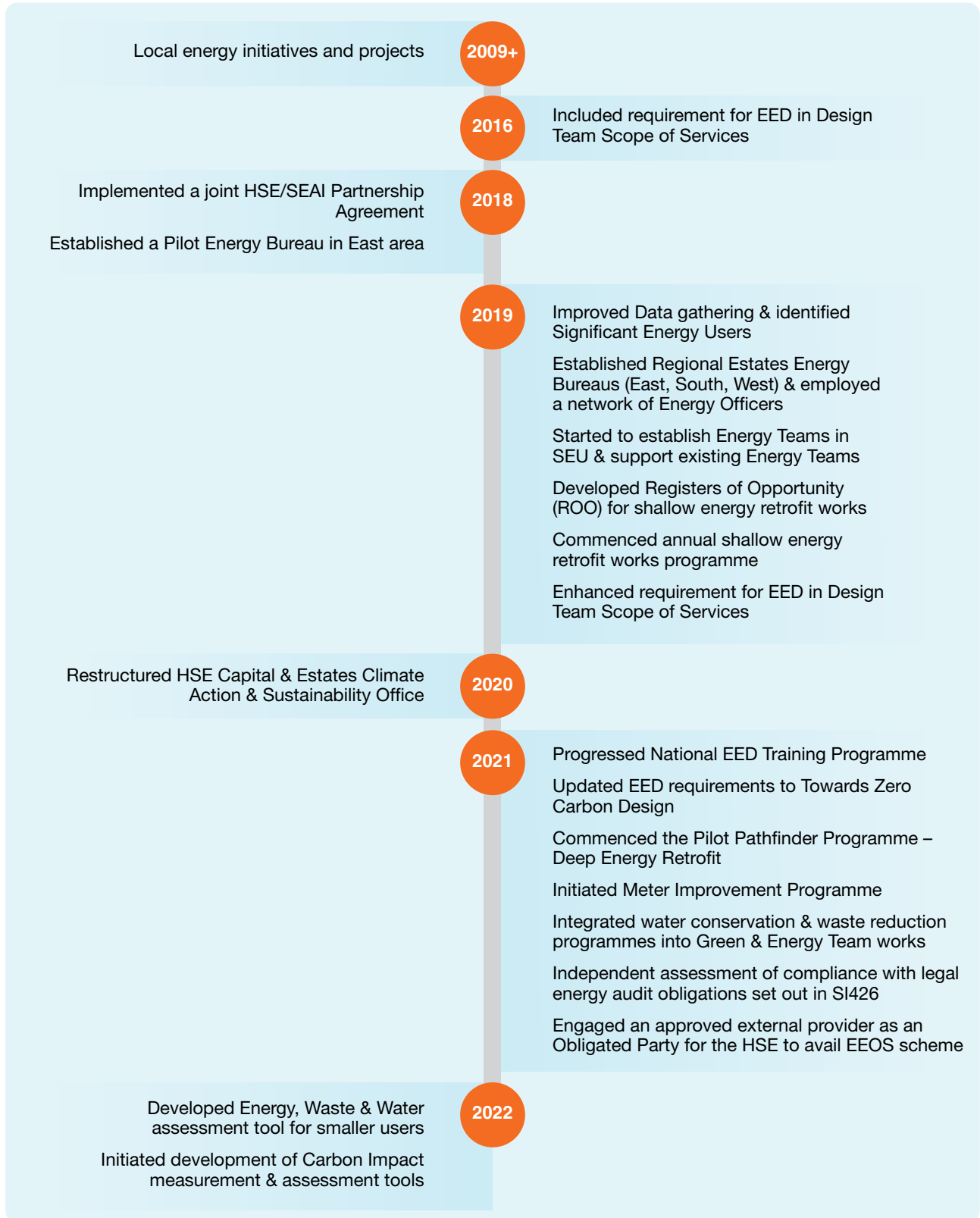
10. Identified that major deep energy retrofits of the existing healthcare estate will be required to meet the challenging carbon reduction targets set out in the Irish Government's Climate Action Plan. The HSE have identified 10 representative healthcare sites and have engaged Technical Advisors, Design Teams and Energy Performance Contracting advisors and commenced a Deep Energy and Carbon Retrofit Pilot Pathfinder programme in partnership with SEAI in 2021. This innovative and forward looking programme will:
 - a. assess and evaluate viable and proven technical solutions, which are suitable for major building fabric and energy retrofits of buildings in healthcare environments,
 - b. allow the HSE to prepare an up-scaled Major Deep Energy and Carbon Retrofit approach for the Health Estate based on fact based design data and costs.

11. Commenced a Meter Improvement Programme in order to develop improved metered data & utility supplier data. This programme will be integrated with the new National Estates Information System which is currently being rolled out.

12. Developed Enhanced Guidance and training in the areas of Energy Efficiency, Carbon Reduction, Waste Prevention and Water Conservation. This includes an online healthcare sustainability assessment and support tool which has been developed for use by all medium and smaller users (outside of the top 170 SEUs).

13. Engaged an approved external provider as an Obligated Party for the HSE to avail of "The Energy Efficiency Obligation Scheme" which was established under Statutory Instrument SI 131 of 2014. This places an obligation on Energy Providers to provide services to end users to assist in reducing the amount of energy that is being provided to them. The approved external provider is assisting the HSE in developing a culture of energy efficiency through behavioural change, implementing best practice principles on an on-going basis and identification of energy savings opportunities.

Timeline of progress to date



Performance
to date



Where are we now – current status

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 level¹. All information below is provided by SEAI via their Public Sector Monitoring & Reporting System.

The precursor to the Government's Climate Action Plan 2021 was the National Energy Efficiency Action Plan which set out an energy reduction performance target of 33% for the Public Sector by 2020, compared to the position in 2009. This energy reduction target was not an absolute reduction target but instead an activity-adjusted target to take account of the activity levels of an organisation (in the HSE's instance this activity is patient numbers) against energy usage in the 2009 baseline year.

The latest report, 2021 Annual Report on Public Sector Energy Efficiency Performance, shows that at end 2020 public bodies and government departments overall were 34% more energy efficient than in 2009 (activity adjusted) and thereby exceeded the 33% energy efficiency target.

At the end of 2019 the HSE had reduced its actual (non-adjusted) energy use by 11.6% against the 2009 baseline. When the HSE reported energy usage (under SEAI Monitoring and Reporting programme) this was adjusted by SEAI, using their agreed methodology, to take account of the HSE activity metric. The calculated activity-adjusted energy performance towards the 33% target in 2019 was a 26% reduction.

At the end of 2020 the HSE had further reduced its actual (non-adjusted) energy use to 12.4% against the 2009 baseline. However due to the impact of Covid-19, the HSE's activity levels for 2020 were greatly reduced and consequently the activity-adjusted performance score calculated by SEAI and included in SEAI's Annual Public Sector report for 2020 shows only a 14% (activity-adjusted) performance reduction since 2009 (compared to 26% in 2019). The energy savings achieved over the previous years are retained however and it is projected that when HSE activity returns to pre-pandemic levels of activity, the specific energy consumption metric will revert to an improvement on the 26% (activity-adjusted) figure reported in 2019.

1. 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 2020 energy efficiency targets and reporting to SEAI. The HSE understands that the same approach will apply 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.

HSE Energy Use

Type	Consumption 2009 (Baseline)	Consumption 2019	Consumption 2020
Total Primary Energy Requirement TPER			
Thermal	633,788,231 kWh	600,415,046 kWh	600,604,642 kWh
Electricity	494,685,352 kWh	413,546,736 kWh	399,568,791 kWh
Transport	77,721,181 kWh	52,323,865 kWh	56,132,709 kWh
Total HSE 2020 Energy Consumption	1,206,194,765 kWh	1,066,285,647 kWh	1,056,306,142 kWh
Reduction in consumption since 2009 baseline (TPER)	Baseline	11.6%	12.4%
SEAI Activity Adjusted Performance Score against 33% target	Baseline	26%	14%



Figure 2: HSE Total Primary Energy Requirement (Baseline 2009 – 2020) – Source: SEAI

Energy Related CO₂ Emissions

CO ₂ Emissions	Emissions 2016 – 2018 Average Baseline	Emissions 2019	Emissions 2020
Total CO ₂ Emissions	230, 216, 863 kgCO ₂	206,424,250 kgCO ₂	199,143,770 kgCO ₂

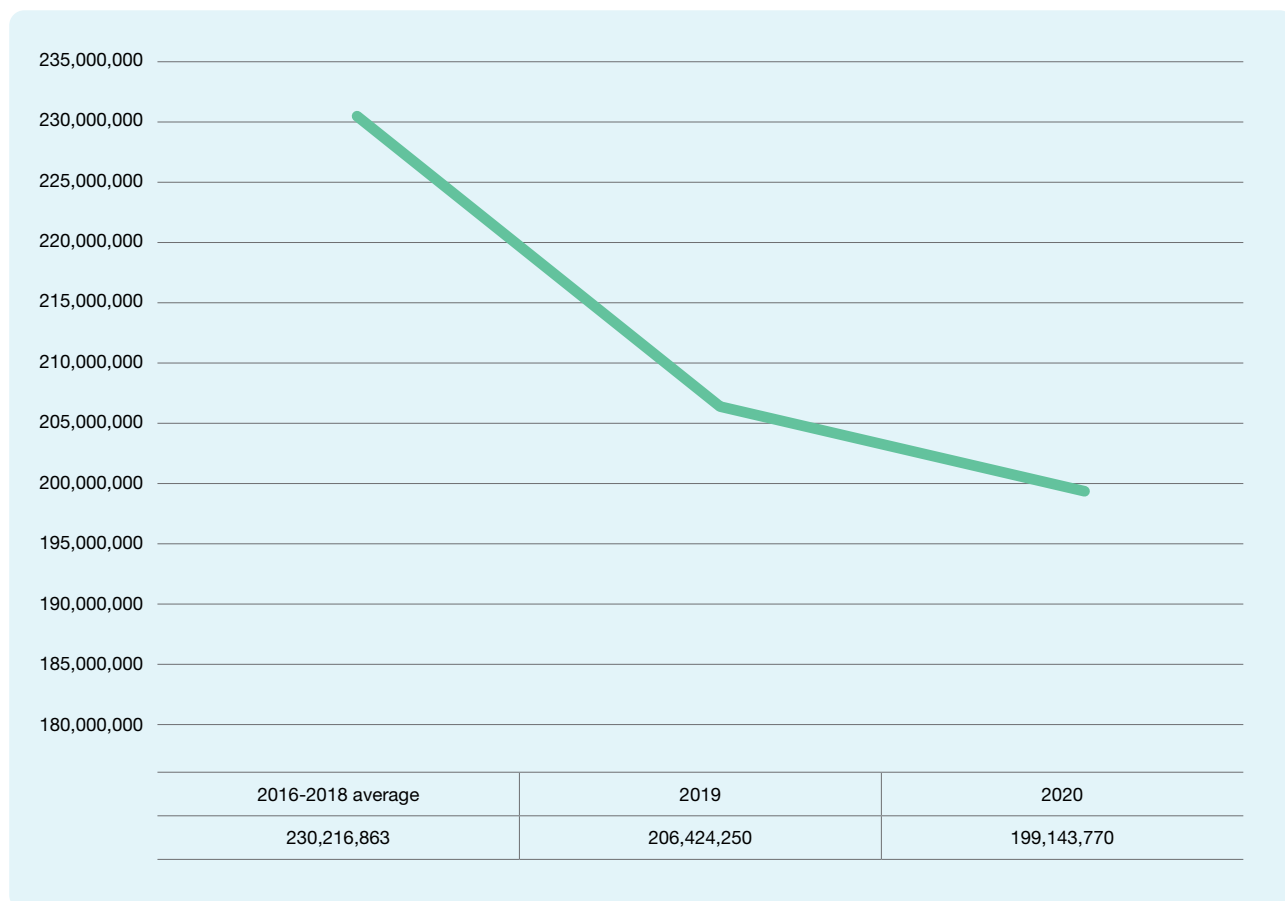


Figure 3: HSE Total CO₂ Emissions (Baseline 2016 – 2018 Average – 2020) – Source: SEAI

At the end of 2020 the HSE have achieved a reduction of 31,073,093 kgCO₂ or 13.5% of the 51% target emissions reduction by 2030 set out in the Climate Action Plan 2021 (against a 2016-2018 average baseline).

Where do we
want to get to
and how do we
get there?



Where do we want to get to?

As set out in the Government's Climate Action Plan 2021, 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 GHG emissions by 51% by 2030 against a baseline of 2016 to 2018 average emissions**
- 2. Increase the improvement in energy efficiency in the Public Sector from the 33% target in 2020 to 50% by 2030 against a 2009 baseline**
- 3. A net zero energy related emissions target for 2050 at the latest**

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 but are being considered and 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.

As specifically stated in the Climate Action Plan Mandate, a number of areas need to be addressed and strengthened to support and facilitate the achievement of these explicit targets by Public Sector bodies including:

- Establishment and resourcing of Energy and Green Teams
- Nomination of Senior Management Climate and Sustainability Champions
- Training, learning and development strategies for staff and staff workshops
- Improved reporting and transition to digital processes
- Achieving Energy or Environmental Management Standard ISO 50001 or ISO 14001
- Creating bicycle friendly buildings and a planned transition to zero-emission vehicles
- Displaying Energy Performance Certificates
- Phasing out of fossil fuel heating systems after 2023.

Each of these action areas will be addressed by the HSE, either through the actions outlined in this Roadmap, or in the HSE's wider Climate Action and Sustainability Strategy.

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 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.

The Roadmap will be updated annually and will be directed, coordinated and informed by the implementation of the HSE Capital & Estates Property Strategy and it will support delivery of the strategic objective to develop an Estate that is net zero no later than 2050. It will also form an integral part of and support the strategic objectives of the wider HSE Climate Action and Sustainability Strategy with progress reflected in annual updates.

Roadmap Action Areas



Roadmap Action Areas

Action Area 1



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

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 Bureau 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 Towards Carbon Zero Design (TCZD)

Implementation of an Energy Efficient Design (EED) and Towards Carbon Zero Design (TCZD) approach for all capital works including a National Training Programme. Obtain immediate benefits of carbon zero 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 Including Pilot Pathfinder Programme

Progress a Pilot Pathfinder Programme targeting existing buildings to identify how to decarbonise appropriate elements of the Health portfolio. This will include replacing fossil fuels with renewables and electrifying heat and transport. Prepare an up-scaled Major Deep Energy and Carbon Retrofit approach for the Health Estate.

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 with the HSE's intention to transition to ISO 50001 accredited Energy Management Standard.

Action Area 6



Behavioural Training and Learning supports

Continue the roll out of the SEAI Engaging People programme which has been tailored specifically for Healthcare. Continue a programme to develop advice, guidance and training support programmes to reduce energy (and to conserve water and reduce waste, linked to the HSE's wider Climate Action and Sustainability Strategy). Roll out the Energy and Sustainability Training Assessment and Support Tool for medium and smaller healthcare facilities.

Action Area 7



Support to the wider HSE Climate Action and Sustainability Strategy

As part of the HSE's wider Climate Action and Sustainability Strategy, 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. More generally, provide input and support to the implementation of the Climate Action and Sustainability Strategy in the areas of procurement, waste, water and greener models of healthcare delivery.

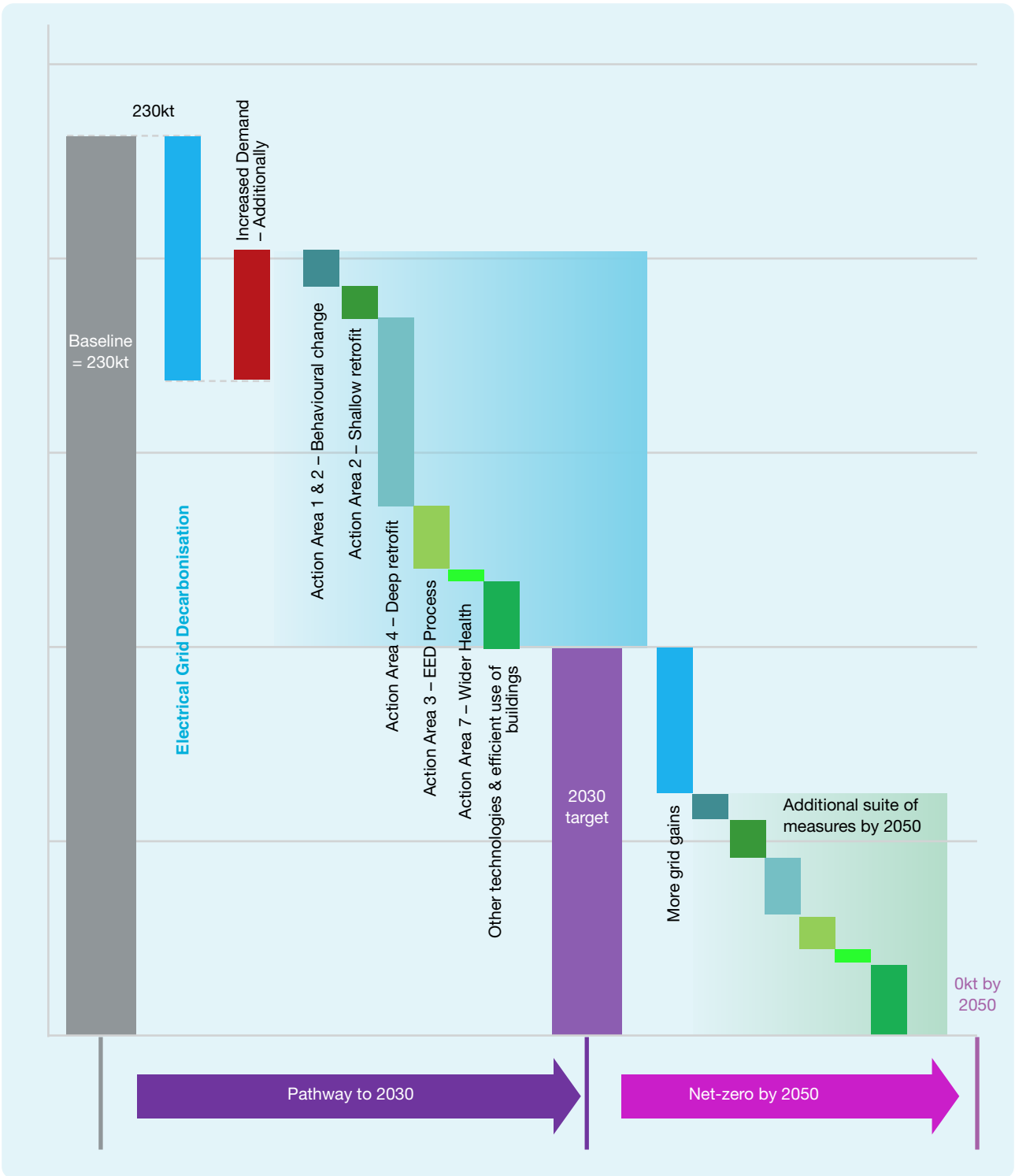


Figure 4: HSE Roadmap Overview (indicative contributions)

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 2021 the HSE and SEAI agreed to expand the agreement into a three-year rolling programme with the initial period being 2021 to 2023. The agreement also established an overall Indicative Envelope of Funding for the period 2021-2023 of €60 million for the delivery of the Energy Bureau, Energy Teams, Shallow Retrofit Works and Pilot Pathfinder Programme. This rolling programme with specific funding agreements is reviewed annually.

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 Chief Strategy Officer of the HSE, who is a member of the HSE's Executive Management Team acts as the Climate and Sustainability Champion for the HSE, overseeing the implementation of the HSE Infrastructure Decarbonisation Roadmap and the wider HSE Climate Action and Sustainability Strategy.

The HSE have nominated the Capital & Estates National Lead for Climate Action and Sustainability as the HSE's Energy Performance Officer.

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.

Action 1.3

Update the HSE's Infrastructure Decarbonisation Roadmap annually

The HSE will update this Roadmap annually. The update will be directed and informed by the implementation of the HSE Capital & Estates Property Strategy and achieving the objectives of the HSE Climate Action and Sustainability 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.

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 111 teams), and broaden the role of existing and new Energy Management Teams to include wider ‘green’ issues.

The HSE’s aim is to increase substantially the number of local Energy Management Teams, with a target of 170 by end-2023 across HSE and Section 38/39 Significant Energy Users (SEUs). There were 111 Energy Teams in place and supported at the end of Q2 2022.

In the short-to medium-term these “Energy Management Teams” will transition to “Green Teams” (incorporating existing Energy Management Teams, where present) who will report to senior management. These teams will help the HSE to drive organisation-wide improvement in areas of energy efficiency, water conservation, waste management, environmental compliance, sustainable procurement, greener models of healthcare and active travel.

The HSE have three Regional Energy Bureaus in place. The Bureaus co-ordinate and provide standardised approaches and regional support to 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:

- Coordination of the SEAI Engaging People National Programme (tailored for the Health Sector) delivery to all 170 SEUs.
- Continuation and expansion of the Office of Public Works Optimising Power at Work Programme
- Provision of staff awareness activities and workshops on energy and sustainability
- 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)

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.

To further augment and enhance the work of the Capital & Estates Energy Officers the HSE and SEAI are proposing (through its Memorandum of Understanding) that a Sustainability/Green Champion can be provided to service management teams as a complementary resource to the Capital & Estates Energy Officers and would lead the service drive towards improving sustainability and decarbonisation of all aspects of the organisations operations.

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. Currently the HSE and SEAI have a 3 year rolling programme with the initial period being 2021 to 2023 and an indicative envelope of funding of €60 million. The HSE and SEAI will review this annually with a view to increasing and enhancing the 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. 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
- 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 Towards Carbon Zero Design (TCZD)

Action 3.1



Design and construct all capital works using an Energy Efficient Design Process and Towards 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 Toward Carbon Zero Design approach to clearly demonstrate the buildings design 'Route to Carbon Zero'. This will ensure that all HSE buildings will be designed so that they are carbon zero ready and that they will be carbon zero in use once the electricity grid decarbonises.

The HSE will progress a National EED Training programme for all HSE Capital & Estates Technical staff and for all members on the HSE Design Team framework which will be completed by Q1 2023.

The HSE will build on this training to provide an EED guide and a pre-project design initiation information session focusing on the EED approach which will be in place for application to all new projects by the end of 2022.

Action 3.2**Adapt the Energy Efficient Design (EED) and Towards Carbon Zero Design (TCZD) 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 Towards Carbon Zero 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.)

Action Area 4

Deep Energy and Carbon Retrofit Programme Including Pilot Pathfinder Programme

Action 4.1



Continue the Deep Energy and Carbon Retrofit Pilot Pathfinder 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 initial findings of the Pilot Pathfinder Programme will be available at the end of 2022 and it is proposed that works may be funded under the HSE/SEAI partnership agreement and Energy Efficiency Support Programme Memorandum of Understanding.

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.

This will inform and support the preparation of future Strategic Assessment Reports and Preliminary Business Cases for large scale works in compliance with the HSE's Capital Applications, Approvals and management processes which are aligned with the Department of Public Expenditure (DPER) Public Spending Code. It will also support the progression of any viable private funding processes which may be identified.

Action 4.3**Update and inform the HSE Capital & Estates Property 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 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 Climate Action and Sustainability Office has developed a Significant Energy User (SEU) database. The database is linked to the HSE's Property Register for HSE properties and has site level energy information for c.170 HSE sites, Section 38/39 Acute Hospitals and top energy using Community Organisations. These 170 SEUs account for approximately 75% of Healthcare energy use and emissions.

This SEU database will be continuously updated and enhanced 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 and enable implementation of ISO 50001 accredited energy management standards going forward.

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 the 170 SEU facilities in order to develop a programme to enhance the HSE's metered data and to install additional utility meters. The survey will be complete in Q1 2023 and a plan to enhance the HSE's metered data and to install additional meters will be available in Q3 2023.

A number of additional 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 will be informed by the OPW programme and the scale of metering and meter specification and system compatibility will draw on the OPW's experience and learnings.

The meter systems will be compatible with and incorporated into the Environment and Sustainability Module of the HSE's National Estates Information System (NEIS) which is being rolled out and which will be operational in 2023.

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 modelling tool will be available by the end of 2023. 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 digitization 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) will be 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.

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 Environment and Sustainability Module of the National Estates Information System (NEIS) which will be made operational in 2023.

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.

Action Area 6

Behavioural Training and Learning

Action 6.1



Continue the roll out of the SEAI Engaging People Programme which has been tailored specifically for Healthcare

The Engaging People Programme is a SEAI national accelerator programme which promotes effective energy management through raising energy awareness and the commitment of all employees to implement no cost and other energy saving measures. It recognises that no energy management strategy will be successful without the sustained involvement of staff.

SEAI have worked with the HSE and have developed an Engaging People Programme which is specific to Healthcare settings and have provided the programme to one of the Regional Energy Bureaus and the Energy Management Teams in that area

We will complete the roll out of this SEAI Engaging People Programme to all Regional Energy Bureaus and the Energy Management Teams in their areas by Q2 of 2023.

We will review and update the content of the Health Specific Engaging People Programme and agree post 2023 training programme with SEAI by Q4 2023.

Action 6.2

Continue a programme to develop advice, guidance and training programmes in the areas of Energy and Sustainability

The HSE engaged the Clean Technology Centre (CTC), Cork in 2020 to develop advice, guidance and training programmes in Energy, Waste and Water conservation. The HSE will continue this programme and convert energy, waste and water conservation guidance into online and blended training programmes in support to the implementation of the Climate Action and Sustainability Strategy.

Action 6.3

Roll out a Sustainability Training, 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), Cork for use by all medium and smaller users (outside of the top 170 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 locations. A pilot will commence in Q4 2022 in Community Health Organisation Area 4 (Cork/Kerry) in 2022 with a view to being rolled out nationally in 2023.

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 and Sustainability 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. The framework will include consideration of:

- The impact of the finalised Government Electrical Vehicle (EV) Charging Infrastructure Strategy on HSE operations.
- The challenges associated with operationalisation of the introduction of clean / electric vehicles as per the Climate Action Mandate.
- Consideration of options to purchase only zero emission vehicles where available and operationally feasible from 2023 onwards.
- Consideration of where low or zero emission vehicles will be used across different regions and departments considering fleet inventory and replacement cycles

The Transport framework will be developed noting that charging infrastructure implementation is contingent on engagement with The Department of Transport, ESB and others. While a priority, implementation must not detract from the HSE's mandated responsibility to electrify its thermal load.

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 in 2023 to ensure that all carbon reduction opportunities are maximized and that all suppliers contribute to the HSE's energy and carbon reduction programmes.

Action 7.3

Provide ongoing support to the wider HSE Climate Action and Sustainability Strategy and Implementation Plan in the

- Development of HSE green space frameworks
- Development of low carbon procured goods and services
- Development of waste management framework.
- Development of frameworks for greener model of healthcare delivery
- Development of water conservation frameworks

Roadmap Actions Summary



Roadmap Actions Summary

Actions and Timelines

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	
	Steps Necessary for Delivery	Timeline
Action 1.1.1	Develop and expand the HSE and SEAI partnership Agreement as an ongoing 3-year capital funded rolling programme.	Ongoing
Action 1.2	HSE Climate Action Leadership Roles	
	Steps Necessary for Delivery	Timeline
Action 1.2.1	The Chief Strategy Officer, the National Director of Capital & Estates and the HSE Energy Performance Officer (EPO) will continue as advocates and champions for climate change at Executive Management Team and Senior management level in the HSE and within the wider public and private sectors.	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	Update the HSE's Infrastructure Decarbonisation Roadmap annually	
	Steps Necessary for Delivery	Timeline
Action 1.3.1	Update and publish the HSE's Infrastructure Decarbonisation Roadmap annually.	Within 6 months of the Climate Action Plan annual update being published

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 111 teams), and broaden the role of existing and new Energy Management Teams to include wider ‘green’ issues.	
	Steps Necessary for Delivery	Timeline
Action 2.1.1	Have a total of 111 supported Energy Management Teams across the HSE and Section 38 and 39 organisations by Mid-2022.	Q2 2022
Action 2.1.2	Have supported Energy Management Teams across the top 170 HSE and Section 38 and 39 organisations which account for approximately 75% of Energy Usage and emissions.	Q4 2023
Action 2.1.3	Produce a guide on how to develop Energy Teams which co-ordinate all aspects of sustainability and wider healthcare decarbonisation in Energy, Waste, Procurement/Supply Chain and Medical/ Clinical decarbonisation.	Q2 2023
Action 2.1.4	Continue coordination of the OPW Optimising Power at Work Scheme at Healthcare facilities.	Ongoing
Action 2.1.5	Continue and enhance utilisation of the National Energy Efficiency Obligation Scheme.	Ongoing
Action 2.1.6	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 2.1.7	Continue the work of the Regional Energy Bureaus co-ordinate and provide standardised approaches and regional support to local Energy Management Teams.	Ongoing
Action 2.2	Continue Shallow Retrofit Energy Minor Capital Upgrade Programme	
	Steps Necessary for Delivery	Timeline
Action 2.2.1	Continue to develop the HSE’s Shallow Energy Retrofit Programme in the years 2022 and 2023 utilising the agreed Register of Opportunity assessment methodology with the 3-year rolling programme and the Indicative €60 million Funding envelope for the HSE/SEAI partnership programme (2021 to 2023).	Ongoing
Action 2.2.2	Complete annual HSE/SEAI review of multi-annual programme.	Q1 2023

Action Area 3	Energy Efficient Design (EED) and Towards Carbon Zero Design (TCZD)	
Action 3.1	Design and construct all capital works using an Energy Efficient Design and Towards Carbon Zero Design Approach	
	Steps Necessary for Delivery	Timeline
Action 3.1.1	The HSE will continue to monitor ongoing developments in the area of Energy Efficient Design (EED) and Toward Carbon Zero Design (TCZD) and will revise and update its Design Team Technical Requirements and Scope of Service (Most recent update Nov 2021) and its Risk Management processes accordingly.	Ongoing
Action 3.1.2	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	Require the ongoing utilisation of the HSE's EED and TCZD 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.	Ongoing
Action 3.1.4	Complete the National EED training programme commenced in 2021. Programme progressed in collaboration with partners SEAI for all members of the HSE National Design Team Framework, HSE Estates Staff, section 38/39 organisations. Programme to be completed in 2023, including initiation of pre-project specific information sessions for all HSE capital projects.	Q1 2023
Action 3.1.5	Build on the EED training and develop an EED guide for use at pre-project design initiation information session focusing on the EED approach which will be in place for application to all new projects by the end of 2022.	Q4 2022
Action 3.2	Adapt the Energy Efficient Design (EED) Process and Towards Carbon Zero Design (TCZD) processes on an ongoing basis to support transition to Design for Manufacture and Assembly (DfMA) and the Circular Construction Economy(CCE)	
	Steps Necessary for Delivery	Timeline
Action 3.2.1	Roll out, embed and adapt the Energy Efficient Design and Towards Zero 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 Area 3	Energy Efficient Design (EED) and Towards Carbon Zero Design (TCZD)	
Action 3.3	Further incorporate Carbon Impact Assessments into the HSE's Capital Planning process	
	Steps Necessary for Delivery	Timeline
Action 3.3.1	Develop a Carbon Impact Assessment Tool as part of the National Estates Information System (NEIS) Environment and Sustainability Module.	Q2 2023
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 2023
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.	Ongoing
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.	Ongoing
Action 3.4	Integrate energy related Green Public Procurement (GPP) into Infrastructure and Construction Design	
	Steps Necessary for Delivery	Timeline
Action 3.4.1	Green Public Procurement criteria will be incorporated into Infrastructure Design and Construction as they relate to energy emissions reduction.	Ongoing

Action Area 4	Deep Energy and Carbon Retrofit Programme including Pilot Pathfinder Programme	
Action 4.1	Continue the Building Deep Energy Retrofit Programme (Pilot Pathfinder Programme)	
	Steps Necessary for Delivery	Timeline
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 Pilot Pathfinder Programme.	Commenced Q1 2022 Ongoing
Action 4.1.2	Complete the Pilot Pathfinder Programme Design Stage 1 exercise to identify the existing performance, potential technological solutions, costs and assessments of the operational and embodied carbon impact of energy retrofit works and of new and emerging low carbon construction methods for new builds.	Q4 2022
Action 4.1.3	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.	Commence Q4 2023
Action 4.2	Prepare an up-scaled Major Deep Energy and Carbon Retrofit Programme for the Health Estate	
	Steps Necessary for Delivery	Timeline
Action 4.2.1	Complete the Technical Advisor Report on up- scaled Deep Energy and Carbon retrofit for the Health Estate.	Q2 2023
Action 4.3	Inform the HSE Capital & Estates Strategy with learnings from the Deep Energy and Carbon Retrofit Programme	
	Steps Necessary for Delivery	Timeline
Action 4.3.1	Inform the HSE Capital & Estates Property 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.	Q3 2023

Action Area 5	Metering, Modelling Reporting & Energy Management Systems	
Action 5.1	Continue development and consolidation of energy data	
	Steps Necessary for Delivery	Timeline
Action 5.1.1	Continually Update the Significant Energy User (SEU) database for the top 170 HSE and section 38/39 Organisations (which account for c. 75% of healthcare energy use and emissions).	Ongoing
Action 5.2	Progress a HSE Metering and Monitoring Enhancement Programme	
	Steps Necessary for Delivery	Timeline
Action 5.2.1	Complete HSE utility meter survey and gap analysis of SEU's.	Q1 2023
Action 5.2.2	Develop a programme to enhance the HSE's metered data and to install additional 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.	Q3 2023
Action 5.2.3	Commence installation of additional meters.	Q1 2024
Action 5.3	Develop a Decarbonisation Roadmap and Dynamic Decarbonisation Model	
	Steps Necessary for Delivery	Timeline
Action 5.3.1	Develop 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.	Q4 2023
Action 5.4	Develop HSE Utility Monitoring and Reporting Systems, incorporating the digitization and automation of energy data collation and reporting	
	Steps Necessary for Delivery	Timeline
Action 5.4.1	Develop the Environment and Sustainability module of the NEIS to accept metered utility usage data to generate energy and utility reports.	Q3 2023
Action 5.4.2	Generate Display Energy Certificates (DEC) for HSE facilities in the top 170 Healthcare SEU's.	Q4 2022
Action 5.4.3	Develop NEIS to improve digital input to National Monitoring and Recording Systems and for an improved DEC generation methodology.	Ongoing
Action 5.5	Develop a plan for the progression to and achievement of formal accreditation of ISO 50001 Energy management Standard	
	Steps Necessary for Delivery	Timeline
Action 5.5.1	Develop a framework and plan, with proposed steps, resources required and timeframes for the progression to and achievement of ISO 50001 Energy Management Standard.	Q4 2023

Action Area 6		Behavioural Training and Learning	
Action 6.1	Continue the Roll out the SEAI Engaging People Programme which has been tailored specifically for Healthcare		
	Steps Necessary for Delivery	Timeline	
Action 6.1.1	Complete the roll out of the SEAI Engaging People Programme which has been tailored for the Health sector to all Regional Energy Bureaus and the Energy Management Teams in their areas.	Q2 2023	
Action 6.1.2	Review and update the content of the Health Specific Engaging People Programme and agree post 2023 training programme with SEAI.	Q4 2023	
Action 6.2	Progress a HSE Metering and Monitoring Enhancement Programme		
	Steps Necessary for Delivery	Timeline	
Action 6.2.1	Complete the conversion of energy, waste and water conservation guidance into online and blended training programmes and upload onto HSE online training platform.	Q2 2022	
Action 6.3	Roll out a sustainability assessment and support tool for medium and smaller healthcare facilities		
	Steps Necessary for Delivery	Timeline	
Action 6.3.1	Run the Pilot Green Healthcare Programme (GHP) Sustainability Assessment & Support Tool for medium and smaller users in CHO 4.	Commence Q4 2022	

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	
	Steps Necessary for Delivery	Timeline
Action 7.1.1	Support the progression and development of a transport framework and plan to transition to low or zero emissions vehicles for emergency and non-emergency fleets.	Q4 2023
Action 7.1.2	Contribute to engagement with the Department of Transport, Zero Emissions Vehicles Ireland and other Government and Public Sector organisations in the development of an Electrical Vehicle (EV) Charging Infrastructure Strategy for the HSE.	Ongoing
Action 7.2	Provide ongoing Support to HSE Procurement of Energy and Utilities and improve information and data availability from National Utility Contracts	
	Steps Necessary for Delivery	Timeline
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	Provide ongoing support to the wider HSE Climate Action and Sustainability Strategy and Implementation Plans	
	Steps Necessary for Delivery	Timeline
Action 7.3.1	Provide ongoing support to the wider HSE Climate Action and Sustainability Strategy and Implementation Plans.	Ongoing



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