

Carbon Neutral Strategy: 2021 – 2030

February 2021



The Welsh Parliament is the democratically elected body that represents the interests of Wales and its people. Commonly known as the Senedd, it makes laws for Wales, agrees Welsh taxes and holds the Welsh Government to account.

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Carbon Neutral Strategy: 2021 – 2030

February 2021





Senedd Cymru
Welsh Parliament
Tŷ Hywel

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Welcome





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Foreword



Wales is a progressive nation. For a small country we've passed laws in our Senedd building that are being cited around the world as leading examples of legislating for environmental change.

These laws protect the wonderful landscape we're all rightly proud of, but they also change how other organisations operate and affect the lives of millions of individuals.

We take this responsibility seriously and, in an age of unprecedented environmental change, we will not take a backseat ourselves. We have to be an exemplar body in the way we react to the consensus of climate scientists, wildlife charities and the school children who have chosen the steps of our Senedd building to make their voices heard.

Following the success of two previous carbon strategies, we are now proud to present our end game.

Manon Antoniazzi

Chief Executive and Clerk of the Senedd

Goodbye Carbon

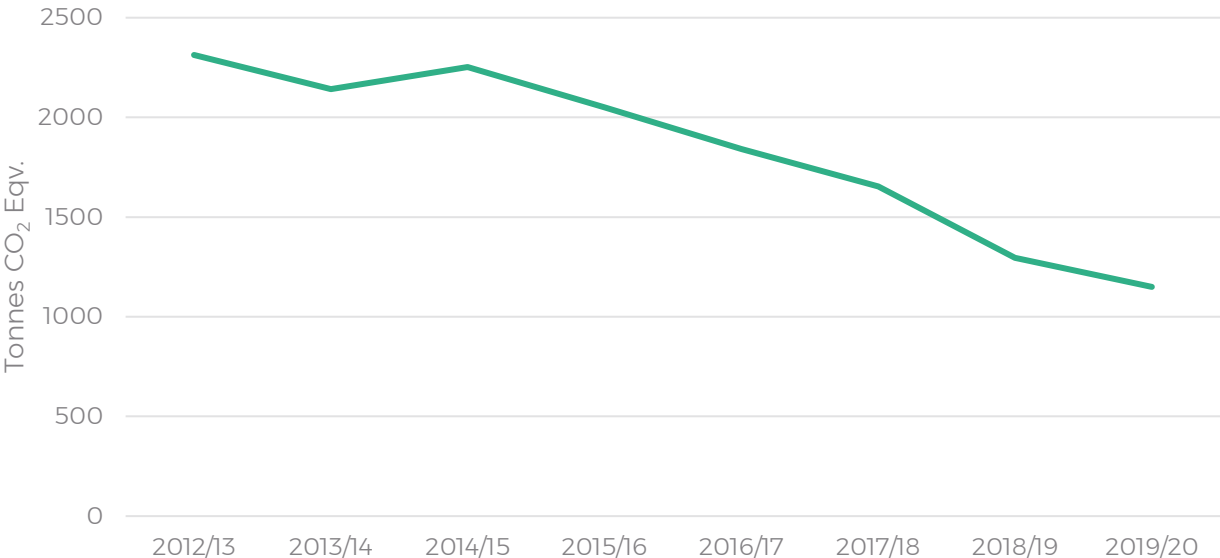
Welcome to our third Carbon Reduction Strategy. We hope it will be our last.

There, we've said it, and we're excited by it. Excited to build on the previous work we've done and set out our end-game. We had two successful strategies prior to this one, and are operating at half of the carbon footprint we had when we started, but we can't go on forever. Yes we may update this Strategy throughout its life as new technologies and priorities arise, and we'll certainly set sustainability goals after it's finished, but we can't keep reducing carbon forever.

In order to meet the IPCC's (Inter-Governmental Panel on Climate Change) recommendations of limiting the rise in global temperatures to 1.5°C, the world's population needs to be operating in a net-zero-carbon way by 2050. And to allow for growth in developing nations, those of us in 'developed' countries must be looking at meeting that goal much sooner. The Commission therefore aims to make the footprint of the Senedd's operations carbon neutral by 2030.

Future Statement to highlight the Senedd is the first UK Parliament to publish its Net Zero by 2030 Strategy.

Total Carbon Footprint (tCO₂e)

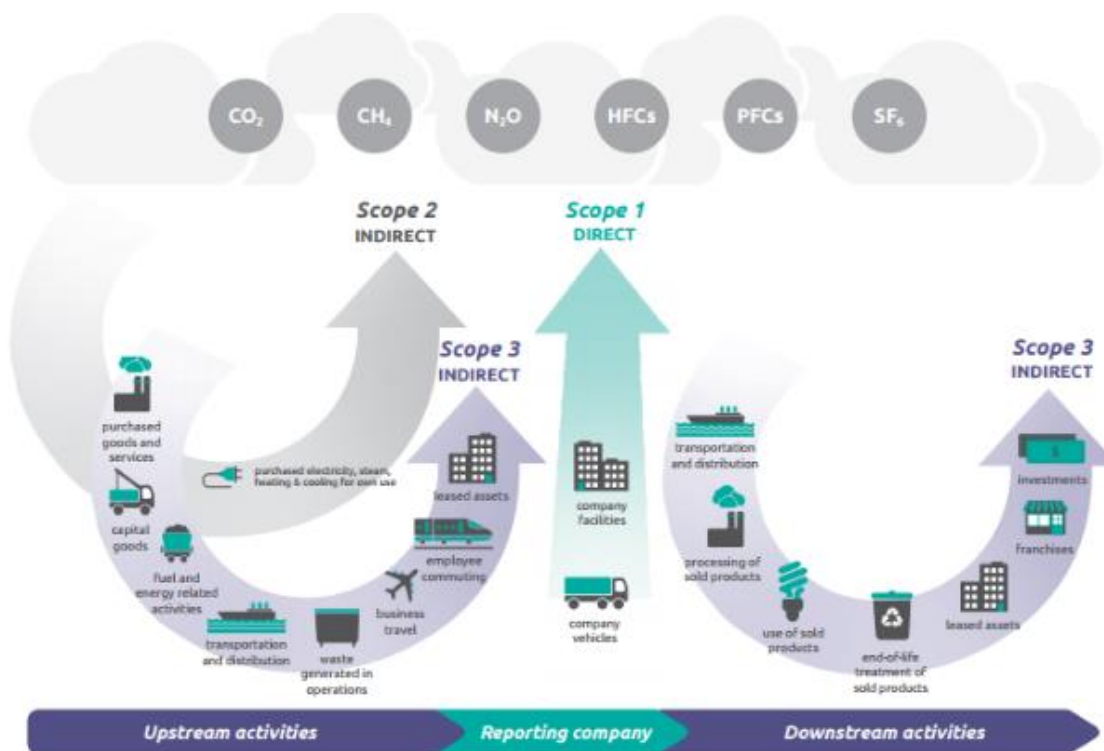


Introduction

What even is a carbon footprint? The term has been around for some time, and is one with which most people are familiar, but it's still a source of ambiguity.

Different organisations calculate their carbon footprint in different ways, so we've tried to be as honest as possible about ours.

Broadly defined, a carbon footprint is a measure of the impact of an organisation's activities on global warming. Measured in *carbon dioxide equivalent* (CO₂e; carbon dioxide and other gases converted to their CO₂ equivalent for ease of comparison). The range of ways an organisation produces carbon is categorised into three 'scopes', with their actual emission to the atmosphere increasing in distance away from the organisation through the tiers. Scope 1 emissions are from fuels burned on site, scope 2 at the power stations producing the electricity used, and scope 3 being part of the wider organisational impacts- such as goods, services and travel.



Source: Greenhouse Gas Protocol

For several years we have reported our impacts to include both our on-site activities, as well as some of our indirect impacts, particularly those from transport. Our carbon footprint for scopes 1, 2, and 3 has fallen from 2300tonnes in 2012/13 to 1160 in the last financial year, 2019/20. As can be seen below, the largest sections of this were attributable to our Ty Hywel building, and this is therefore where much of our continuing change must be focussed:

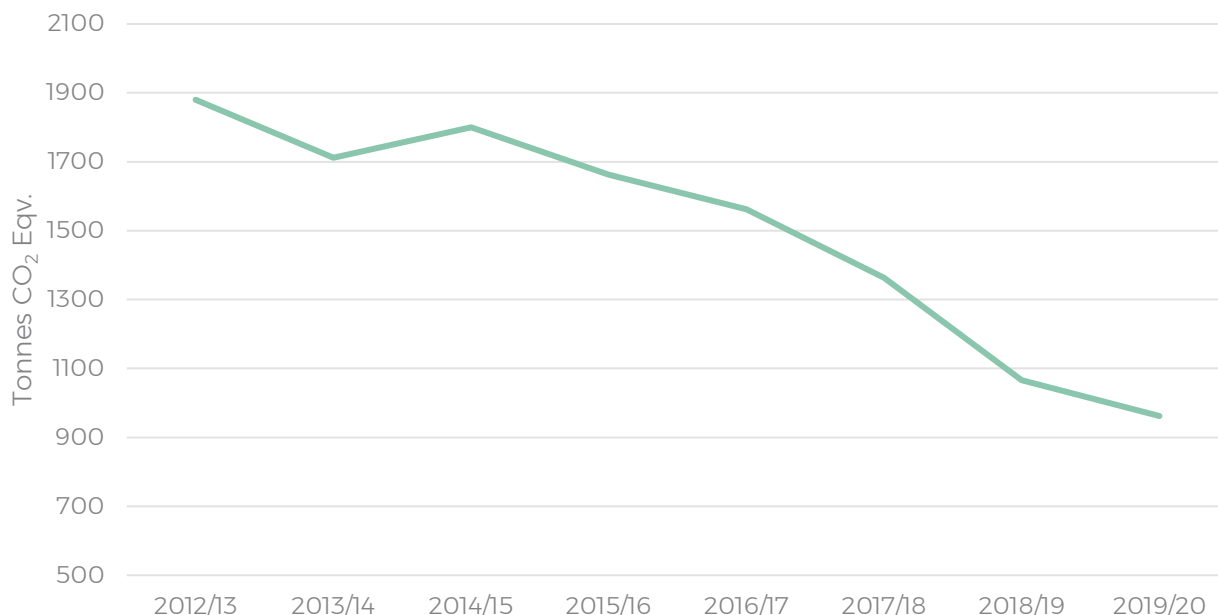
Carbon Breakdown



Our currently-calculated emissions

Our Energy Emissions figure has been our main environmental target for the past two strategies, and is a combination of gas and electricity use (primarily scopes 1 and 2).

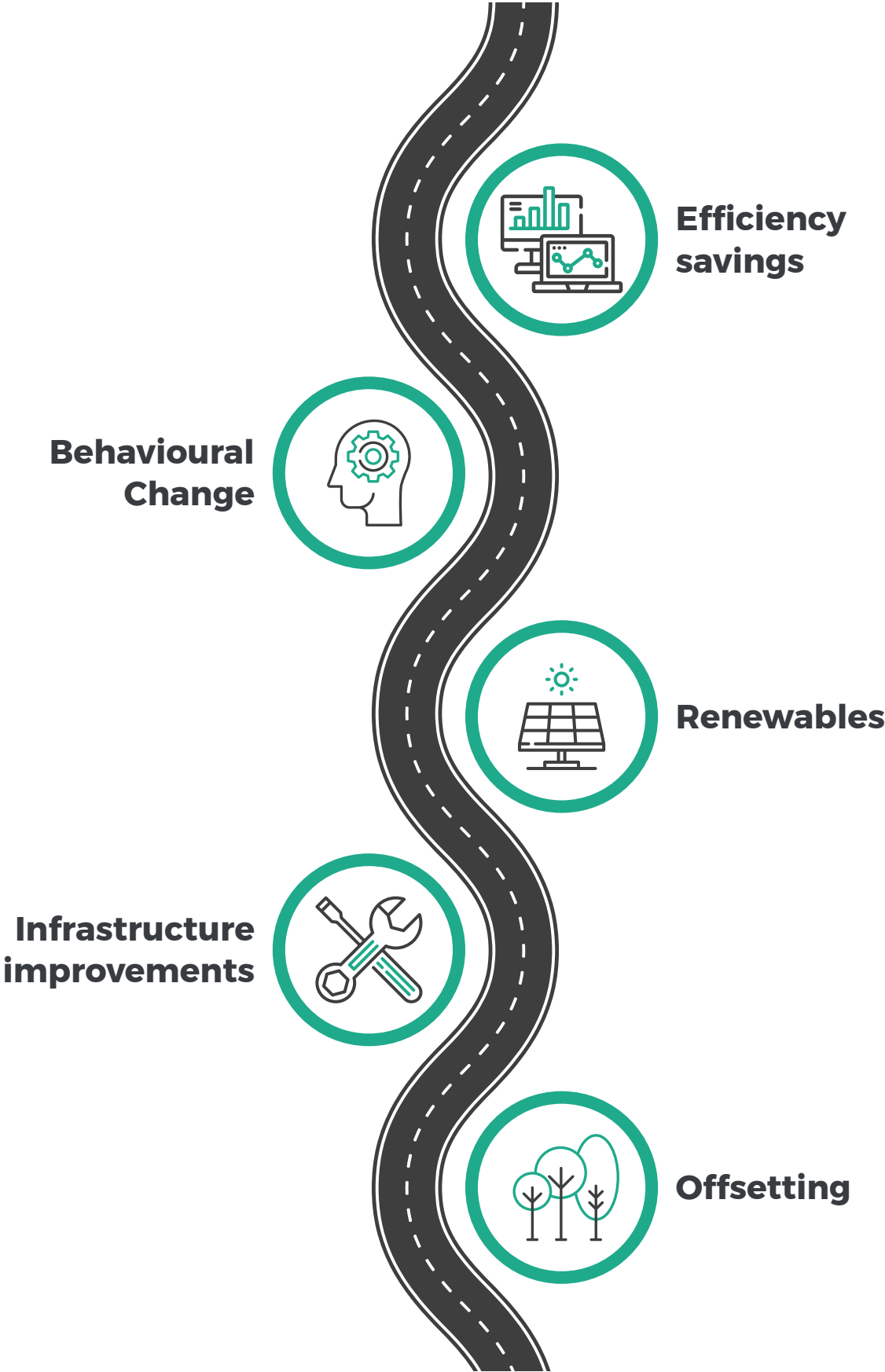
Energy Emissions (tCO₂e)



Our goal across this period is to be *carbon neutral*, but we recognise that in reality this will need to be ‘net carbon neutral’. This means we recognise our work will always produce some form of greenhouse gas, so after we’ve done everything we can to reduce those emissions, we’ll require some form of offsetting to ensure our remaining carbon is extracted from the atmosphere.

Our goal is an ambitious one however, as not only is the timescale for change relatively short, but in our definition we are including much of our Scope 3 emissions, currently excluded from the plans of many organisations targeting net carbon neutrality. We won’t just be offsetting these emissions either; we really will be looking for maximum reductions across all scopes before offsetting can be considered.

All those measures combined, will give us a journey to carbon neutrality that looks something like this:



Delivering the strategy



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Scope 1 – Gas

Scope 1 emissions are primarily about heating our buildings, as well as providing catering services and hot water. We don't normally consume any other fuels directly.

How we heat our buildings

Ty Hywel

Currently, most of our staff work in Ty Hywel – a 1990s office block containing a mix of smaller offices and open plan areas. Most of the building is heated by a conventional wet radiator system and gas boilers. The boilers were replaced with far more efficient condensing ones in 2019, following the previous units reaching the end of their operational lives. Heating is controlled by a BMS (building management system) – a computer system tasked with balancing comfort and efficiency, tailored to our normal occupancy hours.

Senedd

The Senedd building has some more modern features – being designed from the outset as a renewable building.

The primary heating mode is from biomass – practically carbon-neutral and sourced from sustainable forests around the UK. Gas is used as a back-up when the biomass system is not operating fully. The Senedd also boasts a ground-source heat pump using the ambient temperature from the earth to pre-heat water passed around the Neuadd area of the building.

The Senedd is also naturally ventilated, with very little air-conditioning. Coupled with its open spaces and abundance of inert materials it's slower to heat up and cool down than Ty Hywel, but more energy-efficient. In some of the summer months the building often consumes no gas or wood chip.

Pierhead

The Pierhead is an instantly-recognisable Welsh landmark- a prominent background feature of many a TV programme. A late 19th-century brick and terracotta building its Grade I listing means it retains single-glazed windows and is less thermally-efficient than a modern building. However zoned heating and cooling, and their absence in unoccupied areas, contribute to an acceptably-low DEC (display energy certificate) score. The building is heated by a combination of gas boilers, electric radiators and air-conditioning units.

Reducing Gas Emissions

Heating is probably the most difficult area of our on-site emissions to make carbon neutral. But we have an ace up our sleeve- district heating. Our site in Cardiff is in a prime location for connection to the city's proposed heat network. What seemed like a pipedream at its initial incarnation has now gathered more than just a head of steam; it has £16million of backing and construction is due to begin later in 2021. For its viability, the scheme requires long-term public sector customers, and the Senedd has signed-up to be one of the scheme's anchor clients. Waste heat from the energy-from-waste plant will provide hot water to our estate for slightly less than our gas expenditure, and at a massive 80% reduction in carbon emissions. Connecting to the network for our heat supply will save us more than 130t carbon per year.

We won't rely solely on the heat network though, particularly as its only likely to serve the Senedd and Ty Hywel buildings. The Pierhead has a mix of heating modes and would benefit from a rapidly-greening electricity grid if it were retro-fitted with a more modern heating system using air-source heat pumps.

There will also be savings made to lower our carbon impact from heating through efficiency measures and life-cycle replacement. The windows in Ty Hywel, for example, are already past the end of their operational life and due for replacement. New units will help with savings on gas use in the winter months as draughts and induction losses are removed. We plan to upgrade our BMS units also, to make monitoring and managing building temperatures a more exact and efficient practice.

Our learning from the recent pandemic has shown us that we will need to change the way people work in our buildings, with fewer occupants attending on any day, there will be opportunities to realise efficiency savings from the way we manage our accommodation. Heating whole floors to the same temperature is expensive and increases our carbon consumption. We will work with building

occupants to deliver more flexible working spaces that can be heated to required levels when needed but where heating can be reduced at quieter times. A flexible working environment that also has a lower carbon footprint, would, where it is practicable to do so, require staff to be less tied to a particular location. Agreeing with building users the principles of more flexible working and an understanding that this also helps to meet our sustainability targets will be an important conversation to be had..



**District Heat
Network**

130+

TONNES SAVING



**Innovation:
Air-source heat pumps**

10

TONNES SAVING



**Behavioural
Change**

20

TONNES SAVING

Scope 2 – Electricity

As an office environment, electricity is by far our single biggest energy source, and resulting footprint component.

Since 2019 the electricity we procure comes from renewable/ green tariff sources, however commonly-accepted carbon-accounting methodology means we use the UK grid conversion figure to calculate its contribution to our footprint. Although this impact has come down over time as the grid uses more renewables and we've improved the efficiencies of our buildings, it's time for a greater rate of change.

How we use electricity

We run a large amount of electrical equipment. Most staff operate a computer for most of their day, although we are now running mostly on laptops and slim PCs, following a refresh of IT equipment two years ago. We have our own server rooms, requiring us to run both the servers themselves and the air-conditioning units to allow them to operate safely. We also have the more visible equipment across the buildings such as screens, copiers, printers, hot water boilers and other kitchen appliances, as well as more hidden components like pumps and fans. Then we have security infrastructure in place, including an extensive network of CCTV cameras and an access control system.

Historically, our office areas have relied on comfort cooling in the summer months to off-set heat from outside air, solar gain, electrical equipment, and our staff. We try to maintain consistent set-points across this estate, but this can prove challenging given different architectures and individual perceptions of comfort.

Efficiency

Efficiency is key to greening our operation. It's something we've had success with in the past, and are going to continue to prioritise. It not only reduces our footprint as much as possible to make procuring renewables and offsetting easier, but puts into practice one of the Senedd's goals to '*use resources wisely*'. We will install more efficient and innovative technology where possible that demonstrates both a carbon and cost saving over time. This also helps shield the organisation from any rise in energy costs.

Reducing Electricity Emissions

We have extensive monitoring data for our estate, that helps us understand how much energy is used, and when. We also know which pieces of equipment are more energy-intensive, and which are less so. But there are still improvements to be made, and upgrading our BMS and monitoring systems will help us do that, making a potential saving of around 100t per annum.

There is scope for behavioural change also. Our staff have been positive about the energy-efficiency systems already introduced, such as PIR (passive infra-red) lights and automatic taps, but there is more we can achieve through raising awareness of other actions that can be adopted, for example taking the stairs rather than the lift. Replacement of windows coming to the end of their working life will provide an opportunity for maximising use of natural ventilation and reducing the reliance on comfort cooling, but will require an acceptance of a greater range of temperatures within the office areas. Reverting to more passive ventilation will save between 30t and 100t of carbon each year, depending on the extent and success of such modifications. In advance of the windows being replaced, encouraging building users to open windows to naturally ventilate offices before using comfort cooling will also save carbon.

As with heating, the change to people's working week following the pandemic is likely to see more staff working from home more often and a resultant reduction in electricity demand. Again we will look to ensure any works carried out to the buildings maximise the potential for efficiency savings, for example more zoned PIR-activated lighting and reduced mechanical ventilation.

Aside from the Senedd building, we do not currently utilise any renewable energy technology on site. Along with our fair share of rain, South Wales actually receives some of the highest sunlight levels in the UK, and with flat roofs, our two largest buildings are ideal candidates for some solar PV. Photovoltaic panels on the Senedd and Ty Hywel will save us about 60 tonnes per annum of carbon, and pay for themselves within about 6 years.

We have also been looking at more innovative technologies. Not necessarily new to the market, but certainly new to our own estate and often to other organisations, such as adiabatic cooling units for server rooms and a new fan coil design for cooling offices.

These measures, particularly where electricity reductions are being targeted, will require significant investment in the estate, in order to meet this low carbon future head-on. But much of this investment, as in the solar PV example above,

will provide real financial payback and help protect the Senedd’s operation from future rises in energy costs. Our short-term (2021-2023) targets, concerned with building efficiency and LED lighting, predict not only around 240 tonnes of carbon being saved, but for the required investment of £130,000 we can expect annual savings of almost £150,000. Tackling carbon is therefore not only the right thing to do for the planet, but in many cases it just makes good business sense.



More LED lighting

20+

TONNES SAVING



New windows

20+

TONNES SAVING



Behavioural Change

50

TONNES SAVING



Solar PV

60

TONNES SAVING



Data improvements

100

TONNES SAVING



Natural ventilation

50

TONNES SAVING

Scope 3 – Business Travel

Travel emissions have always been a challenge to tackle, and the future of our travel needs is still uncertain. The recent changes forced on our way of working will likely remain in some form into the future, but we still don't know how the 'new normal' will look.

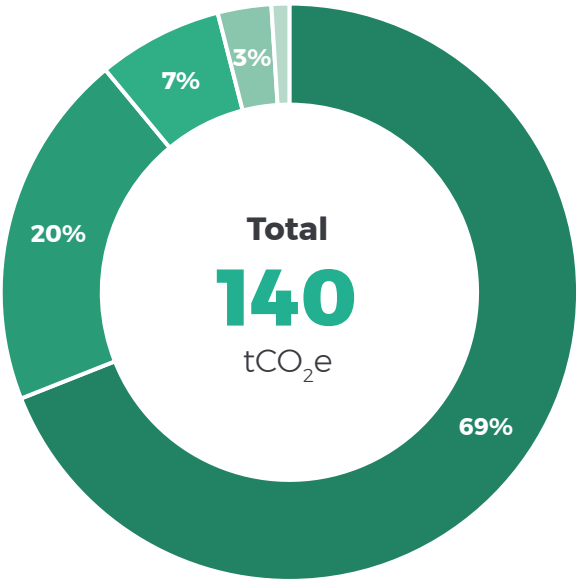
Travel is an important component of our work. Members need to travel around their constituency, meeting the people who rely on them to make their voice heard. Commission staff need to travel also; ensuring the people of Wales understand how their Senedd operates and ensuring we maintain close relationships with other organisations to make that work as effective as possible. Whilst we have excellent facilities to support sustainable travel, we envisage more hybrid and remote working to negate the need for a significant amount of that travel to even take place.

How people travel

Historically, given the rural nature of our country, a large amount of staff travel has been via car- private or rented- to ensure all parts of Wales are served efficiently. Members generally use their own vehicles and claim back mileage accordingly. Coupled with information from our travel surveys about the types of vehicles people drive, we therefore have a pretty good picture of the impact of this activity.

Public transport is also used- we try to encourage train travel where possible for longer journeys- but buses and taxis also play a role, as indeed does air travel. Sometimes a necessary component of an organisation's travel footprint, air travel is used as a last resort to reach further afield and allow for the Senedd to operate internationally.

Business Travel Emissions by Mode (%)



- Private car (69%)
- Air travel (20%)
- Rail travel (7%)
- Hire car (3%)
- Taxi, Pool Car, Coach travel (1%)

In 2019-20 (the last normal year data is available for), Senedd staff and Members generated 140 tCO₂e (tonnes of carbon dioxide equivalent) through business travel.



Private car
96.7
tCO₂e



Air travel
28.1
tCO₂e



Rail travel
9.2
tCO₂e



Hire car
4.4
tCO₂e



Taxi
0.6
tCO₂e



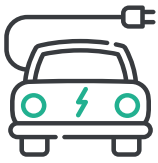
Coach travel
0.4
tCO₂e



Pool car
0.2
tCO₂e

What we've done so far

In recent years we've made significant improvements to our facilities to allow people to make more sustainable journeys, both for business use and commuting. These have included:



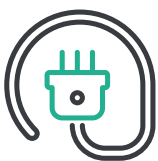
An electric pool car- used to provide support services to our members and engage with the people of Wales. Operating an EV has reduced our carbon footprint and running costs, as well as introducing staff to the prospect of going electric themselves.



We also operate pool bikes- helping staff travel sustainably to local business meetings or use for exercise and wellbeing on their lunchbreaks. These are part of the excellent facilities we have for cyclists; including undercover bike storage, shower rooms and lockers. We run a cycle-to-work scheme to encourage bike ownership and have added two new storage areas to our site in recent years to ensure there's always enough space for bikes.



We encourage the use of public transport wherever possible, especially for business journeys. We've also worked with our partners on the Cardiff PSB (public service board) for active travel to facilitate discounts on annual bus and train tickets for staff.



We have EV charging points on our estate for our pool car, our contractor's van, ministerial vehicles, and our staff. With parking at a premium on our site, prioritising EVs is a further incentive for staff to consider making the switch to electric.

Reducing Business Travel Emissions

As shown in the graph *travel emissions by mode*, the largest element of our travel footprint is from private car use. As technology improves and costs fall however, hybrid, and even fully electric vehicles (EVs) are becoming a more affordable option. Many manufacturers are phasing out ICE (internal combustion engine) models, and the UK Government recently announced they could no longer be sold after 2030. To support this change, and to encourage a switch to EVs, we propose at least doubling the number of charging points available to staff, as well as offering priority parking spaces for EVs, hybrids, and car-sharing. We will also provide support to staff looking to make the switch to such vehicles, including exploring options to realise the tax benefits available.

Commuting

As an organisation we conduct a biennial travel survey of staff, contractors and tenants using our estate. This provides valuable information about the facilities we operate and a source of suggestions for their improvement. The surveys also include questions about the distance people travel to the estate, modes used, frequency and the efficiencies of their vehicles. From this we can calculate an approximate carbon footprint for employee commuting, and subsequently measure the effectiveness of efforts to reduce this footprint.

As well as the aforementioned efforts to maximise the potential of public and active travel options, through the life of this strategy we will also look to discourage the use of private ICE (internal combustion engine) cars to drive to our estate and around Wales on business. We will look to modify the expenses structure for private cars to de-incentivise ICE use in favour of more sustainable options such as EVs and hydrogen vehicles, and public transport. We will also look to expand the number of charge points on the estate and even include some for electric bike users, to ensure travelling here by electric vehicle continues to be as easy as possible.

Whilst we have always been an organisation which encourages flexible working arrangements, the recent pandemic has highlighted further ways that we can improve these options, across our entire workforce. Homeworking, for example, has been commonplace in the past year for almost every service, and is something we will encourage the continuation of in the long-term. Similarly, virtual and hybrid meetings have demonstrated that staff don't always need to travel in order to work and to keep in touch. Working with our HR colleagues, we will encourage training opportunities to be realised in a virtual format where

appropriate; again something that has become more commonplace over the past year.

An inseparable component of car use is of course parking, and staff working at our estate are fortunate enough to have access to a limited number of spaces. To further encourage staff to consider the travel hierarchy even in their commute, we will look to provide some spaces prioritised to those sharing a vehicle. We will also review the fee structure of staff parking, with a view to encouraging more flexible commutes and a move away from the car being the go-to mode for commuting.

These aspects combined will not only improve the work-life balance for our colleagues, but negate a significant part of the carbon footprint of commuting, as well as reduce demand for parking space.



**More EV spaces
and promotion**



**Parking to suit
greener travel**



**Behavioural Change:
active travel**



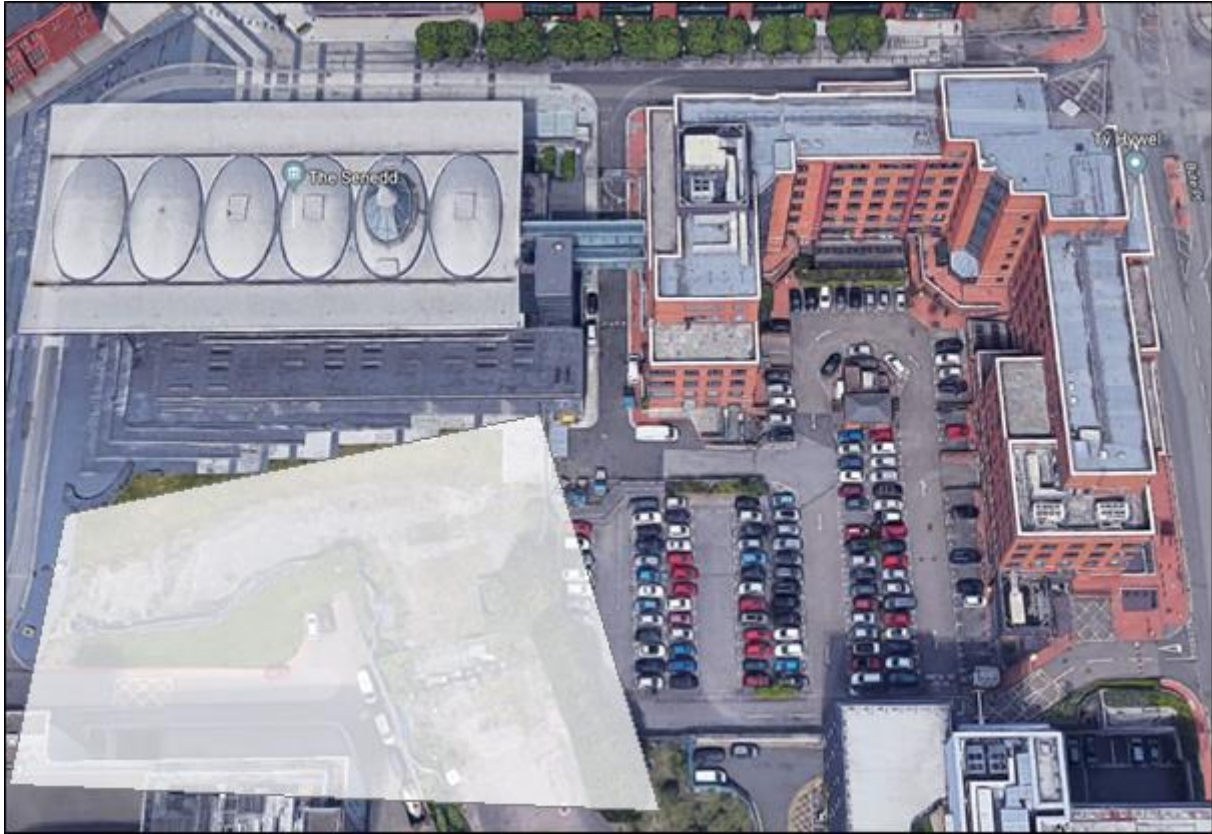
Biodiversity

Whilst we are very limited with outdoor space around the parliamentary estate, we have made significant improvements over recent years to improve the biodiversity attracted to the area, and plan to build on this through the life of this Strategy.

We have had a garden strip, bird boxes and fruit trees for some time, but recently improved the garden area to make it more attractive to pollinators and added a small pond to support invertebrates. We have changed the way we manage the strip of land alongside the Senedd to encourage wildflower growth- it now even supports orchids. We've added swift boxes to the roof of Ty Hywel to provide a home for these important birds that feed on insects over Cardiff Bay, and now have three flourishing beehives on the roof of the Pierhead. Following support from RSPB and Bug Life, we have even become an *Urban Buzz* site.

However, despite these improvements and our limited space for landscaping, we aim to further increase the ecological impact of our estate, however small it may be. Whilst only a small amount of carbon is ever going to be sequestered by any actions we take on site, we think it is important to do our part to tackle the decline in biodiversity that is resulting from climate change, as well as set an example for other urban sites. We therefore commit to double the area of vegetation cover on our estate through the life of the Strategy.

With our limited scope for landscaping (most of our land is hardstanding) we will employ a mix of traditional and novel techniques to green the area around the buildings. We will look to install raised beds on banking and planters on the balconies, as well as plant climbing plants such as ivy (an important Autumn food source for bees). We will cultivate more of the areas between spaces in the car park, and install areas of vertical gardens.



The Senedd estate has limited green space currently, but also limited opportunity for increasing that green space. There are some areas of shrubs and our garden strip, but the area of wildflowers alongside the Senedd, for example, is not our land. We estimate we have about 75m² of green space currently, so our target to double that to 150m² is an ambitious one. We have balcony space that could incorporate planters, will look to introduce a 450 planting area in the car park, and develop more of the area between car parking spaces to grow shrubs. In some areas our wall space could be utilised for climbing plants. Ivy for example is an important late-flowering food source for bees, and its berries provide winter food to birds. Then alongside the Senedd we will look to develop a more vertical garden feature, or green wall, that can utilise excess rainwater and provide more variety to the estate's habitat types.

Offsetting

Although an essential part of any net-zero strategy, we see offsetting as very much a last resort. Only when we've reduced our impacts as low as practicably possible will we consider investing in a scheme which demonstrates an auditable decarbonisation of the atmosphere that can be used to off-set our own residual emissions.

The market for offsetting is still developing and is something we will continue to monitor. We aim to settle on a scheme midway through the strategy that can demonstrate verifiable *additionality* (real benefits above business-as-usual) and reassurance, ideally within Wales. We are interested in emerging standards within this field that provide reassurance of the positive effects of specific schemes, e.g. the Oxford Offsetting Principles.

There is precedent for this elsewhere in the market. British Telecom buys wind energy from a Welsh windfarm to offset its operations within Wales, and the City of London is buying energy from a solar site in Dorset. We are open to investing with other organisations and within the Welsh public sector to ensure better value, as demonstrated recently by a group of UK universities who are purchasing energy directly from wind farms to offset some of their own emissions. We will ensure we closely monitor emerging off-setting standards and schemes during the Sixth Senedd to agree our preferred future approach when we have reduced our operational emissions as much as we can.

Offsetting will come later in the timeline of our journey to *net zero*, but ensure we're able to meet that goal without negatively impacting on the ability of our organisation to best serve the democracy of Wales.

Other Targets

We have set targets to reduce our environmental impact more generally for over a decade, and this will continue throughout the life of this strategy.

For more than ten years the Senedd has maintained an externally-certified environmental management system (EMS); a formal system of continual environmental improvements that is checked each year by an outside auditor. Although the primary focus of our work over the long-term will be carbon reduction, we will continue to set these EMS targets each year which not only support the core carbon neutrality objective but also provide a mechanism for reducing our impacts in other areas. As part of this work we publish key environmental performance data, including progress against targets in our Sustainability Annual Report, available on our website. We will continue to publish this document to report progress against the objectives of this Strategy, as well as support transparency in our work.

Waste and Plastic

By increasing source-segregation of waste materials, and utilising the infrastructure that has become available during the time we've been targeting waste management, we now no longer send any waste to landfill. We are keen to further reduce the impact our waste has though, and there is of course a small, but measurable, carbon impact from waste and recycling.

We have also made significant efforts to remove single-use plastic from our catering service. We have participated in the Plastic Free July initiative and are working with the for the Youth Parliament, which targets single-use plastics as a key priority.

Through the life of this Strategy we will therefore work with our suppliers to set annual targets that tackle the volume of waste handled, and to introduce alternatives that will move us to becoming plastic-free.

Water

Whilst in relative abundance in Wales, there is still a measurable carbon cost, and of course a financial one, from mains water use. We use water for domestic purposes and in the provision of catering services, as well as in the publicly-accessible facilities in the Senedd and Pierhead buildings. The Senedd building itself harvests rainwater from its expansive roof area, which is used for toilet flushing and washing the building. Across almost all our toilet facilities we have automatic taps and aerated nozzles, all of which contribute to our usage per person over the estate being well below average for sites with canteens.

There is still more we can do though, and over the short-to-medium term we will be conducting water audits and ensuring refurbished facilities receive even more water-efficient fixtures. In committing to expanding the green area of our estate we could also be committing to greater water use, but will offset this with small-scale rainwater harvesting infrastructure. We will continue to report water use, and efforts to reduce it, in our annual report.

Food

We have a close working relationship with our catering contractor, and already source many of the ingredients for our canteen meals, as well as confectionery, from within Wales. We buy fish which is MSC (Marine Stewardship Council) certified and use Fair Trade products wherever possible. The caterers are tasked with reducing food waste wherever possible and will often design menus accordingly; making best use of seasonal ingredients and producing meals to use up ingredients that might otherwise go to waste.

Again there is further scope for improvement in this area though, including both the packaging of products as well as their footprint. We don't currently calculate the impact of the food we provide, but this is something we will investigate over the life of this Strategy, particularly as the source data becomes more accessible. This could help us produce menus with lower carbon footprints, even if it is done just on specific days. We believe this is important not only as part of our overall carbon agenda, but because the catering service is very much a tangible part of estate's facilities and communicating measures to improve it could help inspire our staff to take these ideas home with them.

Furniture

Providing flexibility in an office environment to respond to political and organisational changes requires us to have some throughput of furniture. This is particularly relevant following elections, but continues to a lesser extent throughout the election cycle.

Whilst we try to reuse furniture internally, and occasionally are able to donate items to charitable outlets for reuse, this is not a formalised process. Similarly, in procuring furniture we have been required to use new goods to ensure the highest standards are maintained in the workplace. Given the increase in re-manufacturing facilities, and furniture now being designed with this in mind, this is something we would be keen to explore. There have been notable examples of high-quality re-manufactured furniture being used in office refurbishments, for example Public Health Wales, and this is something we would be keen to trial in future.

Aside from specifying sustainably-sourced timber, we do not currently stipulate any particular environmental credentials for the furniture we buy, and do not calculate its carbon footprint. As the availability of more environmentally-friendly products increases though, along with the prevalence of product footprints, we would be keen to explore more sustainable options and calculate the impact of such purchasing decisions.

Communication and Engagement

A key component in the successful implementation of this Strategy is that the right stakeholders are involved in it and everyone working in our buildings is clearly communicated with.

The communication should be two-way and allow Commission staff, Members, Support Staff, site-based contractors and other interested parties to have their voices heard in the process of defining how we action the improvements mentioned in the Strategy. Our communication with staff has always been a priority for the Senedd. Whilst during the pandemic the change to homeworking has meant this is often via digital channels, this offers us an opportunity to discuss the Strategy at virtual team meetings and even all-staff meetings with relative ease. This communication will continue throughout the life of the Strategy via a team of staff Champions.

Members and their Support Staff are a group whose activities will be impacted by this Strategy and have themselves requested continual environmental improvement, for example through oral questions in Plenary or recommendations of the Committees. Historically, our carbon footprint and environmental management system has considered the impact of Members' business travel, but excluded the Members' constituency offices. These offices are specified and controlled by the Members themselves, but there is potential to provide support and influence in how these offices are chosen and operated in order to minimise their own footprints. Support has already been shown by the Commissioners for changes to the business travel arrangements mentioned earlier in this document, but we will be engaging further with Members on travel impacts and office footprints.

Similarly, following the changes to working arrangements imposed by the pandemic, we expect more staff to be working from home more often in the future. This means on the one hand our own energy use will remain lower than pre-pandemic levels, but on the other staff will be using more energy in their own homes as they keep them warm and power office equipment. Whilst this impact is indirect and beyond our control, we will be providing support and advice to help ensure homeworking is as efficient for staff as possible. In time, particularly

given the likely prevalence of homeworking amongst office-based organisations, it may become the case that a standard metric is determined for use in carbon footprinting.

We already liaise frequently with the other UK parliaments, and will continue to do so to ensure our respective individual support each other in representing best practice in the public sector whilst reflecting the drivers of our respective countries. In Wales, we support the Wellbeing of Future Generations Act and, whilst not obligated by the Act itself, will be discussing this Strategy with the Future Generations Commissioner's office.

The Welsh Youth Parliament are another stakeholder with a keen interest in how the Senedd tackles its environmental impacts. In particular, they have been vocal advocates of reducing single-use plastic on the estate and we will continue to respond to issues the group raises where appropriate.

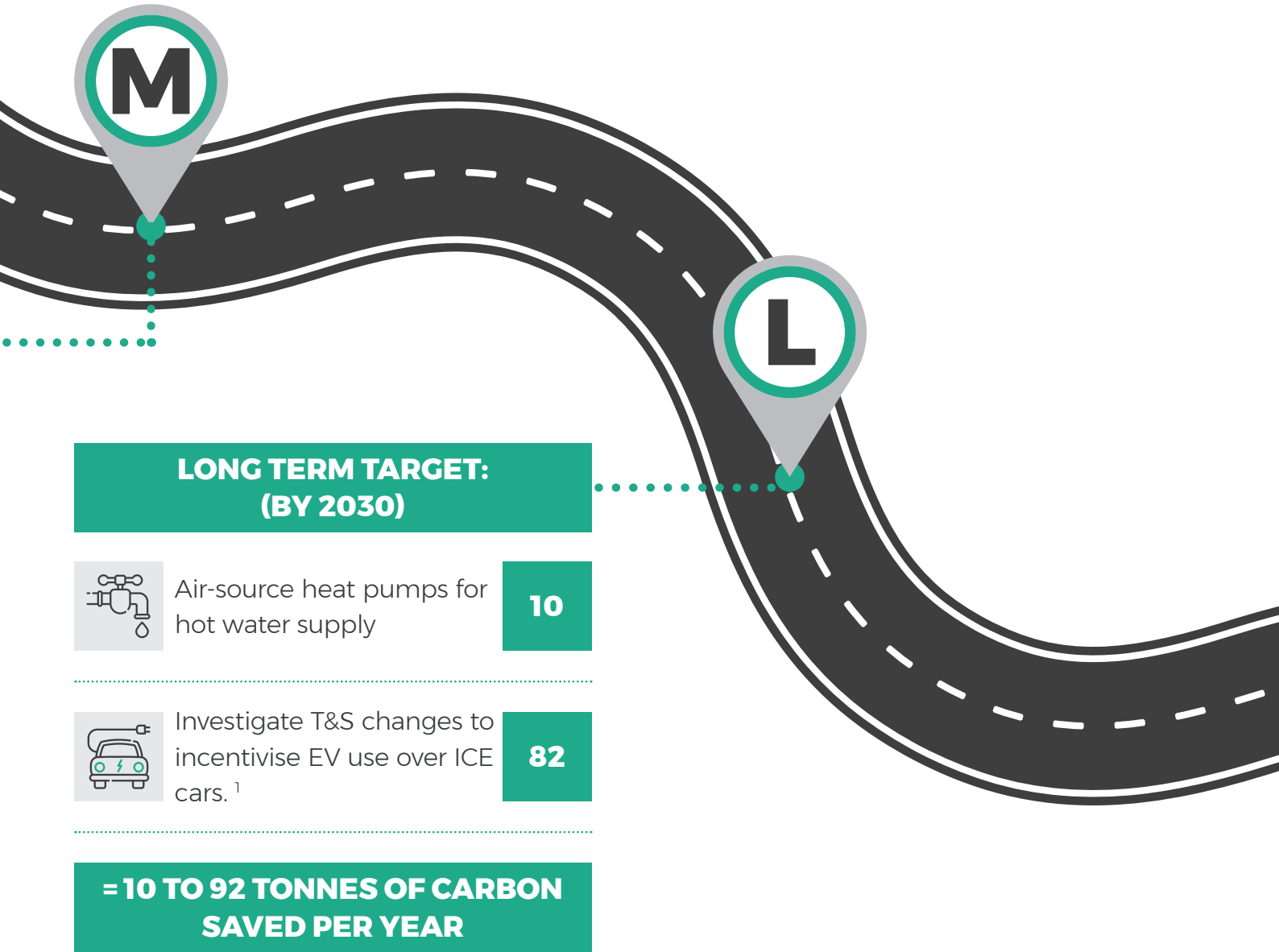
Finally, we do discuss particular sustainability topics with our neighbours, particularly the other large organisations based in Cardiff Bay and the District Heating Scheme is a great example of this. This is a process we will more actively promote in future, using this document as a basis to work together on aligned priorities.



Milestones

Below is a summary of the key milestones in our enhancement of our estate and operations to a lower-carbon way of working.

SHORT TERM TARGET: (2021-2023)		MEDIUM TERM TARGET: (2023-2026)			
	Behavioural change and good housekeeping	100		Refurbishment of AHUs (air-handling units)	42
	BMS improvements (three buildings)	59		Connect to district heating network	132
	Monitoring- additional meters and software	52		Revert Ty Hywel to passive ventilation	97
	LED lighting: continued replacement and review of controls	30		Install solar PV (Senedd and Ty Hywel)	60
= 241 TONNES OF CARBON SAVED PER YEAR		= 331 TONNES OF CARBON SAVED PER YEAR			



¹ based on current level of private car claims and adoption of RFID cards, carbon figure for medium-sized car mileage.

Data Tables and Investment

Transparency has always been a cornerstone of our operations, and we continue to publish environmental data each year in our Sustainability Annual Report.

However the data below is more specifically related to this Strategy and supports many of its calculations:

Carbon Emissions

	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Total net greenhouse gas emissions (tCO₂e)	2,252	2,051	1,841	1,654	1,296	1150
Total energy emissions, (tCO₂e)	1,800	1,663	1,563	1,364	1,066	962
Total business travel emissions, (tCO₂e)	252	227	206	207	174	144

Financial Investment

	Cost (£)	Cost Saving (£/annum)	Payback (yrs)	Carbon Saved (tCO ₂ e)
Short-Term 2021-2023	130,000	150,000	0.9	241
Medium Term 2023-2026	700,000	90,000	8	331
Long-Term by 2030	95,000	120,000	0.8	10
	925	360	2.6	582





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