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NHS
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Bwrdd Iechyd Prifysgol
Aneurin Bevan
University Health Board

Decarbonisation Framework

Working towards “net zero” carbon by 2030



**Data
Management**



**Emissions
Reduction**



**Awareness &
Culture Change**



**Investment and
Funding**

Decarbonisation Framework

Introduction

The Decarbonisation Framework outlines the main areas of focus for a net zero trajectory; the goals and objectives required to meet performance targets and provide a time-scale and action plan. The proposals set out in this document will identify how the Health Board plans to implement energy efficiency and promote decarbonisation over the coming years, while also providing a mechanism for governance and reporting.

The decarbonisation and wider sustainability agenda have become a driver for positive change and promote innovative ways of working and forward thinking. The Health Board will need to challenge “business as usual” ways of working and exploit existing and emerging technologies to change the way it delivers its services; and to operate its premises portfolio more efficiently.

The Decarbonisation Framework also aligns to other key strategies such as the Estates Strategy, Agile Working Strategy and the Clinical Futures Programme.

By reducing energy consumption and carbon emissions, the Health Board will be making a positive contribution to the Welsh Governments aspiration for a net-zero carbon public sector by 2030.

For 2020/21 the Health Board reports carbon emissions from its buildings as **24,894 tonnes** (inc. GUH).

Decarbonisation (key drivers)

Aneurin Bevan University Health Board (ABUHB) faces a number of key drivers to reduce energy and water consumption, wider organisational carbon emissions and its environmental impact:

Environmental & Social: Welsh Government's declaration of a "climate emergency" in 2019 draws attention to the magnitude and significance of the challenge to mitigate climate change; and its threats to health, economy, infrastructure and natural environment. Through a proactive approach to decarbonisation, the Health Board can lead by example in ensuring our buildings and fleet are as low carbon as possible, and that we can continue to deliver effective services to the population we serve.

Financial: The Health Board will continue to face substantial pressure and risk through the volatility of the global energy markets from fluctuations in commodity prices, geo-political influences and more recently COVID-19 pandemic. Changes to building occupancy and clinical activity within the hospital estate means that the cost of energy, water and carbon will continue to be an important factor in delivering high quality services. Proactive management, forecasting and reporting of cost against budget will support us to drive efficiencies.

Regulatory: Several key pieces of legislation will influence the direction of the Health Board's decarbonisation journey. **The Climate Change Act** has set a target for the UK to reduce its carbon emissions by **80%** by **2050** from **1990** levels. **The Environment (Wales) Act 2015** reflects this target and sets out interim targets as published in "**Prosperity For All: A Low Carbon Wales**". A raft of policy measures will contribute to a **move towards Net-Zero Carbon by 2030**

Decarbonisation (key drivers)

The Well Being of Future Generations Act 2015: Commits the Welsh public sector to improve the social, economic, environmental and cultural well-being of Wales. The Act sets out 7 national well-being goals; and within the Health Boards set of objectives we have one specifically aligned to sustainable carbon management. The Health Board must use the sustainable development principle to follow the key 5 ways of working – by looking longer term, taking an integrated approach through collaboration and involving people.

The NHS Wales Decarbonisation Strategic Delivery Plan: A suite of 46 pan-organisational objectives that will strive for significant steps towards emissions reduction. With commitments laid out over key timeframes and reporting performance required annually, and in line with 16% reduction target by 2025 and a 34% by 2030.

Reputational: The Health Board recognises and accepts its responsibility to decarbonise and indeed to promote wider efficiencies in the public sector. The Health Board is now required to publish data relating to its carbon footprint annually to Welsh Government. Currently, the **Energy Policy** demands a **3%** reduction in buildings carbon emissions year-on-year which we report and publish.

The Health Board is also represented on five public service boards across its geographical boundary; where climate change adaptation and mitigation is a common goal with other public sector organisations. By working collaboratively with partner organisations we can demonstrate our long-term commitment to decarbonisation.

Decarbonisation Framework

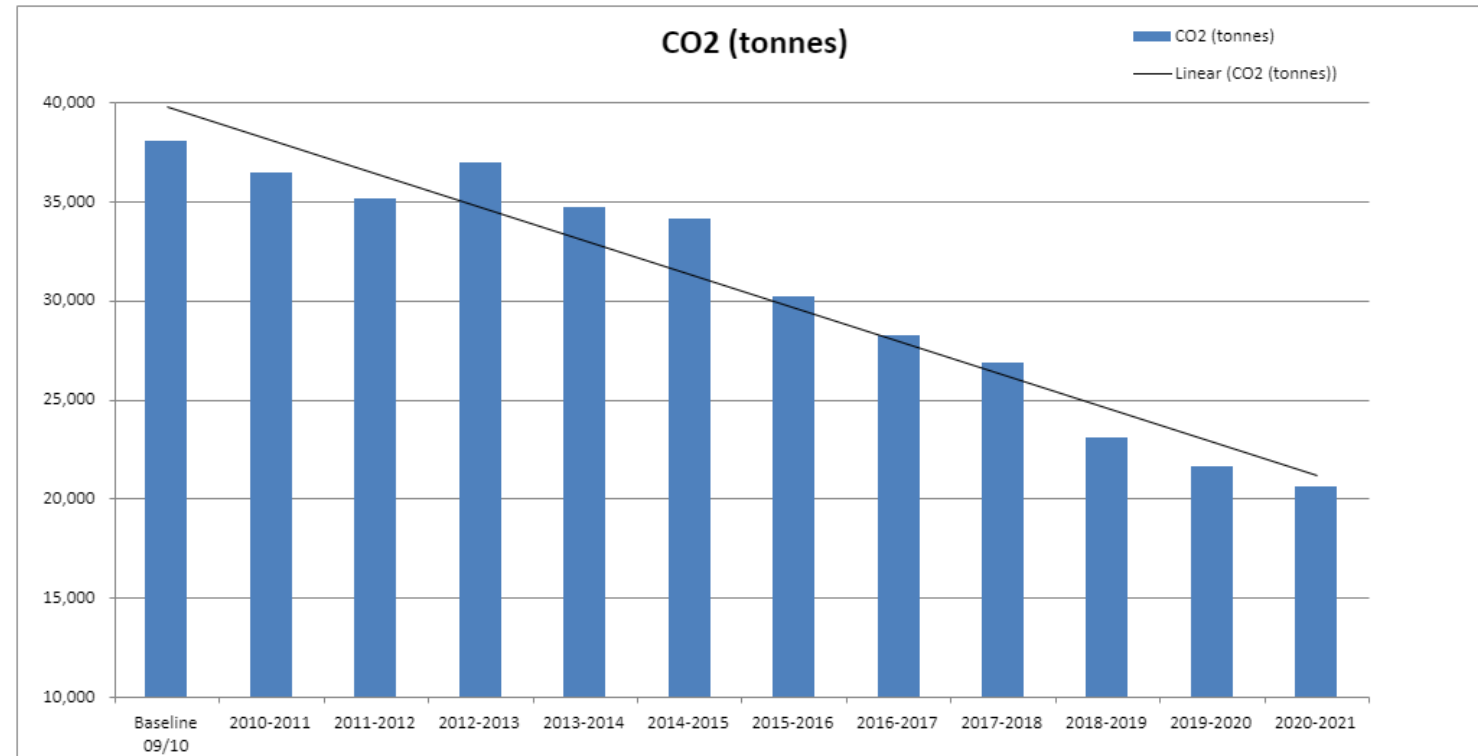
Context

In the last decade the Health Board has made consistent progress with reducing both energy consumption and carbon emissions.

Since the original baseline in **2009/10** the Health Board has cut carbon emissions by **17,418 tonnes CO2**, equating to a **45%** reduction.

The Estates Energy Strategy will be superseded by this "Decarbonisation Framework". This will form the basis for the Health Boards response to commitments and objectives set out in the national NHS Wales Decarbonisation Strategic Delivery Plan.

(2020/2021 CO2 data excludes GUH)

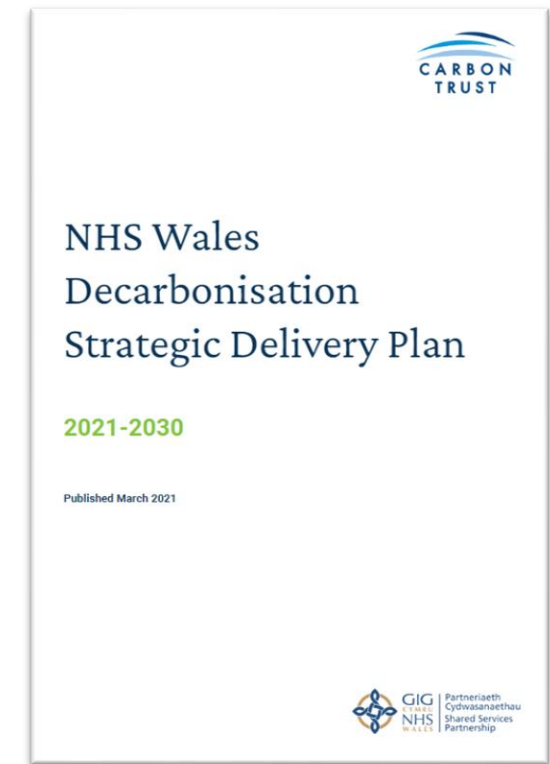
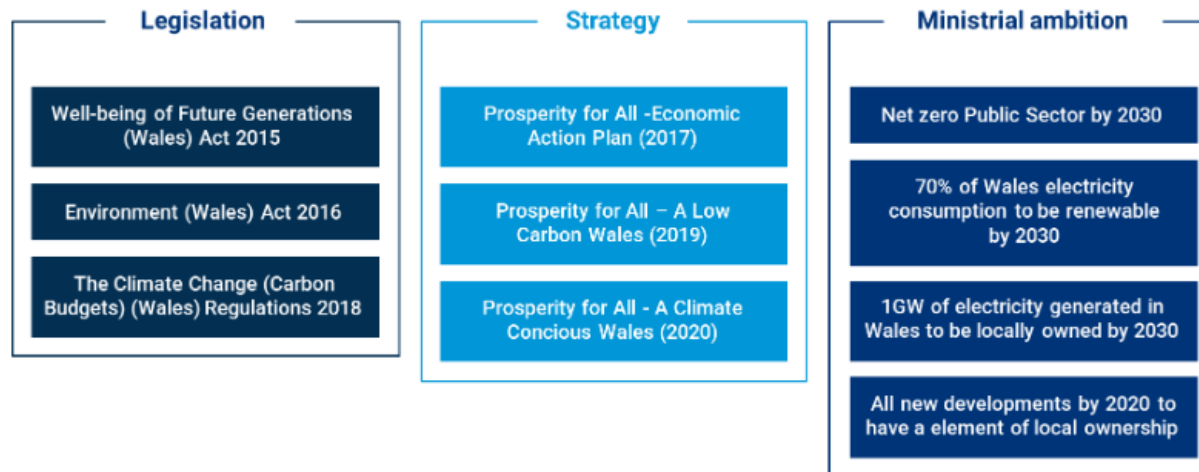
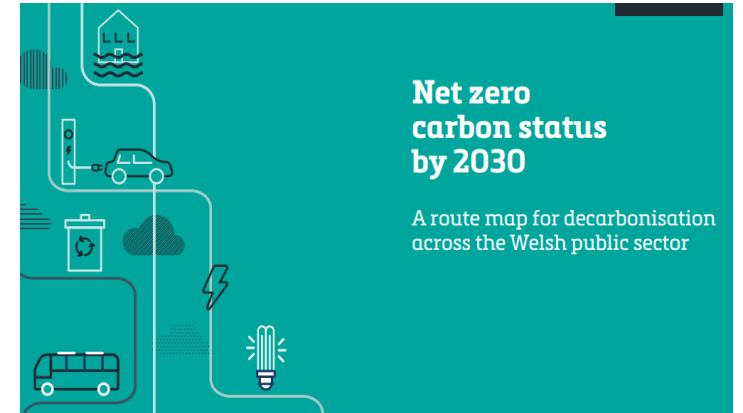


Decarbonisation Framework

Strategic Direction

The Health Boards “Decarbonisation Framework” will respond to the national NHS strategy and provide a basis for the development of workstreams and action plans to decarbonise the Health Boards operations across key areas – Buildings, Transport, Procurement, Estate & Land Use, and Smarter Healthcare approaches.

Net Zero – “achieving an overall balance between emissions produced and emissions removed from the atmosphere” (Grantham Research Institute, 2019)



Decarbonisation Framework

Strategic Direction

The energy and water demand profile of the Health Board owned estate is varied and subject to many diverse factors such as hours of operation, occupancy, service delivery and weather.

The Health Board's "**Estates Strategy 2018-2028**" sets out key objectives and targets which will directly impact on energy use, cost and carbon emissions under the varying estate rationalisation scenarios that will emerge through the Clinical Futures Programme and the following objectives:



Reduce the unoccupied/underutilised estate to at least 2.5%



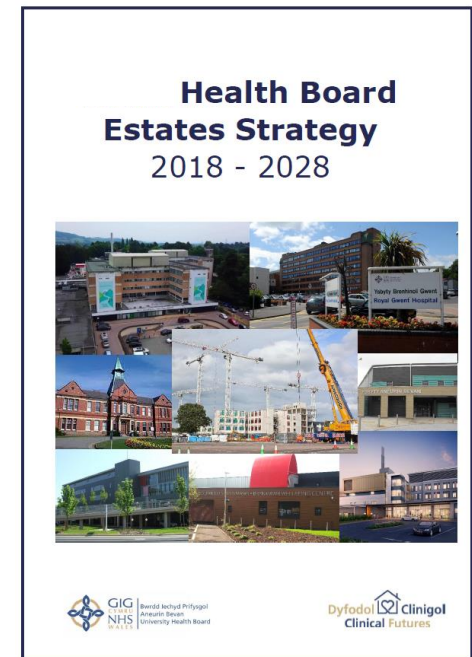
Reduce high and significant backlog maintenance by at least 10% year on year



Remove or dispose of redundant and poor quality buildings



Scope and reduce the amount of space occupied by non-clinical and administrative services



Decarbonisation Framework

Strategic Direction – 5 Ways of Working

Implementation of the Health Board's objectives for energy and water management and wider decarbonisation will demonstrate the 5 ways of working prescribed in the Well Being of Future Generations Act 2015, namely Long Term, Integrated, Involving, Collaboration and Prevention

A Prosperous Wales

An innovative, productive and low carbon society which recognises the limits of the global environment and therefore uses resources efficiently and proportionately...

A Globally Responsible Wales

A nation which, when doing anything to improve the economic, social, environmental and cultural wellbeing of Wales....

The Health Board's Well Being Objective

Reduce or negative environmental impact through a responsible capital building programme and a sustainable approach to the provision of building services; including carbon and waste management. Undertaking procurement on a whole life cycle cost basis and promote local sourcing. Promoting sustainable and active travel and advocating improvements in environmental health

Decarbonisation Framework

Focussing on four key themes ...

Data Management – Working with our energy partners to enhance analytical capacity through use of online platforms, and to develop our Systems Link monitoring & targeting software. There will also be an ongoing programme to identify and implement efficiencies in our Building Management Systems. Enhancing our reporting capabilities to respond to Net Zero reporting requirements.

Emissions Reduction – Emissions reduction will be realised through activity such as estate rationalisation, agile working practices and investment in energy efficiency & renewable projects, along with more sustainable travel practices and procurement policies.

Cultural Change – We will engage the 14,000+ staff to encourage responsibility for their individual energy use. Analogous with the implementation of a strong health & safety culture, decarbonisation needs to become part of our daily working life. Aims for this theme will be to create and maintain a well-structured and targeted communication plan to engage and empower staff groups to contribute, maximising the use of SharePoint and E-Learning to promote best practice.

Investment – Investment will be prioritised on decarbonisation potential and also ideally within a payback <10-12 years. With budget constraints, consideration shall be given to utilising more innovative funding mechanisms, Welsh Government funding and internal Invest 2 Save monies.

Decarbonisation – Objectives

This Framework has 12 key objectives that align with the four key themes;

Organisational Objectives

- Significant contribution towards national carbon reduction targets of 16% by 2025 and 34% by 2030.
- To be a leader in NHS Wales in demonstrating commitment to WG's net zero carbon 2030 aspiration by utilising low-carbon and renewable technologies where appropriate, at scale and through public sector collaboration.
- Proactively engaging with staff to promote a culture of energy & environmental awareness.

Divisional Objectives

- Continuing “good” energy performance across the estate as prescribed by Welsh Government and reported annually through EFPMS.
- Utilise available funding to maximise investment in energy efficiency opportunities.
- Implementation of appropriate energy efficiency projects to reduce carbon emissions and increase operational efficiency (see Appendix 1)
- To realise decarbonisation potential more widely through Agile Working & Sustainable Travel.

Team Objectives

- Further development of the Health Boards energy monitoring and targeting, software
- Continued financial forecasting development with energy partners to aid reporting and accurate revenue accrual.
- Project identification through increased surveying including the renewal of Display Energy Certificates.
- Activities will compliment the needs of the Energy Policy, Environmental Policy and ISO14001 management system.
- Proactive and reactive maintenance regimes will consider energy efficiency.



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Decarbonisation – Governance & Funding

Governance



Progress against the aims and objectives of the Decarbonisation Framework shall be reported through the following forums at appropriate intervals:

- Executive & Board
- Partnerships, Population Health and Planning Committee
- Well Being of Future Generations Programme Board
- Facilities Senior Management Board
- Decarbonisation Programme Board

The Health Board shall continue to remain compliant in respect of its obligations towards:

- ISO14001 Certification
- EFPMS Reporting to Welsh Gov
- Annual Net Zero Reporting
- DEC & EPC certificate compliance

Monitoring and Review



Monitoring and tracking of emissions performance will be facilitated through:

- Monthly Financial and usage reporting
- Biannual ISO14001 audit
- Annual Net Zero Reporting
- IMTP processes
- Clinical Futures Prog. Management.

The integrity of the energy management system, data collection and reporting methods are both subject to audit processes.

From 22/23 the Estates Energy Strategy will be superseded by this Decarbonisation Framework, and associated workstreams that will cover wider aspects relating to all Divisions.

Investment & Funding



Appendices 4 & 5 identify a range of potential carbon saving projects across the existing estate. These can be further prioritised and feasibility studies & business cases developed as required. **Renewable energy studies will also be undertaken.**

In order to realise the carbon & cost saving potential they will be evaluated for their funding eligibility. Potential funding will be sourced from:

- Capital & Revenue budgets
- Invest-2-Save
- EPC arrangements
- Shared Savings mechanisms
- Welsh Gov Re:Fit (or similar)

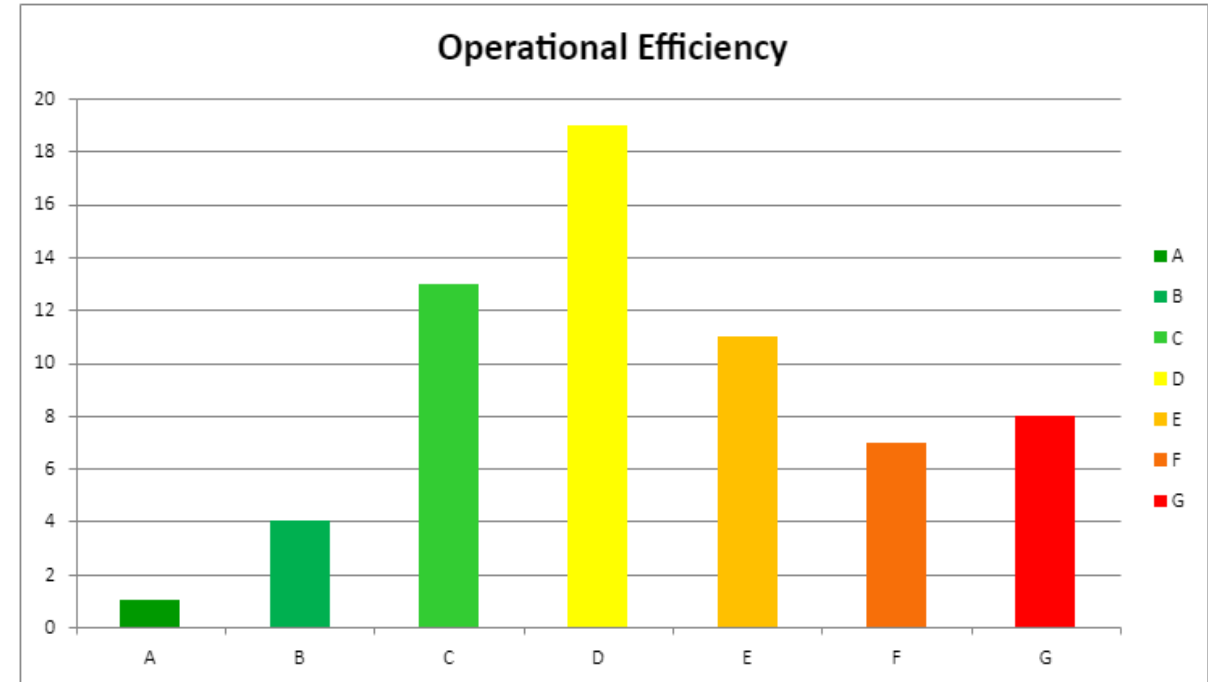
Decarbonisation

Operational Building Efficiency

The **Energy Performance of Buildings Directive 2010** legislates that for all public buildings over 250 sq.m gross floor area, and that are regularly accessed by large numbers of members of the public that a Display Energy Certificate (DEC) highlighting operational efficiency should be on display in public areas. The DEC certificate illustrates an energy rating based on metered energy consumption and carbon emissions, compared to a typical building of that type.

The Health Board estate, given its age and condition has a carbon performance of typically "D". The majority of premises performing similar to those of similar building types.

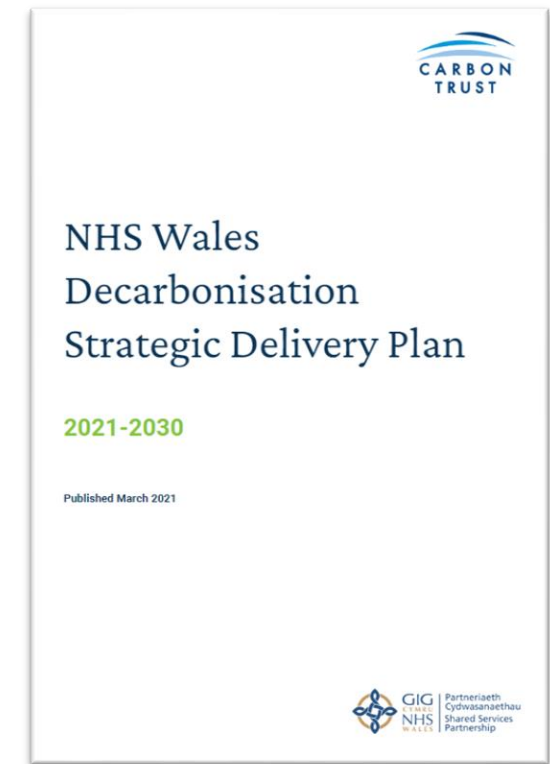
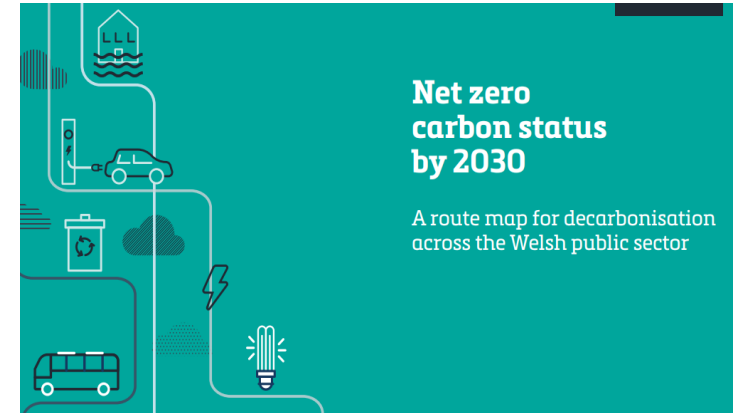
Ratings updated to March 2022



Decarbonisation

Development of the Decarbonisation Framework 2022/23

Subsequent years of the former Energy Strategy will now be superseded by this more holistic Decarbonisation Framework. Future workstreams and action plans will be based on the timeframes and objectives set out in the two key Welsh Government policy documents (right). A “Decarbonisation Programme Board” will be set up with a Terms of Reference and have cross-divisional representation. The current 3% carbon reduction target will be reviewed and future targets aligned to the current policy. New Net-Zero reporting will be required annually to Welsh Government to report and monitor progress towards 2030 goals.



Decarbonisation – Initial Work Plan

Decarbonisation Framework - 2022/2023

| Action | Stakeholder(s) | Responsibility | Timescale | Progress |
|---|--|--|-----------|----------|
| Setting up of Decarbonisation Programme Board, suitable cross-division representation to be established. | All Divisions | Exec Lead | Q1 | |
| Appropriate Exec / Senior Management to be appointed Chair | Clinical Futures PMO | Exec Lead Clinical Futures PM | Q1 | |
| Terms of Reference and governance arrangements to be developed | All Divisions | Exec Lead ? | Q1 | |
| Workstreams and Action Plans aligned to national objectives, and delegated to specific Division(s) to progress – based on prior Gap Analysis | Divisional Lead Decarb Prog Board | Divisional Lead Clinical Futures PM | Q2-Q4 | |
| Completion of Net Zero Carbon Report (submission to Welsh Gov) and analysis of the Health Boards carbon reduction requirements to meet updated and interim targets. | Estates & Facilities Procurement Divisional Lead ? | Energy Manager | Q2 | |
| Existing Sustainability activities across Divisions to be identified for innovation and best practice. Gap analysis to map activities against decarbonisation objectives | All Divisions | Exec Lead Divisional Leads | Q1-Q2 | |
| Explore ABCi SusQI principles to assist in the development and monitoring of initiatives to meet Divisional objectives | All Divisions | Divisional Leads ABCi | Q2-Q3 | |
| Review of annual 3% carbon reduction target for buildings to ensure a future target sufficient with the wider interim decarbonisation target set by Welsh Government | Estates & Facilities | Energy Manager | Q1 | |
| New online educational material published – SharePoint pages with dedicated resources around climate change, carbon foot-printing and wider environmental information for Staff | Estates & Facilities ABCi Informatics | Divisional Leads | Q1 | |
| | | | | |

Decarbonisation – Initial Work Plan

Decarbonisation Framework - 2022/2023

| Action | Stakeholder(s) | Responsibility | Timescale | Progress |
|--|--|---|--------------|----------------------|
| Completion of NWSSP Internal Decarbonisation Audit | Estates & Facilities Procurement Decarb Prog Board | Energy Manager General Manager Divisional Director Clinical Futures PM | Q2 - tbc | |
| EFMS reporting of energy and water data (submissions to NWSSP – SES) | Energy Manager Environmental Manager | Energy Manager Environmental Manager | End Q1 2022 | |
| Annual recertification of eligible premises of Display Energy Certificates | Estates & Facilities | Energy Manager | Ongoing 2022 | 48% COMPLETE (12/25) |
| Completion of ReFit energy performance contract Invitation To Tender (ITT) specification | ReFit Programme Board | Energy Manager | Q2 | |
| Tender and selection of Refit Service Provider – Investment Grade Proposals to commence | ReFit Programme Board | Energy Manager | Q2/Q3 | |
| WGES renewable energy options appraisal for GUH, YAB and NHH | Estates & Facilities WGES | Energy Manager | Q1/Q2 | |
| | | | | |

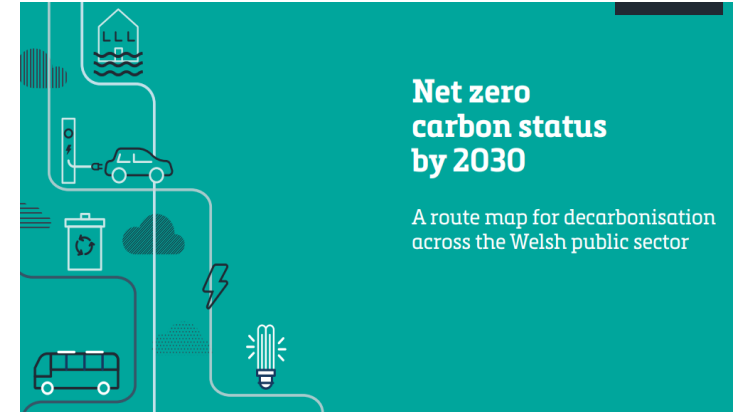


Decarbonisation

Decarbonisation Framework - 2022/2023

Vision

By 2030, choosing zero carbon will be routine, culturally embedded and self regulating across the Welsh public sector.



The Journey to net zero

Moving up a gear 2021–2022

Where understanding the context and what needs to be done is vital, and where action needs to accelerate.

Well on our way 2022–2026

Where there is an expectation that low carbon is becoming the norm and we are definitely on the way to a net zero Welsh public sector.

Achieving our goal 2026–2030

Where choosing zero carbon has become routine, culturally embedded, and self regulating.



Decarbonisation Commitments

Decarbonisation Framework - 2022/2023



**Achieving
our goal
2026–2030**

**Well on
our way
2022–2026**

**Moving up
a gear
2021–2022**

The journey to net zero: Buildings



All new public sector buildings are built to net zero standard, including supply chain impacts.

All public buildings are supplied with low carbon heat by 2030 and generate their own electricity where feasible.

The focus is no longer on buildings but healthy environments to live, work and visit.

Firm proposals & business cases are in place for hard to decarbonise building types (e.g. complex hospitals) & shared spaces.

Transition to all new schools, colleges and offices built to net zero (and associated reduction in supply chain impacts). All remaining existing buildings will be highly energy efficient OR scheduled for replacement & renewable heat schemes will be rolled out.

The climate impacts of our built estates are well understood.

Our construction programmes include mandatory net zero objectives.

Develop plan for hard to decarbonise building types (e.g. complex hospitals) and campuses (e.g. universities)

Scoping for Low Carbon Heat pilot projects and significant progress on remaining energy efficiency opportunities.



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Decarbonisation Commitments

Decarbonisation Framework - 2022/2023



The journey to net zero: Mobility and transport



Achieving our goal 2026-2030

Citizen-centred models of service delivery reduces the need for travel by staff, visitors and service users.

Commuting and business travel takes place using Wales' integrated public transport system is ultra-low emission, including our rail services. This is assisted by our aim to reduce the carbon footprint of buses, taxis and private hire vehicles to zero by 2028.

Where practicably possible, all new heavy goods vehicles in the public fleet are ultra low emission by 2030.

Well on our way 2022-2026

Continued flexible working, use of local hubs and shared facilities, active travel and greater use of public transport significantly reduces car commutes and business travel in our working lives post-Covid pandemic.

All new cars and light goods vehicles in the public sector fleet are ultra low emission by 2025.

Moving up a gear 2021-2022

We will continue to work flexibly and make greater use of active travel.

We will understand the nature and use of our fleet, future patterns of usage, and a feasible technological pathway for an ultra-low emission transformation.

We will accelerate the roll-out of EV charging infrastructure and our staff will be offered the opportunity to test ultra-low emission vehicles.

We commit to fleet transformation plans and there is a considerable upscaling of ULEV uptake.



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Decarbonisation Framework - 2022/2023



The journey to net zero: Procurement



Achieving our goal 2026–2030

The public sector has nurtured a productive, near zero carbon Welsh supply chain.

Suppliers are incentivised through proportionate evaluation criteria to proactively seek further opportunities to reduce climate impacts.

Staff are empowered to challenge the status quo – requesting zero carbon alternatives is routine and use of alternative business models is fully supported.

Well on our way 2022–2026

By applying the tools developed in the Getting Started phase, and the principles of a Circular Economy, we are rapidly reducing the carbon impact of our goods and services in line with our interim targets.

Targeted support and skills development within the supply chain to increase the proportion of Welsh suppliers who can deliver the required goods and services and are, therefore, eligible for contracts.

All purchasing activities have a robust carbon reduction phase built in at the earliest stage and throughout.

Moving up a gear 2021–2022

We gain a good understanding of our estimated £6bn / 3 million tonnes CO₂e per annum procured goods and services, and its emissions profile and supplier base.

Development of guidance, tools and training that will be targeted at procurement professionals to support the reduction of carbon throughout the procurement lifecycle.

Suppliers are sent a strong signal regarding future low carbon requirements and staff are trained.

Decarbonisation Commitments

Decarbonisation Framework - 2022/2023



**Achieving
our goal
2026–2030**

**Well on
our way
2022–2026**

**Moving up
a gear
2021–2022**

The journey to net zero: Land use



Carbon sequestered in our land assets more than offsets any remaining emissions and, where possible, will go further to maximise sequestration potential.

Initiatives to ensure communities are connected to green space have matured, and it is routine to integrate beneficial use of natural resources into our public services.

Use of natural habitats for carbon sequestration and citizen well-being is integrated into planning public spaces and service delivery.

Acquisition of additional land to connect existing habitats, create woodland and manage natural regeneration and roll-out of woodland creation and habitat restoration projects at scale.

All purchasing activities have a robust carbon reduction phase built in at the earliest stage and throughout.

We develop a common understand of the current status and sequestration potential of land under public ownership and set out an agreed level of expectation and ambition.

We will connect people with nature by delivering pilot projects on public land around woodland creation and habitat restoration.

Carbon sequestration is seen by Ministers and Public Sector leaders as a valid core purpose for use of public land.



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Decarbonisation Commitments

Decarbonisation Framework - 2022/2023



Supporting the journey to net zero: Governance and energy planning



Achieving our goal 2026–2030

The public sector are now delivering a range of projects across heat, power and transport to decarbonise regions. These projects are delivered both independently and in partnership, but all are working to a single vision and plan for the energy system of the region.

Well on our way 2022–2026

We deliver the first phase of local area energy plans, which indicate priority energy interventions to meet our power, heat and transport needs and how they can contribute to making places people want to live and work.

Renewable deployment is now part of a wider energy and decarbonisation strategy.

The public sector is delivering its first tranche of emissions reduction based on the emissions baseline.

Moving up a gear 2021–2022

Our energy activities are aligned to the priorities of the regional energy strategies, managed by cross sector governance arrangements. We develop local area energy plans which identify the changes needed to the local energy system, to decarbonise heat and local transport and realise opportunities for local renewable energy production.

Accelerate renewable deployment on public land with priority to where the development can deliver wider benefit, such as local ownership and reduced bills for Welsh business or communities.

The public sector baselines emissions and creates a plan for eliminating.



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Decarbonisation – Divisional Responsibility

Decarbonisation Framework - 2022/2023

| Decarbonisation Initiative – As set out on the NHS Decarbonisation Strategic Delivery Plan | Responsible Division |
|--|--|
| CARBON MANAGEMENT Implement best practice carbon management with dedicated roles in place to undertake delivery | Estates & Facilities Corporate Services Workforce & OD |
| Proactively communicate the Climate Emergency to staff and the public with the aim of stimulating low carbon behaviours and growing engagement in the decarbonisation agenda | Corporate Communications ABCi Workforce & OD |
| Drive the engagement required for decarbonisation across the Health Boards leadership team. Divisions to engage to develop a focussed and active approach to project implementation | All Divisions |
| EXISTING BUILDINGS Progress a transformational energy and water efficiency retrofit programme across the estate. Every building with long term future to have undergone multi-technology upgrade by 2030 | Estates & Facilities Procurement Finance |
| Fully replace all existing lighting with LED by 2025 | Estates & Facilities Procurement Finance |
| Complete expert heat studies by the end of 2023 for all acute hospital to set the plan to transition away from fossil fuel heat sources | Estates & Facilities |
| Progress low carbon heat generation for all non-acute sites larger than 1000sq.m by 2030 | Estates & Facilities Procurement Finance |
| Renewable CHP to be championed. For existing CHP plant there will be a prioritised decommissioning over major refurbishment by 2025, with the ambition for all CHP to be decommissioned by 2030. | Estates & Facilities Finance |
| All buildings will have up-to-date, standardised and effective building management systems (BMS). Dedicated resource to optimise the use of energy by BMS control will be put in place by 2023. | Estates & Facilities |
| Determine the overall viable potential for onsite renewable energy generation at each Health Board site by 2023. Install half of this potential by 2026, the remainder by 2030. | Estates & Facilities (Welsh Gov Energy Service) |

Decarbonisation – Divisional Responsibility

Decarbonisation Framework - 2022/2023

| Decarbonisation Initiative – As set out on the NHS Decarbonisation Strategic Delivery Plan | Responsible Division |
|---|--|
| NEW BUILDS & REFURBISHMENTS | |
| Develop and build low carbon buildings to net zero standards – engage and collaborate with NHS partners on the merging net zero standard for hospitals, and adopt a net zero accreditation approach which will be defined by 2022. | Estates & Facilities Procurement Strategic Planning |
| All project teams to have independent client side sustainability representation to provide due diligence support for the optimal low carbon design across all development stages – and to be responsible for ensuring the Net Zero Framework process is followed. | Estates & Facilities Procurement Finance Strategic Planning |
| Integrate modern methods of construction (MMC) into the design and construction of new buildings – this will consider modular design, offsite fabrication, and just-in-time delivery to minimise construction related carbon emissions. | Estates & Facilities Procurement Finance Strategic Planning |
| Install electric vehicle charging points in new developments beyond minimum requirements and future-proof new car parks by installing infrastructure to enable straightforward installation of future charging points. | Strategic Planning Estates & Facilities |
| Prioritise low carbon heating solutions as a key design principle. No fossil fuel combustion systems are to be installed as the primary heat source for new developments. | Estates & Facilities Procurement Finance Strategic Planning |
| Incorporate the principles of sustainable travel into the design of new sites (in addition to electric vehicle infrastructure) in line with the Welsh Governments Active Travel Plan, and any Health Board strategies/action plans | Estates & Facilities Strategic Planning |
| TRANSPORT & FLEET | |
| NWSSP will work with Health Boards to develop the best practice approach for EV charging technology, procurement and car park planning (to consider Health Board Fleet, staff vehicles and visitor charging) | Estates & Facilities Strategic Planning Procurement (NWSSP – SES) |
| A standardised system of vehicle management for owned and leased vehicles will be developed to plan, manage and assess vehicle performance | Estates & Facilities Procurement Finance |
| All new medium and large freight vehicles procured after 2025 will meet the future modern standard of Ultra-Low Emission Vehicles (ULEV) in their class | Estates & Facilities Procurement (Health Courier Service) |

Decarbonisation – Divisional Responsibility

Decarbonisation Framework - 2022/2023

| Decarbonisation Initiative – As set out on the NHS Decarbonisation Strategic Delivery Plan | Responsible Division |
|--|--|
| The Health Board will appraise the use of staff vehicles for business travel alongside existing pool cars. Travel policies will be updated to prioritise the use of electric pool cars, electric private vehicles or public transport. | Estates & Facilities Strategic Planning |
| ESTATE PLANNING & LAND USE Carbon efficiency will become a core principle – quantified carbon will be a key decision metric for planning new developments, rationalisation of the estate and to champion smart / agile ways of working. | Estates & Facilities Strategic Planning Workforce & OD |
| Collaboration with NWSSP and Welsh Government on an appraisal approach for allocating land uses for renewable energy generation, carbon sequestration and afforestation. The Health Board will maintain green space and utilise land for decarbonisation including collaboration with neighbouring land owners. | Estates & Facilities Strategic Planning (NWSSP & Welsh Gov Energy Service) |
| Large scale renewable energy generation opportunities with private wire connections to Health Board sites will be progressed where viable. | Estates & Facilities Strategic Planning Finance Procurement (NWSSP & Welsh Gov Energy Service) |
| APPROACHES TO HEALTHCARE – SMART WORKING The Health Boards approach to 21 st century healthcare will be central to the design of new hospitals – redesigning the whole patient journey with care closer to home in a carbon-friendly primary care estate with a reduced need to visit hospitals | Estates & Facilities Primary Care Strategic Planning Clinical Futures |
| Support the Welsh Government’s target for 30% of the Welsh workforce to work remotely, by continuing to facilitate flexible and smart working, developing the existing agile approach and to rationalise existing office/administration space | Estates & Facilities Strategic Planning Workforce & OD |
| Continue to utilise technology to increase the efficiency of engagements between staff, patients and public where suitable | Primary Care Strategic Planning Clinical Futures Informatics |
| APPROACH TO HEALTHCARE – EDUCATION Health education will be used to champion decarbonisation across the estate – the health board will encourage healthcare practice, waste efficiency, and low carbon staff and patient behaviour | Corporate Services Informatics Workforce & OD |

Decarbonisation – Divisional Responsibility

Decarbonisation Framework - 2022/2023

| Decarbonisation Initiative – As set out on the NHS Decarbonisation Strategic Delivery Plan | Responsible Division - tbc |
|--|---|
| APPROACHES TO HEALTHCARE – MEDICINES Support the work of existing working groups such as the Welsh Environmental Anaesthetic Network to raise awareness of the carbon impact of medical gases and transition to a culture where gases with a low global warming potentials are prioritised. Explore methods of minimising gas wastage and technologies to capture expelled medical gases. | Unscheduled Care Scheduled Care Primary Care |
| The Health Board will take a patient-centric approach to optimise inhaler use, focussing on a reduction in the over-reliance of reliever inhalers where possible and emphasising the importance of inhaler specific disposal and recycling | Unscheduled Care Scheduled Care Primary Care |
| Transition the existing use and distribution of carbon-intensive and high global warming potential (GWP) inhalers to alternative lower GWP inhaler types where deemed suitable | Unscheduled Care Scheduled Care Primary Care |
| APPROACHES TO HEALTHCARE – WASTE Support the development of guidance by 2022 for best practice reduction of pharmaceutical waste | Unscheduled Care Scheduled Care Primary Care |
| Develop a “plastics in healthcare” initiative to address waste in the delivery of healthcare – this will aim to tackle PPE, single use plastics and packaging waste | Unscheduled Care Scheduled Care Estates & Facilities Corporate Services |
| Engage with pharmacists and prescribers to build upon and support existing efforts to encourage responsible disposal of inhalers through discussions with patients, information leaflets, posters and media | Corporate Services Informatics Unscheduled Care Scheduled Care Primary Care |

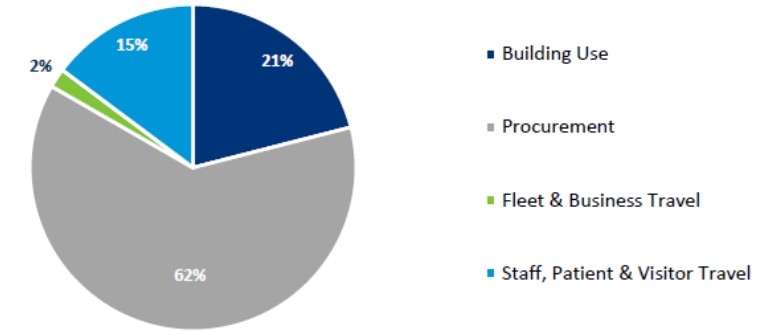
Decarbonisation - Procurement

Decarbonisation Framework - 2022/2023

The Role of Procurement

Carbon emissions relating to the Health Boards procurement of goods and services account for 62% of the NHS Wales carbon footprint and will **pose the greatest challenge to the net zero carbon by 2030 ambition**. The Health Board will need to collaborate with NWSSP to deliver supply chains that are less carbon intensive. The NHS Wales Decarbonisation Strategic Delivery Plan identifies opportunities:

NHS Wales Carbon Footprint by Category 2018/19



Decarbonisation Initiative – As set out on the NHS Decarbonisation Strategic Delivery Plan

- NWSSP Procurement Services will transition to a market-based approach for supply chain carbon emissions accounting.
- Expand the sustainable Procurement Code of Practice to include a framework for assessing sustainability credentials of suppliers and will implement procedures mandating suppliers to decarbonise.
- Value to local supply chains will be maximised, whilst maintaining high standards for goods and services.
- NWSSP Procurement Services will improve supply chain logistics and distribution to reduce the carbon emissions associated with transport.
- 100% REGO backed electricity will be procured by 2025, and 100% offset gas by 2030.
- Sustainability will be embedded within strategic governance – NWSSP Procurement Services will work with the Health Board to champion decarbonisation in the supply chain and influence ambitions for buildings and transport.
- NWSSP Procurement Services will actively develop and support procurement requirements to support implementation of the Health Boards Decarbonisation Framework and associated workstreams

Decarbonisation – Appendix 1

Identified Projects for Investigation/Feasibility (Data from Virtus Estate review 2018)

| Site | Project | Elec Saving (Kwh) | Gas Saving (Kwh) | Total Saving (Kwh) | £ Saving Yr 1 | CAPEX (£) | IRR (%) | Payback (yrs) | Saving (tCO2) |
|------------------------------------|----------------------------|-------------------|------------------|--------------------|---------------|-----------|---------|---------------|---------------|
| Ysbyty Ystrad Fawr | CHP | 3,952,800 | (5,019,196) | (1,066,396) | £205,828 | £800,000 | 27% | 5.1 | 843.6 |
| Royal Gwent Hospital | Interior Lighting | 1,019,743 | - | 1,019,743 | £96,791 | £633,241 | 16% | 7.2 | 455.4 |
| St Woolos Hospital | Interior Lighting | 311,078 | - | 311,078 | £25,618 | £176,524 | 15% | 7.5 | 138.9 |
| St Cadocs Hospital | Loft Insulation | - | 735,687 | 735,687 | £13,271 | £61,320 | 22% | 4.8 | 135.1 |
| St Cadocs Hospital | TRV Replacement - VT | - | 662,256 | 662,256 | £11,946 | £63,000 | 20% | 5.6 | 121.6 |
| County Hospital + Ty Siriol Clinic | TRV Replacement - Non-VT | - | 501,422 | 501,422 | £9,045 | £39,750 | 24% | 4.6 | 92.1 |
| Royal Gwent Hospital | Chiller Sequencing | 189,191 | - | 189,191 | £21,453 | £20,600 | 106% | 1.0 | 84.5 |
| Royal Gwent Hospital | BMS - Overall Optimisation | 95,307 | 215,533 | 310,840 | £16,062 | £100,000 | 16% | 6.7 | 82.1 |
| County Hospital + Ty Siriol Clinic | Loft Insulation | - | 432,914 | 432,914 | £7,809 | £31,511 | 26% | 4.3 | 79.5 |
| Llanfrechfa Grange | Interior Lighting | 140,006 | - | 140,006 | £12,473 | £78,753 | 16% | 6.7 | 62.5 |
| Nevill Hall Hospital | BMS - Overall Optimisation | 31,436 | 207,373 | 238,809 | £6,502 | £50,000 | 13% | 8.5 | 52.1 |
| Royal Gwent Hospital | Pump VSDs | 106,529 | - | 106,529 | £11,831 | £55,214 | 22% | 5.0 | 47.6 |
| County Hospital + Ty Siriol Clinic | Interior Lighting | 88,928 | - | 88,928 | £7,653 | £52,023 | 15% | 7.4 | 39.7 |
| Maindiff Court | Loft Insulation | - | 189,859 | 189,859 | £3,584 | £10,510 | 35% | 3.1 | 34.9 |

Decarbonisation – Appendix 1

Identified Projects for Investigation/Feasibility

| Site | Project | Elec Saving (Kwh) | Gas Saving (Kwh) | Total Saving (Kwh) | £ Saving Yr1 | CAPEX (£) | IRR (%) | Payback (yrs) | Saving (tCO2) |
|------------------------------------|----------------------------|-------------------|------------------|--------------------|--------------|-----------|---------|---------------|---------------|
| Royal Gwent Hospital | Pipework Insulation | - | 171,970 | 171,970 | £3,116 | £10,000 | 32% | 3.4 | 31.6 |
| St Cadocs Hospital | Interior Lighting | 55,033 | - | 55,033 | £4,700 | £30,632 | 16% | 7.1 | 24.6 |
| Maindiff Court | TRV Replacement - VT | - | 129,276 | 129,276 | £2,441 | £19,800 | 12% | 9.1 | 23.7 |
| St Woolos Hospital | Pipework Insulation | - | 91,235 | 91,235 | £1,625 | £3,000 | 55% | 1.9 | 16.8 |
| Royal Gwent Hospital | Armstrong Pumps | 36,123 | - | 36,123 | £4,012 | £20,000 | 21% | 5.3 | 16.1 |
| Clytha Park Clinic | Loft Insulation | - | 84,694 | 84,694 | £1,603 | £6,576 | 25% | 4.3 | 15.6 |
| County Hospital + Ty Siriol Clinic | Armstrong Pumps | 34,178 | - | 34,178 | £3,276 | £20,000 | 20% | 5.5 | 15.3 |
| Risca Health Centre | Loft Insulation | - | 81,307 | 81,307 | £1,539 | £6,313 | 25% | 4.3 | 14.9 |
| St Cadocs Hospital | TRV Replacement - Non-VT | - | 75,686 | 75,686 | £1,365 | £6,000 | 24% | 4.6 | 13.9 |
| County Hospital + Ty Siriol Clinic | TRV Replacement - VT | - | 74,952 | 74,952 | £1,352 | £11,100 | 12% | 9.2 | 13.8 |
| St Cadocs Hospital | BMS - Overall Optimisation | 6,196 | 58,134 | 64,330 | £1,697 | £10,000 | 17% | 6.4 | 13.4 |
| St Cadocs Hospital | Pipework Insulation | - | 68,788 | 68,788 | £1,241 | £4,000 | 32% | 3.4 | 12.6 |
| St Cadocs Hospital | Condensing Boiler - VT | - | 66,661 | 66,661 | £1,202 | £10,000 | 12% | 9.3 | 12.2 |
| Ysbyty'r Tri Chwm | Interior Lighting | 25,439 | - | 25,439 | £2,267 | £17,425 | 13% | 8.4 | 11.4 |
| County Hospital + Ty Siriol Clinic | BMS - Overall Optimisation | 8,292 | 39,435 | 47,728 | £1,590 | £10,000 | 16% | 6.7 | 10.9 |

Decarbonisation – Appendix 1

Identified Projects for Investigation/Feasibility

| Site | Project | Elec Saving (Kwh) | Gas Saving (Kwh) | Total Saving (Kwh) | £ Saving Yr1 | CAPEX (£) | IRR (%) | Payback (yrs) | Saving (tCO2) |
|------------------------------------|----------------------------|-------------------|------------------|--------------------|--------------|-----------|---------|---------------|---------------|
| Maindiff Court | Interior Lighting | 23,528 | - | 23,528 | £2,011 | £12,705 | 16% | 6.7 | 10.5 |
| Royal Gwent Hospital | Pump Replacement | 22,577 | - | 22,577 | £2,507 | £12,259 | 21% | 5.2 | 10.1 |
| County Hospital + Ty Siriol Clinic | Pump Replacement | 21,361 | - | 21,361 | £2,047 | £10,561 | 20% | 5.5 | 9.5 |
| Abertillery Resource | Interior Lighting | 20,989 | - | 20,989 | £2,530 | £14,376 | 18% | 6.2 | 9.4 |
| Royal Gwent Hospital | Loft Insulation | - | 47,287 | 47,287 | £857 | £2,618 | 34% | 3.2 | 8.7 |
| Llanfrechfa Grange | Exterior Lighting | 18,667 | - | 18,667 | £1,427 | £7,467 | 20% | 5.6 | 8.3 |
| Llanfrechfa Grange | Pump VSDs | 13,619 | - | 13,619 | £1,328 | £7,059 | 19% | 5.6 | 6.1 |
| Llanfrechfa Grange | BMS - Overall Optimisation | 12,185 | 2,408 | 14,593 | £1,342 | £10,000 | 13% | 8.2 | 5.9 |
| Newport Dock Street Drugs Office | Loft Insulation | - | 31,745 | 31,745 | £602 | £2,465 | 25% | 4.3 | 5.8 |
| Cwm Clinic | Loft Insulation | - | 31,208 | 31,208 | £592 | £2,423 | 25% | 4.3 | 5.7 |
| Pengam Health Centre | Loft Insulation | - | 31,180 | 31,180 | £591 | £2,421 | 25% | 4.3 | 5.7 |
| County Hospital + Ty Siriol Clinic | Exterior Lighting | 12,704 | - | 12,704 | £912 | £5,082 | 19% | 6.1 | 5.7 |
| Central Clinic | Loft Insulation | - | 25,077 | 25,077 | £456 | £1,947 | 20% | 5.6 | 4.6 |
| St Cadocs Hospital | Exterior Lighting | 10,166 | - | 10,166 | £728 | £4,066 | 18% | 6.1 | 4.5 |
| Cwmbran Clinic | Interior Lighting | 10,099 | - | 10,099 | £1,245 | £6,917 | 19% | 6.0 | 4.5 |



Decarbonisation – Appendix 1

Identified Projects for Investigation/Feasibility

| Site | Project | Elec Saving (Kwh) | Gas Saving (Kwh) | Total Saving (Kwh) | £ Saving Yr1 | CAPEX (£) | IRR (%) | Payback (yrs) | Saving (tCO2) |
|------------------------------------|----------------------|-------------------|------------------|--------------------|--------------|-----------|---------|---------------|---------------|
| Nevill Hall Hospital | Pipework Insulation | - | 24,076 | 24,076 | £431 | £2,000 | 22% | 5.0 | 4.4 |
| County Hospital + Ty Siriol Clinic | Pump VSDs | 9,269 | - | 9,269 | £887 | £4,804 | 19% | 5.7 | 4.1 |
| County Hospital + Ty Siriol Clinic | Pipework Insulation | - | 20,636 | 20,636 | £372 | £1,200 | 32% | 3.4 | 3.8 |
| Cwmbbran Clinic | Solar PV | 8,456 | 11 | 8,467 | £1,391 | £11,330 | 12% | 9.0 | 3.8 |
| Ebbw Vale C + HC | Interior Lighting | 7,874 | - | 7,874 | £870 | £5,393 | 17% | 6.6 | 3.5 |
| Risca Health Centre | Interior Lighting | 6,700 | - | 6,700 | £740 | £4,589 | 17% | 6.6 | 3.0 |
| Ysbyty'r Tri Chwm | Exterior Lighting | 4,487 | - | 4,487 | £302 | £1,795 | 17% | 6.4 | 2.0 |
| Maindiff Court | Pipework Insulation | - | 10,318 | 10,318 | £195 | £600 | 34% | 3.2 | 1.9 |
| Llanfrechfa Grange | Pipework Insulation | - | 10,318 | 10,318 | £188 | £600 | 32% | 3.3 | 1.9 |
| Ringland Health Centre | Interior Lighting | 3,833 | - | 3,833 | £423 | £2,625 | 17% | 6.6 | 1.7 |
| Central Clinic | Interior Lighting | 3,829 | - | 3,829 | £423 | £2,623 | 17% | 6.6 | 1.7 |
| Clytha Park Clinic | Interior Lighting | 3,223 | - | 3,223 | £356 | £2,207 | 17% | 6.6 | 1.4 |
| Gold Tops | Interior Lighting | 3,219 | - | 3,219 | £355 | £2,205 | 17% | 6.6 | 1.4 |
| Aberbargoed Clinic | TRV Replacement - VT | - | 6,480 | 6,480 | £118 | £900 | 13% | 8.4 | 1.2 |
| Pengam Health Centre | Interior Lighting | 2,478 | - | 2,478 | £274 | £1,698 | 17% | 6.6 | 1.1 |

Decarbonisation – Appendix 1

Identified Projects for Investigation/Feasibility

| Site | Project | Elec Saving (Kwh) | Gas Saving (Kwh) | Total Saving (Kwh) | £ Saving Yr1 | CAPEX (£) | IRR (%) | Payback (yrs) | Saving (tCO2) |
|----------------------------------|--------------------------|-------------------|------------------|--------------------|-----------------|---------------|---------|----------------|---------------|
| Park Square Newport | Interior Lighting | 2,446 | - | 2,446 | £270 | £1,675 | 17% | 6.6 | 1.1 |
| Maindiff Court | Pump VSDs | 2,146 | - | 2,146 | £204 | £1,112 | 19% | 5.8 | 1.0 |
| Newport Dock Street Drugs Office | Interior Lighting | 2,091 | - | 2,091 | £231 | £1,432 | 17% | 6.6 | 0.9 |
| Maindiff Court | Pump Replacement | 1,889 | - | 1,889 | £180 | £914 | 20% | 5.4 | 0.8 |
| Cwm Clinic | Interior Lighting | 1,427 | - | 1,427 | £176 | £977 | 19% | 6.1 | 0.6 |
| Hafan Coed | Pipework Insulation | - | 3,267 | 3,267 | £60 | £400 | 15% | 7.4 | 0.6 |
| Hafan Coed | TRV Replacement - Non-VT | - | 3,240 | 3,240 | £59 | £300 | 20% | 5.4 | 0.6 |
| Cwmbran Clinic | Exterior Lighting | 1,273 | - | 1,273 | £88 | £509 | 18% | 6.3 | 0.6 |
| Pengam Health Centre | Pipework Insulation | - | 2,869 | 2,869 | £54 | £400 | 13% | 8.2 | 0.5 |
| Forglen House | Interior Lighting | 1,033 | - | 1,033 | £114 | £708 | 17% | 6.6 | 0.5 |
| Hafan Coed | Interior Lighting | 990 | - | 990 | £109 | £678 | 17% | 6.6 | 0.4 |
| Risca Health Centre | Exterior Lighting | 845 | - | 845 | £93 | £338 | 29% | 3.8 | 0.4 |
| | | | | | | | | Average | |
| | | | TOTAL: | 5,451,788 | £511,030 | £2,51m | | 5.8yrs | 2,666 |

Decarbonisation – Appendix 2

Energy Efficiency Opportunities – (data from Honeywell estate review 2018)

| ABUHB ECM's High Level review Dec 2018 | | | | | | | |
|--|---|------------|-------------------|-------------------|------|-----------------------|-----------------------|
| Note - | Removed St Woolos, County and Laundry as requested. | | | | | | |
| Site | Capex ECM's from Report | CO2 Tonnes | Improvement price | Total Savings p.a | SPB | Est Project IGA Costs | Est Project M&V Costs |
| Ysbyty Ystrad Fawr (YYF) | Lighting | 237 | £565,000 | £75,000 | 7.5 | £37,000 | £27,000 |
| | BMS/Controls | 37 | £10,000 | £7,500 | 1.3 | | £2,000 |
| | CHP/Tri-generation | 3 | £1,100,000 | £185,000 | 5.9 | | £18,000 |
| RGH | BMS/Controls | 186 | £95,000 | £20,000 | 4.8 | £60,000 | £10,000 |
| | Pipe Insulation Htg & Clg | 20 | £10,000 | £2,000 | 5.0 | | £3,500 |
| | VSDs/motor changes - pumps | 14 | £25,000 | £4,500 | 5.6 | | £2,000 |
| | VSDs/motor changes - fans | 11 | £10,000 | £3,000 | 3.3 | | £3,500 |
| | AHU Changes | 9 | £10,000 | £2,500 | 4.0 | | £2,000 |
| | DHWS Changes | 29 | £35,000 | £3,000 | 11.7 | | £5,500 |
| | CHP/Tri-generation | 34 | £1,100,000 | £210,000 | 5.2 | | £20,000 |
| Nevill Hall | BMS/Controls | 54 | £70,000 | £8,000 | 8.8 | £45,000 | £3,500 |
| | Pipe Insulation Htg & Clg | 18 | £10,000 | £2,000 | 5.0 | | £3,500 |
| | VSDs/motor changes - fans | 17 | £50,000 | £5,000 | 10.0 | | £12,000 |
| | Air compressor | 11 | £35,000 | £3,000 | 11.7 | | £3,500 |
| St Cadocs Hospital | BMS/Controls Optimisation | 21 | £35,000 | £3,000 | 11.7 | £40,000 | £3,500 |
| | Lighting | 133 | £720,000 | £50,000 | 14.4 | | £25,000 |
| | Htg Pipe Insulation | 32 | £10,000 | £3,500 | 2.9 | | £3,500 |
| | CT to VT & St Augustine | 8 | £12,000 | £1,000 | 12.0 | | £2,000 |
| | Boiler Replacement (Llynn Onn & Ty Bryn) | 7 | £65,000 | £1,000 | 65.0 | | £2,000 |
| | Overall | 881 | £4,000,000 | £600,000 | 6.7 | £182,000 | £152,000 |
| | Overall Totals (inc IGA & M&V) | | £4,500,000 | £600,000 | 7.5 | | |

Decarbonisation– Abbreviations

Abbreviations –

A/C – Air Conditioning

BGB – British Gas Business

BMS – Building Management System

DEC – Display Energy Certificate

EFPMS – Estates & Facilities Performance Management System

EPC – Energy Performance Certificate

FOG – Facilities Operations Group

I2S – Invest 2 Save

NWSSP – NHS Wales Shared Services Partnership

SMB – Senior Management Board (Facilities)

W&E – Works & Estates

WG – Welsh Government