

December 2020

Progress Report: Reducing emissions in Wales

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Reducing emissions in Wales

Climate Change Committee
December 2020

Presented to Welsh Ministers pursuant to Section 45(1) of the Environment (Wales) Act 2016. This report was published on 17 December 2020 and is available online at: www.theccc.org.uk/publications

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The Committee



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Chairman

Lord Deben was the UK's longest-serving Secretary of State for the Environment (1993 to 1997). He has held several other high-level ministerial posts, including Secretary of State for Agriculture, Fisheries and Food (1989 to 1993). Lord Deben also runs Sancroft, a corporate responsibility consultancy working with blue-chip companies around the world on environmental, social and ethical issues.



Baroness Brown of Cambridge DBE FRS
Deputy Chair

Baroness Brown of Cambridge DBE FREng FRS (Julia King) is an engineer, with a career spanning senior engineering and leadership roles in industry and academia. She currently serves as Chair of the CCC's Adaptation Committee; non-executive director of the Offshore Renewable Energy Catapult; and Chair of the Carbon Trust.



Dr Rebecca Heaton
Wales Champion

Rebecca Heaton is responsible for Drax Group's efforts to mitigate climate change, ensuring that sound science underpins climate change policies and business strategy. She is also responsible for developing sustainability and climate change research programmes. Rebecca has a 20-year global career working at the interface between business, science and policy.



Professor Keith Bell

Keith Bell is a co-Director of the UK Energy Research Centre (UKERC), a Chartered Engineer and a Fellow of the Royal Society of Edinburgh. He has been at the University of Strathclyde since 2005, was appointed to the Scottish Power Chair in Smart Grids in 2013 and has been involved in energy system research in collaboration with many academic and industrial partners.



Professor Nick Chater

Nick Chater is Professor of Behavioural Science at Warwick Business School. He has particular interests in the cognitive and social foundations of rationality, and applying behavioural insights to public policy and business. Nick is Co-founder and Director of Decision Technology Ltd, a research consultancy.



Professor Piers Forster

Piers Forster is Director of the Priestley International Centre for Climate and Professor of Physical Climate Change at the University of Leeds. He has played a significant role authoring Intergovernmental Panel on Climate Change (IPCC) reports, and has a coordinating lead author role for the IPCC's sixth assessment report.



Paul Johnson CBE

Paul Johnson is Director of the Institute for Fiscal Studies and a visiting professor at University College London (UCL). He is widely published on the economics of public policy, and he co-wrote the 'Mirlees review' of tax system design. He was previously Chief Economist at the Department for Education (2000 to 2004).



Professor Corinne Le Quéré FRS

Corinne Le Quéré is Royal Society Research Professor of Climate Change Science at the University of East Anglia (UEA), where she conducts research on the interactions between climate change and the carbon cycle. Corinne is currently the Chair of the French Haut Conseil pour le Climat

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Introduction and key messages

The Committee first gave advice to the Welsh Government on the appropriate levels for emissions reduction targets in 2017. These targets put Wales on the path to an 80% reduction in greenhouse gas (GHG) emissions by 2050 compared to 1990 levels.

Since 2017, the context for Wales' long-term climate ambition has changed dramatically:

- **A Net Zero target for the whole of the UK** has been legislated in Parliament - increasing the 2050 target from an 80% reduction to a 100% reduction - on the basis of the Committee's recommendations in the 2019 *Net Zero* advice.
- The Welsh Government declared a **climate emergency** in 2019.
- In 2019, the Welsh Government committed to reduce its greenhouse emissions by **at least 95% by 2050, with an ambition to set a Net Zero target**, in line with the Committee's advice on Net Zero across the UK. These targets have not yet been legislated.
- Wales is now in a position to realise its ambitions of setting a Net Zero target. In the Advice Report published alongside this Progress Report, **we recommend that the Welsh Government should set a Net Zero target for 2050.**
- The **COVID-19 pandemic** will have lasting implications for tackling climate change in Wales and internationally.

This Progress Report monitors progress towards Wales' existing targets using the latest available emissions data for Wales, with a focus on trends in emissions across Wales' First Carbon Budget period from 2016 to 2020.

The advice in this report is provided in this context. We assess whether Wales is currently on track to meet its existing targets, but recognise that meeting them will not be sufficient to match the long-term climate ambitions of either the Welsh Government or the UK Government.

The global pandemic has changed the context in which all Welsh Government policy – including climate policy – is delivered. It is not yet possible to foresee the full effect of the COVID-19 crisis, but it is clear that it will have substantial social, economic, and environmental impacts. It has also highlighted the kind of systemic risks that climate change places on society.

The rest of this Chapter is set out in three sections

1. This Progress Report
2. Wales' existing greenhouse gas reduction targets
3. The new context for climate action in Wales

Our key messages from this Progress Report are:

- **Emissions are falling in Wales.** Emissions have fallen by 31% since 1990. In the first two years of the Wales First Carbon Budget period, emissions fell by 20%, almost entirely due to reductions in the power sector.
- **Policy progress.** The Welsh Government has made significant policy improvements since 2017 and it is clear it is taking the climate challenge seriously. This includes:
 - A low-carbon delivery plan for the First Carbon Budget.
 - A draft Transport Strategy that includes a clear focus on the provision of accessible active travel and public transport while supporting the transition to electric vehicles.
 - Achieving the UK's highest recycling rate, with food waste collection in all parts of Wales, and setting very ambitious long-term targets to further reduce waste and increase recycling.
 - Support for large low-carbon electricity generation projects in Wales.
 - The inclusion of 'green recovery' principles in the Welsh Government's response to the pandemic.
- **Gaps remain.** Underlying indicators and the lack of a cohesive, economy-wide strategy for 2050 – at both UK and Welsh Government level – mean that Wales is not currently on track for the 80% target, let alone Net Zero.

1. This Progress Report

This Progress Report is the Committee's first report on Wales' progress towards meeting its emission reduction targets, as requested under Article 45 of the Environment (Wales) Act 2016.

The Advice Report is written with reference to Net Zero as the appropriate target for Wales. The policy advice given at the end of this Progress Report is with reference to meeting the targets we have recommended for Wales to get on track for Net Zero in 2050, and is set out in more detail in the Advice Report.

Chapter 2 of this Progress Report reflects on performance in reducing emissions since 1990, with a particular focus on the First Welsh Carbon Budget period (2016 - 2020), for which data are only available for the first three years (i.e. up to 2018). We consider trends in emissions across the economy and in specific sectors, with discussion of the key underlying drivers of changes in emissions. We analyse whether Wales is on track to meeting its existing legal targets beyond 2020.

Chapter 3 assesses climate policy developments in Wales since our advice on the First Carbon Budget was published in 2017, including the *Prosperity for all: a low carbon Wales*¹ delivery plan and The Welsh Government's *COVID-19 Reconstruction: Challenges and Priorities*.²

Chapter 4 sets out a summary of the policy priorities that are needed to get Wales on track to Net Zero in 2050 and our recommended targets on that pathway. These recommendations are expanded in more detail in the Advice Report.

2. Wales' existing greenhouse gas reduction targets

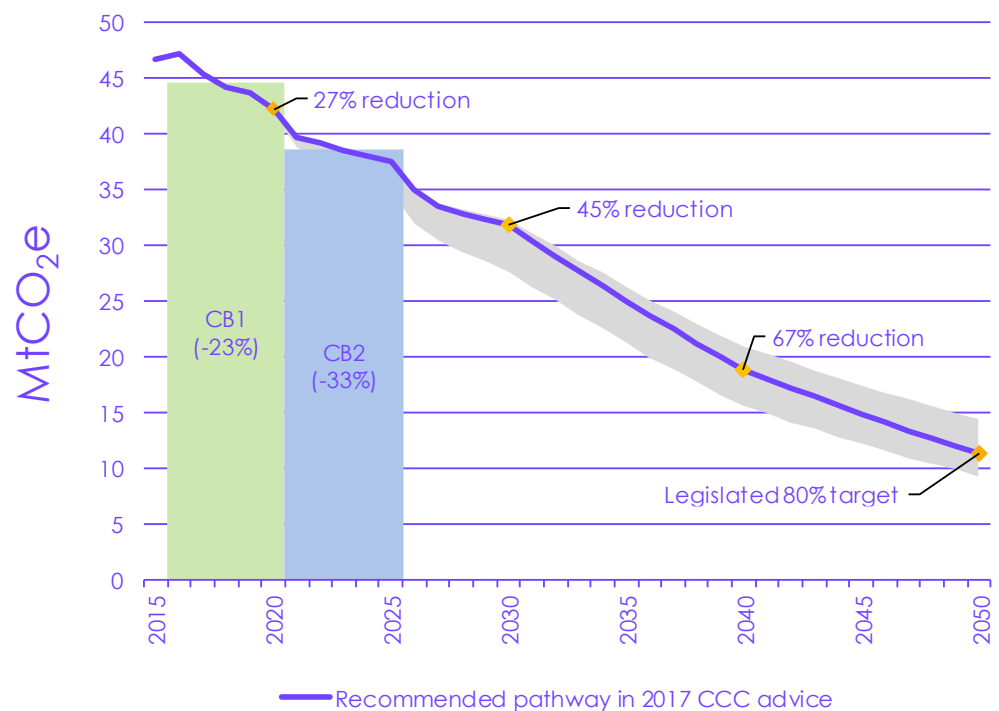
Under the 2008 Climate Change Act, Wales is required to contribute to the UK Net Zero target in 2050 as well as the UK's carbon budgets. The Act assigns to Welsh Ministers the duty to report on the Welsh Government's objectives, actions and future priorities regarding the impacts of climate change to the National Assembly of Wales, and confers to them powers to seek the advice of the Climate Change Committee to do so.

Specific greenhouse gas emissions reduction targets for Wales were first introduced through the Environment (Wales) Act 2016. The Act states that the 2050 target is 'at least' an 80% reduction in emissions from 1990 (baseline year) levels, and sets out the requirement for interim targets.

These interim targets for 2020, 2030 and 2040 were introduced into law through the Climate Change (Interim Emissions Targets) (Wales) Regulations 2018 (Figure 1.1):

- Emissions must be at least 27% lower than the 1990 baseline by 2020.
- Emissions must be at least 45% lower than the 1990 baseline by 2030.
- Emissions must be at least 67% lower than the 1990 baseline by 2040.

Figure 1.1 Wales' existing targets for reducing greenhouse gas emissions



Source: Adapted from CCC (2017) *Building a low-carbon economy in Wales*.

Notes: The Second Carbon Budget is shown as legislated. In our 2017 advice, we recommended that if Aberthaw closed in 2020 the Second Carbon Budget should be tightened to 37%.

The 2016 Environment Act also places an obligation on Welsh Ministers to set carbon budgets for Welsh emissions covering five-year periods to 2050. So far, Wales has legislated for the first two carbon budgets, which require emissions to be 23% below the baseline over the period 2016-2020 and 33% below the baseline for 2021-2026.

3. The context for climate action in Wales

a) A Net Zero target for the UK and for Wales

In 2019, the Welsh Government declared a 'climate emergency', accepted the Committee's recommendation to a target of at least a 95% reduction in greenhouse gas emissions by 2050, and stated its intention to "go further... to bring forward a target for Wales to achieve Net Zero emissions no later than 2050".

The UK Government has now adopted a Net Zero target into law and – in parallel with this advice to the Welsh Government – the Committee has now recommended the UK should adopt an ambitious 78% reduction target compared to 1990 levels across the Sixth Carbon Budget period (2033 - 2037) on the pathway to Net Zero emissions in 2050.

In the last year, we have already seen promising signs of increased ambition in Wales, not least in the commitments to delivering a 'green recovery' from COVID-19.³ Additionally, the UK's Net Zero objective has been embraced by business, local authorities and the wider public.

In the accompanying Advice Report, the Committee now recommends that the Welsh Government should set an ambitious Net Zero target for 2050. This recommendation reflects new evidence on the range of options and pathways for the UK to reach Net Zero by 2050.

Achieving Net Zero means the majority of activities – driving, manufacturing, heating, electricity generation – emitting as close to zero emissions as possible by 2050, with any remaining emissions requiring the equivalent amount of emissions to be removed from the atmosphere.

The path to achieving Net Zero emissions by 2050 will require a much steeper reduction in emissions over the intervening three decades than is currently legislated in Wales' emissions reduction targets. Our Advice Report explains what the new goal and the emissions pathways described in the Sixth Carbon Budget mean for Wales' interim emissions reduction targets, and makes policy recommendations that will set Wales on the path to Net Zero.

Achieving these long-term climate goals requires a strategic shift in policy. Setting a Net Zero target in Welsh law, our publication of the next UK Climate Change Risk Assessment Evidence Report, contributing to the UK's role as host of the UN's COP26 summit and the 2021 meeting of the G7 countries provide clear milestones for the next steps in Wales' efforts to reduce emissions and prepare for climate change.

b) The new context of COVID-19

It is not yet possible to foresee the full effect of the COVID-19 pandemic, but it will have substantial social, economic, and environmental impacts. It has also highlighted the importance of evidence-led planning for systemic risks, which also applies to our preparations for climate change itself.

Increasing Wales' ambition to Net Zero greenhouse gas emissions and working towards a climate-resilient society remain the appropriate long-term goals.

The broad set of changes required in the long term to deliver Net Zero is likely to be roughly as expected before the COVID-19 crisis. However, the pandemic fundamentally changes the context for tackling climate change in the nearer term, not least the need to integrate Net Zero plans in the economic recovery.

The lockdown measures put in place as a response to the COVID-19 pandemic are likely to have different impacts across the short term, medium term and long term. Our 2020 UK Progress Report set out our analysis of the impacts of the COVID-19 lockdown and what is needed for a resilient recovery:

- **Short term.** Dealing with the COVID-19 pandemic continues to be the priority. The lockdown imposed in response to the pandemic has a number of short-term effects that are likely to be largely temporary, but which may have impacts that persist in the longer term.
 - The crisis is already having an impact on workers and will inevitably lead to increased unemployment. Investment has also slowed, including in low-carbon industries globally, though emerging evidence suggests low-carbon investments have performed better than high-carbon investments over this period. Given this, there is consensus around the need for economic stimulus, and a strong desire and potential opportunity to restart the economy and create jobs by building Net Zero and climate resilient infrastructure. Furthermore, low oil prices and low interest rates are likely to persist for the immediate future, providing a potential opportunity for UK and Welsh Government actions to stimulate investment away from high-carbon industries.
 - The transition to Net Zero and building resilience to climate change require a clear set of investments. Accelerating these investments can be a key part of the macroeconomic response to COVID-19 at a time when demand across the economy is suppressed, with wider economic benefits.
 - The 26th Conference of the Parties (COP26), the UN climate summit that the UK was due to host in Glasgow in 2020, is now delayed to November 2021.
- **Medium term.** Looking beyond the health impacts, COVID-19 and the restrictions to manage its spread have affected livelihoods and reduced economic output across the globe.
 - Lasting impacts will include many lost lives and livelihoods, economic impacts such as increased public and private debt (e.g. business loans, mortgages) as well as social and cultural impacts related to travel and working behaviours. International relations are also shifting.
 - The medium-term responses to the crisis from the Welsh and UK governments will redraw the path of many aspects of decarbonisation and climate resilience, especially if it emphasises climate-positive behaviours, like remote working and active travel, which have emerged during the lockdown.
- **Long term,** Wales must remain committed to stepping up its climate goals. The actions needed to deliver them are largely as before, though if recent behaviour changes persist, they could have a lasting impact on Wales' emissions.

c) The end of coal-fired power generation in Wales

March 2020 marked the end of coal-fired power generation in Wales, with Aberthaw power plant in South Wales officially closing after a period of substantially lower generation in both 2018 and 2019. Reduction in emissions from Aberthaw alone drove a significant fall in overall Welsh emissions of around 11% between 2016 and 2018.

In our 2017 advice *Building a low-carbon economy in Wales*, we highlighted the significant impact that output from Aberthaw could have on the level of Wales' targets during the early 2020s. Its closure in 2020 – notwithstanding the climate emergency and the Welsh Government's subsequent commitments to set tighter targets in line with the UK Net Zero goal – would have led the Committee to recommend a tightening of Wales' existing Second Carbon Budget target. This recommendation was to ensure that meeting the Second Carbon Budget means real progress across the economy and not solely a drop in emissions attributed to the earlier closure of Aberthaw.

The closure of Aberthaw and the phase out of coal mining in Wales underlines the importance of delivering a just transition for the people and places that currently depend on carbon-intensive economic activity. Well-designed policy to distribute the costs and the benefits of the Net Zero transition fairly – at both UK and Welsh Government level – and public engagement are required to ensure that Wales' Well-being Goals are met in the transition to a zero-carbon economy.

d) COP26 and international developments

The UK (with co-host Italy) will host the 26th United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP26) in Glasgow.

Originally scheduled for November 2020, COP26 was envisaged as a key moment in efforts to raise global climate ambition with countries expected to resubmit their Nationally Determined Contributions (NDCs) for emissions reductions to 2030, and adaptation strategies, before the end of this year.

When assessed prior to COVID-19 in 2019, the global emissions expected in 2030 based on current global ambition were not consistent with pathways expected to achieve the Paris Agreement's goal of limiting global warming to well-below 2°C above preindustrial levels and pursuing efforts to keep it below 1.5°C. Global pathways were instead expected to reach around 3°C above pre-industrial levels by 2100.

COP26 has now been postponed by one year until November 2021 due to the ongoing COVID19 pandemic. Since then global climate ambition has increased, due to major economies such as China, Japan and South Korea having declared Net Zero objectives for around the middle of the century. The incoming US administration is also expected to re-join the Paris Agreement.

The time between now and COP26 represents a crucial period for global climate efforts. The infrastructure constructed around the world over the next few years as part of government responses to COVID-related economic impacts will be critical to the chances of achieving the Paris Agreement long-term temperature goal. Aligning post-COVID investment programmes with the agreed global climate goals of the Paris Agreement must be a core objective for global climate policy over the next 18 months.

As COP26 host and incoming G7 president, the UK has the opportunity to demonstrate leadership on a global scale on both climate change mitigation and adaptation. The UK also has an important role in shaping efforts to align responses with global climate objectives and can help catalyse the necessary efforts to increase climate ambition around the world.

As a significant contributor to UK emissions – particularly the industry and agriculture sectors, where policy action has been limited to date – Wales' contribution is important to UK leadership on the global stage. The actions of the Welsh Government in the next year can help to signal a united and uniform effort to achieve Net Zero that is supported by all parts of the UK.⁴

Endnotes

- ¹ Welsh Government (2019) *Prosperity for All: A Low Carbon Wales*,
- ² Welsh Government (2020) *COVID-19 reconstruction: challenges and priorities*.
- ³ Welsh Government (2020) *£6.5m Circular Economy Funding to Support a Green Recovery*.
- ⁴ CCC (2020) *The Sixth Carbon Budget: The path to Net Zero*.

Emissions and underlying trends

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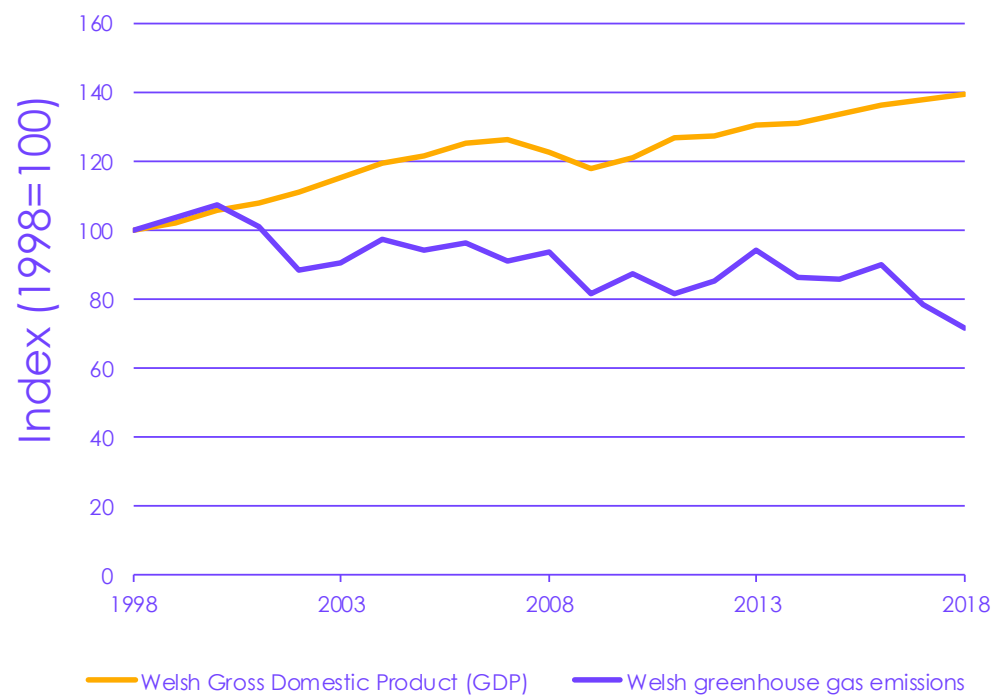
1. Progress reducing emissions in Wales

On the basis of the latest published emissions inventory, Welsh emissions fell by 8% in 2018 to 38.9 MtCO₂e and were 31% below 1990 levels.*

Emissions fell by nearly 20% in the two years from 2016 to 2018. This means that Wales is on track to meet its 2020 target (a 27% reduction on 1990 levels) and the First Carbon Budget (23% average reduction on 1990 levels across 2016-2020) on the current inventory basis, as long as emissions do not increase in 2019 and 2020.

Greenhouse gas emissions in Wales have fallen by 28% in the two decades since 1998, while the economy has grown by 40% in the same period (Figure 2.1).¹

Figure 2.1 Emissions in Wales have fallen while the economy has grown



Source: ONS (2019) *Regional gross domestic product all NUTS level regions*; NAEI (2020) *Greenhouse Gas Inventories for England, Scotland, Wales & Northern Ireland: 1990-2019*; CCC analysis.

* This Progress Report is based on the latest published inventory. Future changes to the inventory will have a material impact on Wales' emissions pathways (Box 2.1) and are accounted for in our advice on targets.

2. Changes in sectoral emissions over the 1st Carbon Budget period and since 1990

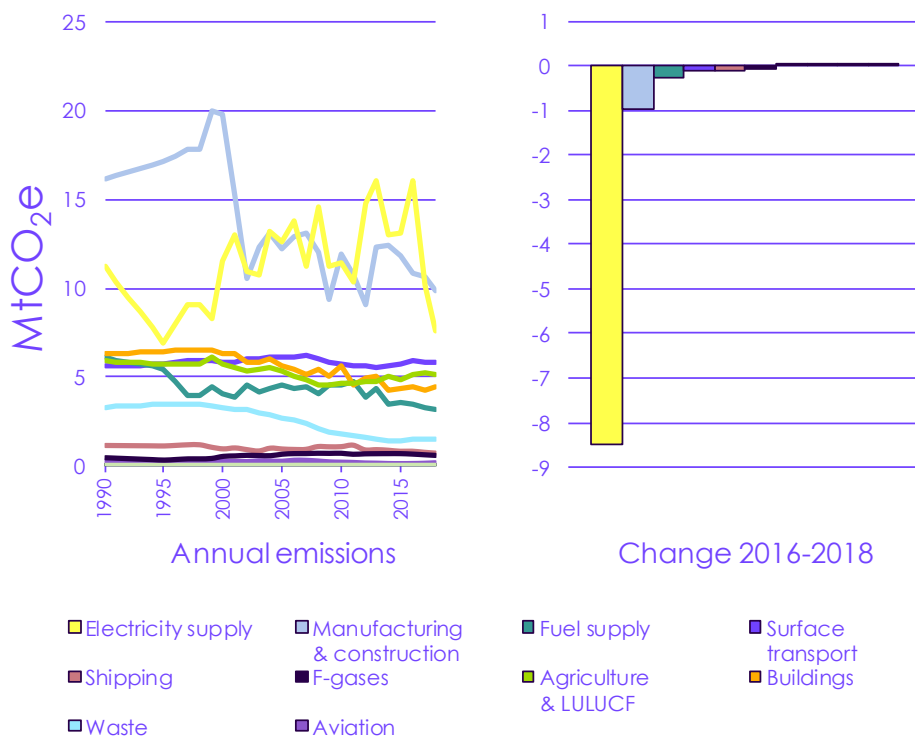
The fall in total emissions over the course of the First Carbon Budget period has not been evenly distributed across all sectors (Table 2.1).

Emissions reductions have been dominated by the power sector, which has caused 85% of the total reduction in emissions from 2016 to 2018. Emissions from the manufacturing & construction (-9%) and fuel supply (-7%) sectors have also fallen, while emissions in all other sectors fell by an average of just 1% (Figure 2.2).

In particular, the slowdown of Aberthaw power station from 2016 to 2018, on the way to its eventual closure in 2020, has contributed to 55% of the total fall in emissions over the budget period.

	Emissions in 1990 (MtCO ₂ e)	Emissions in 2016 (MtCO ₂ e)	Emissions in 2018 (MtCO ₂ e)	Change in emissions 2016 to 2018 (MtCO ₂ e)	Balance of devolved powers
Electricity supply	11.2	16.0	7.6	-8.5	Mostly reserved
Manufacturing & construction	16.1	10.8	9.8	-1.0	Mostly reserved
Surface transport	5.6	5.9	5.8	-0.1	Partially devolved
Agriculture & LULUCF	5.9	5.2	5.2	<0.1	Mostly devolved
Buildings	6.3	4.4	4.4	<0.1	Partially devolved
Fuel supply	6.1	3.4	3.2	-0.3	Mostly reserved
Waste	3.3	1.5	1.5	<0.1	Mostly devolved
Shipping	1.1	0.8	0.7	-0.1	Mostly reserved
F-gases	0.3	0.6	0.6	-0.1	Mostly devolved
Aviation	0.3	0.1	0.2	<0.1	Mostly reserved

Figure 2.2 Changes in sectoral emissions in Wales since 1990 and in the First Carbon Budget period



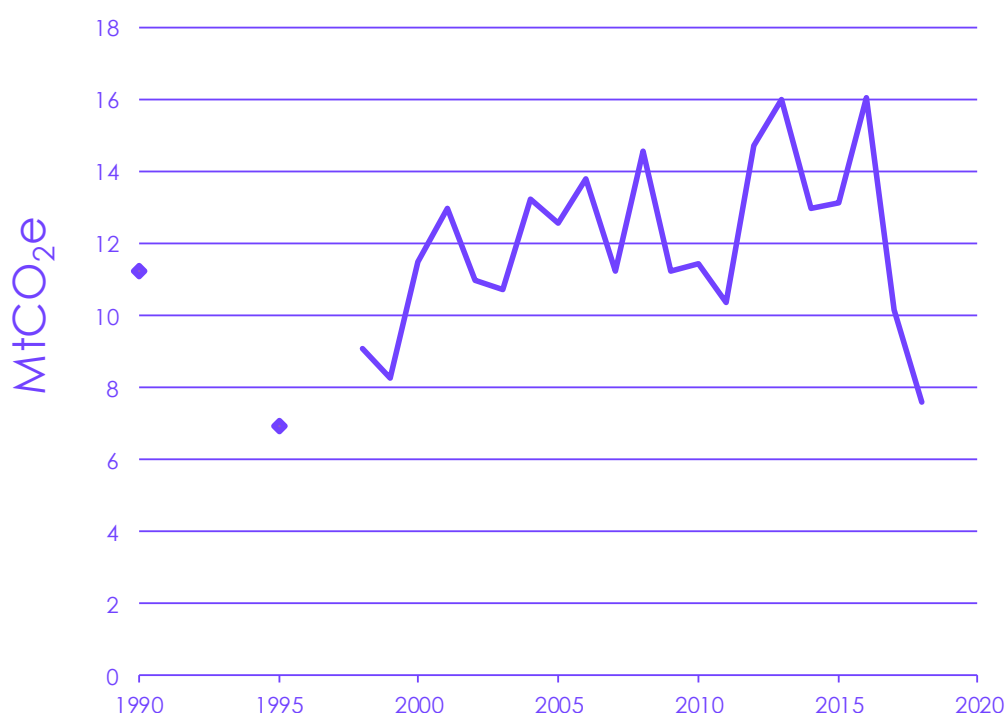
Source: NAEI (2020) Greenhouse Gas Inventories for England, Scotland, Wales & Northern Ireland: 1990-2019; CCC analysis.

Notes: LULUCF = land use, land-use change and forestry. No data are available for 1991-1994 and 1996-1997, emissions are interpolated between 1990, 1995 and 1998.

Electricity supply has been responsible for 85% of the total changes in emissions since 2016. Emissions from the electricity supply sector in Wales have halved (-53%) in the last two years and have fallen by 33% since 1990 (Figure 2.3). The fall has been driven by reductions in fossil-fired electricity generation supported by the steady expansion of renewable capacity in Wales:

- In 2018, 30 TWh of electricity was generated in Wales. Wales was a net exporter of electricity to the rest of the GB network, consuming around 14 TWh. Around 25% of generation was from low-carbon sources (7.4 TWh), up from 22% in 2017 and from 6% in 2010.²
- Total electricity generation in Wales fell by 11% from 2017 to 2018. Most of this change was due to an 83% fall in generation from coal-fired power generation, but gas-fired generation also fell by 3%.³
- The rate of installation of new renewable electricity capacity in Wales has fallen every year since 2015. In 2018, 126 MW of new renewable electricity capacity was installed, compared to more than 900 MW in 2015.
- In South Wales, there is currently a constraint on the transmission electricity network, potentially preventing large power stations from connecting to either the transmission or distribution networks until reinforcement is completed in 2026. It is unclear whether the closure of Aberthaw Power Station in 2020 will help mitigate this constraint and/or expedite the solution to unlocking capacity sooner.⁴

Figure 2.3 Electricity supply emissions in Wales (1990 - 2018)



Source: NAEI (2020) *Greenhouse Gas Inventories for England, Scotland, Wales & Northern Ireland: 1990-2019*; CCC analysis.
 Note: Emissions data are not published for 1991 to 1994, 1996 or 1997.

Changes in emissions across all other sectors have been much less rapid, although emissions have fallen in most sectors since 2016:

- **Manufacturing & construction** emissions fell by 9% from 2016 to 2018 to 9.8 MtCO₂e, and were 39% below 1990 levels. Emissions from iron and steel production – centred on the industrial cluster in South Wales – dominate emissions from this sector. Emissions from the iron and steel sector fell by 0.8 MtCO₂e (-17%) from 2016 to 2018. This coincided with a 12% fall in the total amount of iron and steel produced in Wales in the same period, and does not necessarily reflect underlying changes to decarbonise the sector.⁵
- **Surface transport** is Wales' third-largest source of emissions. Between 2016 and 2018, emissions from surface transport fell by 2%, but emissions in 2018 were still 3% higher than the 1990 baseline. Surface transport emissions have remained virtually flat since 1990, despite recent improvements in vehicle efficiency:
 - The total distance driven by cars in Wales has increased by 13% since 2008 to 31.6 billion vehicle-km in 2018.⁶
 - Emissions from cars in Wales have fallen by 9% in the same period despite this increase in the total distance driven, reflecting a real-world efficiency improvement.⁷
- **Agriculture and land use, land use change and forestry (LULUCF).** Net emissions from agriculture and LULUCF in 2018 were 5.2 MtCO₂e in 2018, unchanged from 2016 and only 13% down from 1990. Emissions have increased by 13% in the last decade:
 - Emissions from agriculture have fallen by 11% since 1990, but have increased since 2016. Emissions from livestock account for 54% of agricultural emissions, with manure and waste management (13%), soil (24%) and machinery (10%) accounting for the remainder.
 - Changes in how methane is accounted for, mainly through an increase in the estimated global warming potential of methane, will increase the estimate of Wales' agricultural emissions by 12%-36% (Box 2.1).
 - Wales' land acts as a net carbon sink, mainly due to the role of forests in absorbing carbon from the atmosphere. The size of the sink has decreased marginally unchanged over the last 10 years from 0.6 MtCO₂e per year in 2008 to approximately 0.4 MtCO₂e per year in 2018. This reflects a lack of action in new tree planting needed to increase the size of the forestry sink. Wales has reduced its tree planting target from 5,000 hectares (ha) per year to 4,000 ha. In 2019, 80 hectares of trees were planted in Wales.⁸
 - Emissions from peatlands are not currently fully accounted for in Wales' greenhouse gas inventory, but that is set to change in the 2020s and will add around 0.5 MtCO₂e of emissions to the inventory (Box 2.1).
- **Buildings.** Direct emissions from buildings saw a steady decline in the first part of the century, but emissions have increased since 2014. Residential buildings make up the majority of emissions in the sector, with emissions from non-residential buildings remaining relatively low but flat since 1990. In 2018, total emissions from buildings were 4.4 MtCO₂e, 1% higher than 2016, but 30% lower than 1990:

- Renewable heat generation in 2018 was 2.2 TWh, equivalent to 13% of Welsh domestic heat demand. Wales had 680 MW of renewable heat capacity in total in 2019.⁹
- Heat from biomass made up half the renewable heat produced in Wales in 2019, and most of this was produced by commercial and industrial projects. There were fewer than 8,000 heat pumps in Wales in 2019, generating around 7% of heat in Wales.
- The majority of dwellings in 2018 had an EPC D rating (52%). Since 2008, the proportion of homes in Wales rated EPC C or better has increased from 5% to 28%¹⁰ but the trend has been flat since 2013, with less than a one percentage point change in the median EPC ratings of existing homes and flats in Wales.¹¹
- The extreme cold weather event the 'Beast from the East' in March 2018 resulted in colder weather for 2018 compared to the years 2017 and 2019 (Figure 2.4). This is likely to be a significant driver of the increase in emissions seen between 2017 and 2018.
- **Fuel supply** emissions – largely from petroleum refining – fell by 7% between 2016 and 2018. At 3.2 MtCO_{2e}, emissions were 48% below 1990 levels. Most of the change in emissions from fuel supply was due to a 50% (-0.2 MtCO_{2e}) fall in emissions from gas production from Rhyl gas field.¹²
- **Waste** sector emissions continued to decline and are now 55% below the 1990 baseline. Emissions from waste made up only 4% of total Welsh emissions in 2018.
 - Wales has set very ambitious waste separation, recycling and food waste reduction goals which will result in further emission reductions in the sector during the 2020s.
 - Wales currently has a target of an 80% reduction in waste emissions by 2020, and 92% by 2030, compared to 1990 levels. Very significant reductions during 2019 and 2020 would need to have been achieved to meet the 2020 target, given the relatively flat waste emissions trajectory between 2016 and 2018.
- Shipping emissions in 2018 were 41% below baseline levels, and 15% down from 2016. Emissions from the sector make up 2% of total Welsh emissions, and they have been falling steadily since 2013.
- Aviation is a small sector in Wales, contributing to less than 0.4% of total Welsh emissions – in contrast to the UK, where aviation makes up 7% of total UK emissions. Emissions in the sector were 0.2 MtCO_{2e} in 2018, 38% below 1990 levels, although have been increasing recently with a 29% increase from 2016 to 2018.
- F-gases emissions have increased significantly since 1990, largely due to increases the use of hydrofluorocarbon (HFC) refrigerants in refrigeration and air conditioning equipment. Emissions have fallen in the last five years due to EU regulations that banned the most harmful F-gases and set a cap on the amount of F-gases that can be used.

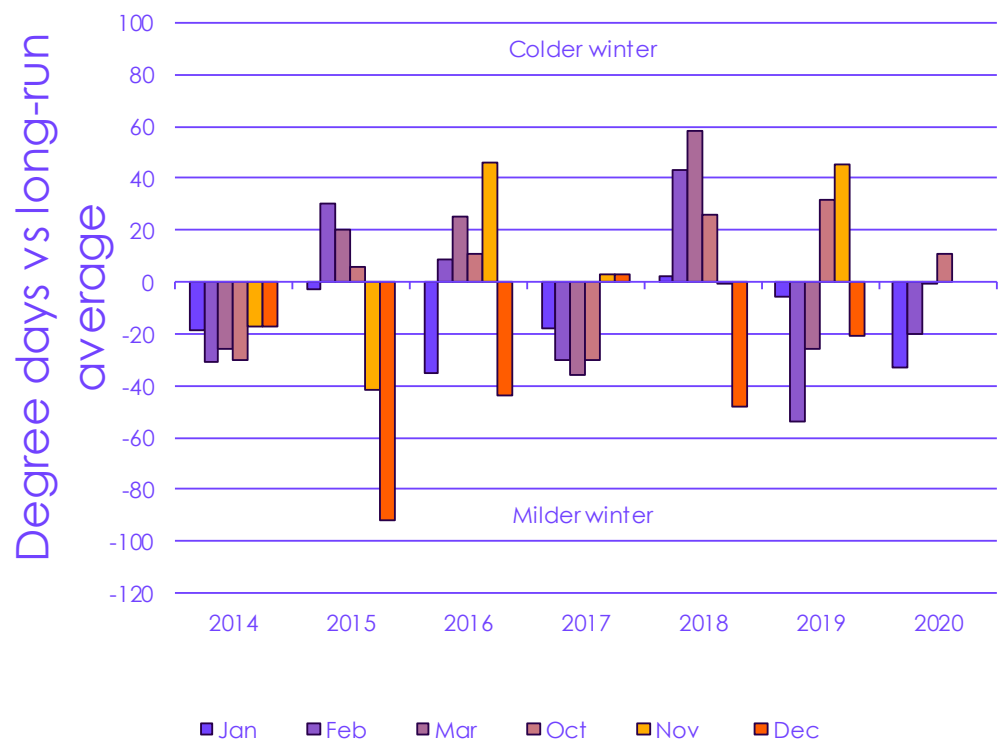
3. Outlook for emissions in Wales on 2019 and 2020

Data on Welsh emissions in 2020, required to estimate emissions over the full period of the First Carbon Budget will not be published until June 2022.

In this section, we draw on other sources that can provide an indication of what is likely to have happened to emissions in Wales in 2019 and 2020:

- Temperatures in 2019 and 2020.** There were fewer heating-degree-days* in the winter (January to March and October to December) months of 2019 in Wales than compared to the same period in 2018 (Figure 2.4), and the total number of degree-days in 2019 were close to the long-run average. Notably, the first three months of 2018 were much colder than usual due to the cold weather events Storm Emma and Anticyclone Hartmut (the 'Beast from the East'). Lower heating demands may therefore lead to lower emissions from buildings in 2019 compared to 2018.

Figure 2.4 Heating degree days variation from the long-run average in Wales



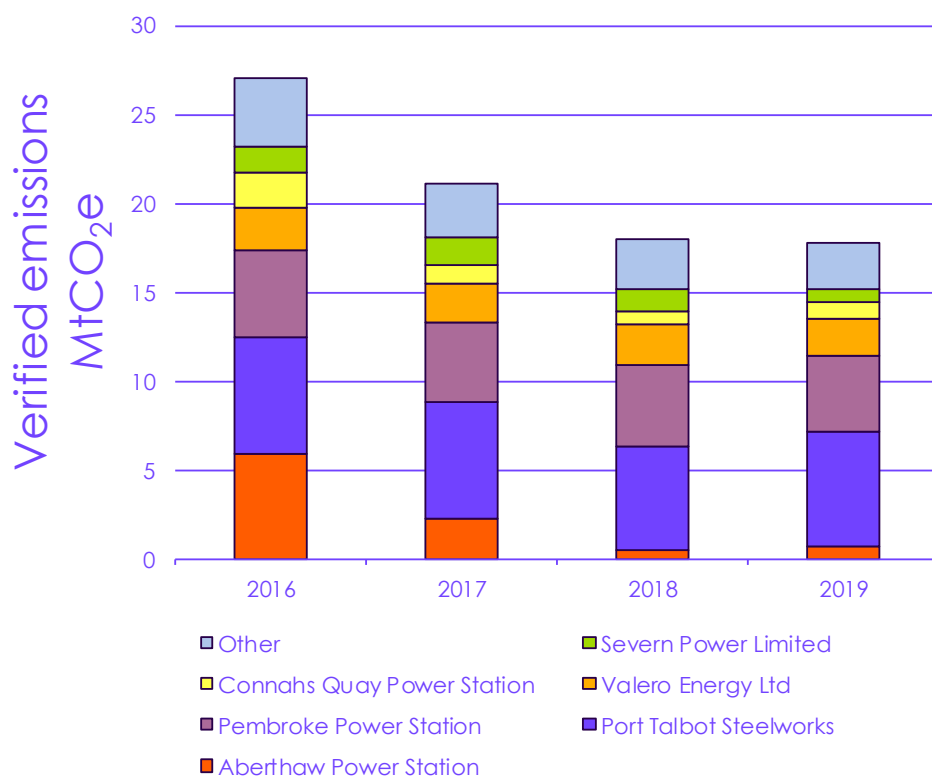
Source: Energy Management Register (2020) Degree day data. <http://www.enmanreg.org/freeddd/>

Notes: Heating-degree-days (HDDs) are calculated relative to a 15.5°C baseline temperature. One HDD is the number of degrees deviation from the base temperature of the actual temperature on a given day. This figure compares HDD in winter months to the twenty-year average for that month. Points above the horizontal axis reflect colder than average temperatures and points below indicate higher than average temperatures.

* Heating-degree-days (HDDs) are calculated relative to a baseline temperature, typically 15.5°C, which is the outside temperature above which a building needs no heating. One HDD is the number of degrees Celsius deviation from the base temperature of the actual temperature on a given day.

- **Verified emissions in the EU Emissions Trading System (EU ETS).** While official emissions data for 2019 will not be published until 2021, we can draw on verified emissions data from the EU ETS to track progress in Wales' power stations and heavy industry. In 2019, emissions in the traded sectors in Wales remained comparable to 2018 levels (Figure 2.5).

Figure 2.5 Verified emissions data for the EU ETS show similar emissions in Wales in 2019 to 2018



Source: EEA (2020) EU Emissions Trading System (ETS) data.
Notes: Based on all installations with code UK-W.

- **The impacts of COVID-19 on emissions in 2020.** Reduced energy demands during the lockdown are expected to cause a record fall in global emissions in 2020. These impacts are likely to be transient, reversing as the global economy reopens and with only a negligible impact on global warming.
 - The full impact on Welsh greenhouse gas emissions is also unclear at this stage – and will depend on the rate at which the economy is able to reopen safely. It is already clear, however, that the lockdown will cause a substantial fall in emissions in 2020.
 - In a mid-case estimate, daily CO₂ emissions for the whole of the UK were around 30% lower than mean 2019 levels during the peak of the lockdown in April and May 2020 (although reductions in UK aviation travel are less significant for Wales than for the rest of the UK). The local and national lockdowns that were introduced in Wales in the second half of 2020 will suppress emissions further, mainly through a drop in road and public transport usage.

4. Meeting the first Welsh Carbon Budget

On the current inventory basis, average emissions for the period 2016 to 2018 were 23% below the 1990 baseline – already in line with the average reduction required to meet the budget. Wales is therefore on track to meet the First Carbon Budget on the current inventory basis, as long as emissions do not increase in 2019 and 2020.

Until emissions data are published in 2021 and 2022, we do not have an accurate estimate of what happened to emissions Wales in 2019 and 2020.

However, taking an assumption where emissions in 2019 are held constant at 2018 levels – which is supported by ETS data for 2019 (Figure 2.5) – and assuming a 5% fall in emissions in 2020 due to the COVID-19 lockdown would mean the First Carbon Budget is met on the existing inventory basis (Table 2.2).*

1990 baseline	Average emissions 2016-2018	Emissions in 2019 (held at 2018 levels)	Emissions 2020 (5% fall from 2018 levels)	Average emissions 2016-2020
56.4 MtCO _{2e}	43.4 MtCO _{2e} (average 23% reduction)	38.9 MtCO _{2e} (31% reduction in 2019)	36.9 MtCO _{2e} (35% reduction in 2020)	41.2 MtCO _{2e} (average 27% reduction)

There is no provision in Welsh climate legislation for how performance towards carbon budgets is measured.

The targets that were recommended by the Committee in 2017 – and the new targets recommended in the Advice Report – are set on the basis that they are evaluated at the end of the budget period, when all emissions data are available. The emissions statistics published in 2022 will be the first inventory that covers the entire budget period from 2016 to 2020. We therefore assume that performance towards meeting the First Carbon Budget is evaluated based on the emissions data as published in that inventory.

This raises the possibility that changes to the inventory before 2022 could affect budget performance. On the basis of the assumptions in Table 2.3, the risk is very low that the First Carbon Budget is not met due to changes in the methodology for peatlands and/or global warming potentials (Box 2.1), regardless of UK Government decisions on which precise methodology is used and when the changes are implemented.

* This is a 'what-if' analysis, not a prediction of what actual emissions in 2019 and 2020 were.

Peatland emissions. Depending on the methodology selected, there is a range of possible increases to total Welsh emissions that accounting for all peatland emissions could cause. A UK decision on the methodology used is expected before 2022 and may affect the First Carbon Budget:

- **'Higher' peatland.** The high range of emissions from peatland could add around 0.5 MtCO_{2e} to the inventory, and it would also increase the 1990 baseline by 0.5 MtCO_{2e}. This is the basis upon which targets in the Advice Report are recommended.
- **'Lower' peatland.** The lower range of emissions from peatland could add around 0.4 MtCO_{2e} to the inventory, and it would also increase the 1990 baseline by 0.4 MtCO_{2e}.

Global Warming Potentials (GWPs). The values used for GWPs will be updated to be in line with those used in the IPCC 5th Assessment Report (AR5). There are currently two methodologies for calculating GWPs presented in AR5, and a UK decision on which one will be used in the inventory is expected by 2024 at the latest:

- **'Higher' GWPs.** If the update to the GWPs includes the impact of climate-carbon feedbacks, the estimate of the existing inventory would increase by around 1.9 MtCO_{2e}, while the 1990 baseline would increase by 3.4 MtCO_{2e}. This is almost entirely due to a 36% increase in the estimated global warming impact of methane (CH₄) emissions. This is the basis upon which targets in the Advice Report are recommended.
- **'Lower' GWPs.** If GWPs do not include climate-carbon feedbacks, the Welsh inventory would increase in size but by a smaller amount (+0.5 MtCO_{2e} in 2018). Methane emissions would be 12% more warming than the current estimate, while N₂O emissions would be around 11% lower.

Box 2.1

Sources of uncertainty in the Welsh emissions inventory

Methodology changes to the emissions inventory are designed to increase the transparency, accuracy, consistency, comparability, and completeness of emissions estimates. There are three primary sources of uncertainty in the inventory:

- **Uncertainty in the current GHG inventory.** This comprises the statistical uncertainty in emission factors and activity data used in estimating emissions. It is internal to the inventory, is well quantified and it is possible to formally assess the probability of errors through methods set out in IPCC guidelines. For the 2014 inventory, the uncertainty was estimated as $\pm 3\%$ with 95% confidence for the UK as a whole and also for in Wales.¹³ The uncertainty is concentrated in sectors involving complex biological processes or diffuse sources such as waste, agriculture and land use, land-use change and forestry (LULUCF).
- **Uncertainty in Global Warming Potentials (GWPs)** assigned to GHGs. GWPs are used to convert emissions from different gases into a single comparable metric (tonnes of CO₂-equivalent, or tCO_{2e}). As agreed internationally, the inventory uses the GWP evaluated over a 100-year time frame (GWP100). There have been multiple changes to the GWP estimates used for CH₄, N₂O and F-gases since the inception of the inventory. Future changes to GWPs will significantly affect emissions as measured in MtCO_{2e}.
- **Scope of the inventory, including peatlands.** Some sources of emissions and activities (e.g. most peatland emissions) are not currently included in the inventory but will be included in the future, thus adding to overall GHG estimates.

Our recommendations in the Advice Report on the Net Zero GHG target in 2050, third carbon budget and interim targets in 2030 and 2040, take these methodological changes into account.

Table 2.3

Possible impact of methodology changes on meeting the First Carbon Budget

		GWPs		
		Current inventory	AR5 without CC feedbacks	AR5 with CC feedbacks (new targets recommended on this basis)
Peatland	Current inventory	27% reduction	27% reduction	28% reduction
	'Low' estimate	27% reduction	27% reduction	28% reduction
	'High' estimate (new targets recommended on this basis)	27% reduction	27% reduction	28% reduction

Notes: The percentages quoted in this table assume that emissions in 2019 are held constant to 2018 levels, and fall by a nominal 5% in 2020. Final emissions data for 2020 will not be published until summer 2022.

5. Progress towards targets beyond 2020

a) Impact of Aberthaw closure on targets before 2025

In our 2017 advice on *Building a Low-Carbon Economy in Wales*, we highlighted the importance of the Aberthaw coal-fired power station for the level of Wales' targets in the 2020s.¹⁴

The levels of the 2020 target and the first two carbon budgets allowed for continued – though declining – generation from Aberthaw. We recommended that if emissions from this station ceased prior to 2025, those targets should be tightened in order to maintain the ambition embodied in the recommended 2020 target and carbon budgets across the rest of the Welsh economy.

Aberthaw closed in March 2020 and emissions had already reduced to very low levels from 2018 (Figure 2.5).

The legislated target for the Second Carbon Budget is for an average emissions reduction of 33% compared to 1990 levels. However, the Second Carbon Budget was set while the date of the closure of Aberthaw was still uncertain; achieving this level of overall reductions without any emissions from Aberthaw would not represent real progress in other sectors.

Even before the new context of Net Zero is taken into consideration, the Committee would have recommended that the budget be tightened to a 37% reduction over the budget period to reflect the early closure of Aberthaw on the basis of our 2017 advice (Table 2.4). Our recommendations on the Second Carbon Budget are set out in the Advice Report that accompanies this Progress Report.

Table 2.4

Impact of Aberthaw closure on the previously-recommended level of the second Carbon Budget

	Legislated target - assuming Aberthaw closure in 2025	Equivalent target adjusted for Aberthaw closure in 2020
2020 target	27% reduction on 1990 levels	32% reduction on 1990 levels
Level of Carbon Budget 2 (average reduction from 1990)	Average 33% reduction on 1990 levels over budget period	Average 37% reduction on 1990 levels over budget period

Source: CCC (2017) *Building a low-carbon economy in Wales*.

b) Underlying progress on the path to an 80% reduction target

More than half (55%) of the fall in emissions in Wales since 2016 has been due to the closure of Aberthaw. Excluding reductions from coal-fired power generation, emissions have fallen by 4% since the start of the First Carbon Budget period. The phase-out of coal-fired power generation is an important step for Wales, but progress must now be extended to other sectors of the economy.

The Committee has not defined a set of underlying indicators specific to Wales to determine whether progress is on track for an 80% reduction.

However, at UK-level, it is clear that the majority of key indicators are not yet for even an 80% reduction (Table 2.5). Many of these indicators are in sectors where key policy levers are mostly reserved, and progress is contingent on UK Government action.

Once new targets have been legislated in Wales, we will develop a new set of indicators to track progress in Wales on the pathway to Net Zero, and report on progress towards those indicators in future.

Meeting even an 80% reduction target requires long-term policies to make structural changes that drive emissions reductions across the Welsh economy. Those underlying changes and policies are not yet in place. At UK level, our most recent Progress Report found that only two of 32 policy milestones were on track. One of these was due to Welsh Government actions in waste policy.

Table 2.5
Assessment of key UK-level indicators from the 2020 UK Progress Report

Sector	Measure	2019 indicator	Actual	Unit	Met?
Surface transport	New car CO ₂ emissions	-3.9%	-3.7% NEDC 0% WLTP	% change from previous year	No
	New van CO ₂ emissions	149.2	165.9	gCO ₂ /km	No
	Electric car registrations	5.3%	3.2% (UK)	Share of new car sales	No
	Biofuel uptake	7.3	4.0	% of UK fuel sales by energy	No
	Vehicle distance driven	560.2	530.6	Billion-kms	Yes
Industry	New indicators for the industry sector will be introduced for the UK next year				
Buildings	Lofts insulated	545,000	27,000	Installations per year	No
	Cavity walls insulated	200,000	41,000	Installations per year	No
	Solid walls Insulated	90,000	11,000	Installations per year	No
	Heat pumps installed	>30,000	26,000	Installations per year	No
	Low-carbon heat	7.0	7.0	% of heat demand	Yes
Power	Grid emissions intensity	314	221	gCO ₂ /kWh	Yes
	Total renewable generation	93	103	TWh	Yes
Agriculture	Non-CO ₂ emissions	36.9	39.7	MtCO ₂ e	No
	Soil emissions	10.2	11.4	MtCO ₂ e	No
	Enteric emissions	20.2	21.2	MtCO ₂ e	No
	Nitrous oxide emissions	13.2	14.3	MtCO ₂ e	No
	Methane emissions	23.7	25.4	MtCO ₂ e	No
Land use & forestry	Afforestation	15,000	13,460	Hectares per year	No
Waste	Landfill emissions	-77	-61	% change vs 2007 levels	No
	Biodegradable waste to landfill	-65	-56	% change vs 2007 levels	No
F-gases	Emissions	-23	-11	% change vs 2007 levels	No

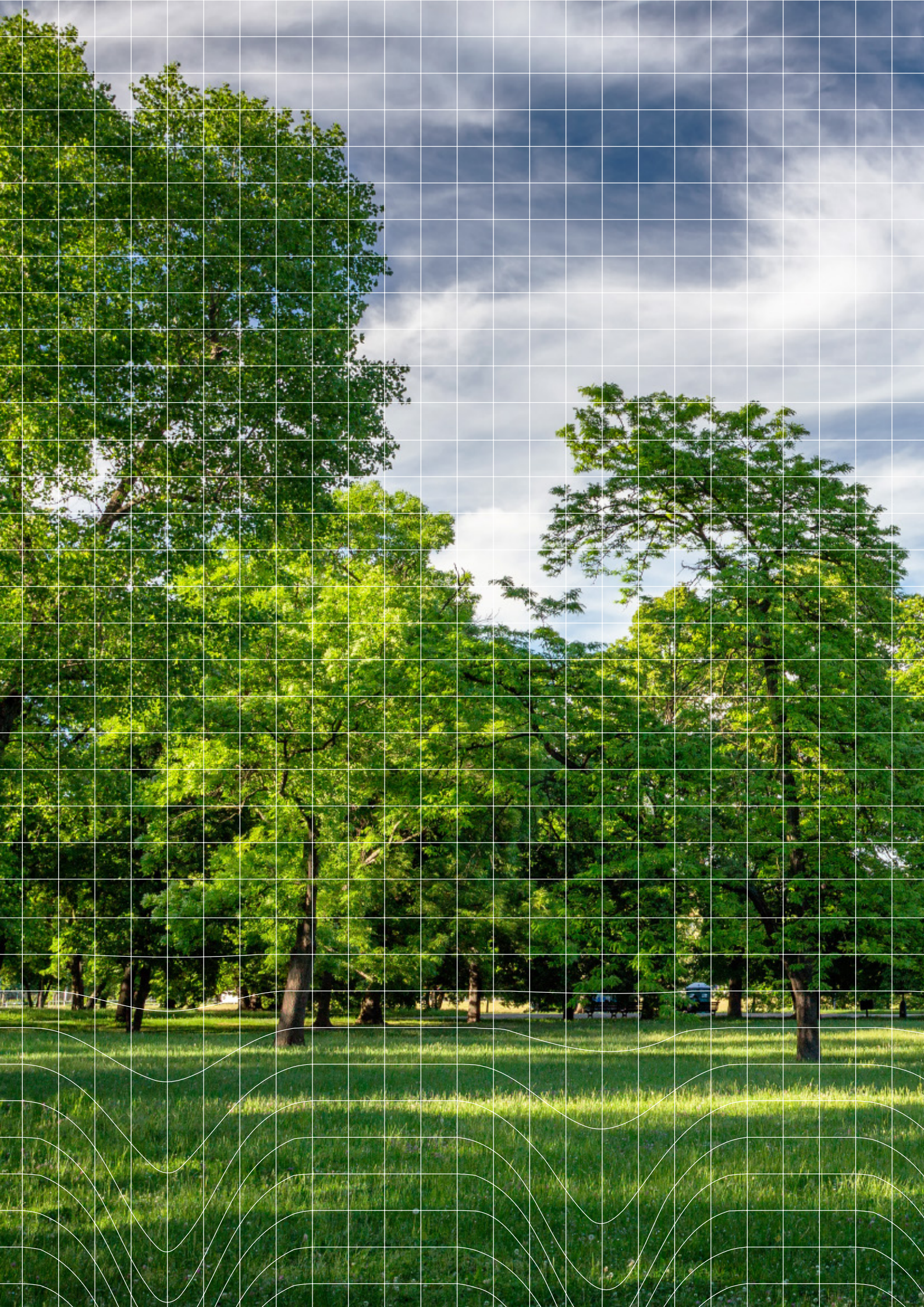
Source: Adapted from CCC (2020) Progress Report to Parliament
Notes: All indicators are UK-level.

Endnotes

- ¹ ONS (2019) *Regional gross domestic product all NUTS level regions*.
- ² Welsh Government (2018) *Energy Generation in Wales*.
- ³ Welsh Government (2018) *Energy Generation in Wales*.
- ⁴ Welsh Government (2018) *Energy Generation in Wales*.
- ⁵ Welsh Government (2019) *Iron and steel production: 2019*.
- ⁶ Welsh Government (2020) *Road traffic: 2019*.
- ⁷ NAEI (2020) *Greenhouse Gas Inventories for England, Scotland, Wales & Northern Ireland: 1990-2019*.
- ⁸ Forest Research (2020) *Forestry Statistics 2020*.
- ⁹ Welsh Government (2019) *Energy Generation in Wales*.
- ¹⁰ Welsh Government (2019) *Welsh Housing Conditions Survey 2017-18: Energy Efficiency in Dwellings*.
- ¹¹ ONS (2020) *Energy efficiency of housing in England and Wales*.
- ¹² NAEI (2020) *Greenhouse Gas Inventories for England, Scotland, Wales & Northern Ireland: 1990-2019*.
- ¹³ CCC (2017) *Quantifying Greenhouse Gas Emissions*.
- ¹⁴ CCC (2017) *Building a low-carbon economy in Wales*.

Policy progress since 2016

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Introduction and key messages

In this chapter, we outline policy developments since the beginning of the First Carbon Budget. Policy progress is discussed sector-by-sector, with reference to the priority policy actions first recommended in our 2017 advice to the Welsh Government.

When the Committee recommended a 95% reduction target for Wales, we emphasised that "clear, stable and well-designed policies to reduce emissions further" must be introduced across the economy without delay.

The Welsh Government has taken the first steps on developing new policies, but there is much more to do. Net Zero will be a very stretching target for Wales, but one that will push it to achieve its ambition and will allow it to align with the UK-wide target.

1. Recommendations from 2017 to meet the 80% target

In our 2017 advice to the Welsh Government, the Committee set out a series of policy recommendations that would align Welsh climate policy with the goal of achieving a 80% reduction in Welsh emissions by 2050. The Welsh Government has since made good progress in some areas (Table 3.1) and has sent clear signals that it is taking its climate commitments seriously. However, a long-term policy plan is not yet in place in Wales even for an 80% target.

The adoption of a Net Zero target will require an even more integrated approach that puts climate mitigation and adaptation at the heart of Welsh Government policy.

Table 3.1
Policy recommendations for an 80% target from the 2017 CCC advice

Area	Summary of recommendation	New actions to date	Progress made?
Buildings standards	Ensure new buildings have a high standard of energy efficiency and are designed for low-carbon heating systems.	Welsh Government consultation on Building regulations Part L in 2020.	Policy in development
Retrofit energy efficiency and low-carbon heat	Funding and 'soft' support for building energy efficiency and low-carbon heat.	No major new policies announced.	No
	Produce a heat decarbonisation strategy for Wales.	No strategy produced.	No
	Use of waste heat from industry. The Welsh Government has a key convening role to bring community and industry stakeholders together to find mutually beneficial solutions.	£16 million of funding for district heating through UK Government Heat Networks Investment Project with additional Welsh Government loan support for Cardiff Bay scheme.	Yes – but more action is needed to get on track
Demand-side transport policy	Investments in public transport and active travel.	Active Travel Fund introduced. Additional support for bus services during COVID-19 pandemic.	Yes – but more action is needed to get on track
	Supporting uptake of ultra-low-emission vehicles.	Additional financial support for electric vehicle infrastructure.	Yes – but more action will be needed to get on track
Agriculture	Implement policies to reduce emissions that move beyond the current voluntary approach and replace the Common Agricultural Policy with a framework that links support to measures aimed at emissions reduction and removals.	Post-CAP framework is currently being developed, with a focus on the provision of 'public money for public goods.'	Policy in development
Forestry	Simplify and streamline the process for supporting tree planting in order to meet ambitious targets.	Welsh Government has reduced its planting targets and fewer than 250 hectares were planted in 2018.	No
Electricity generation	Support renewable electricity generation in Wales.	Introduced renewable energy targets in 2017. Planning Policy Wales supports renewable energy projects. Welsh Government has consistently supported major low-carbon generation projects in Wales including tidal and nuclear.	Yes – but progress is most dependent on UK Government action
Procurement	Use procurement rules to help drive emissions reductions in a number of areas (e.g. uptake of ultra-low-emission vehicles, low-carbon products).	Developed a decarbonisation dashboard to measure emissions across the Welsh public sector and identify high priority areas for intervention. Work is ongoing on a 'Decarbonisation through Procurement' toolkit which will comprise guidance, training and tools for public sector bodies to utilise.	Policy in development
Planning	Planning policy should be aligned to emissions reduction in Wales, for example through encouraging walking, cycling and use of public transport, and ensuring readiness for or installation of electric vehicle charging points in new developments.	Planning Policy Wales in 2018 included policies for active travel, ultra-low emission vehicles, renewable energy developments including low-carbon heat, and restricting fossil fuel extraction and use.	Yes, new policy in place

2. Economy-wide policy

a) Wales' low-carbon delivery plan

In 2019, the Welsh Government published *Prosperity for All: A Low Carbon Wales*, its plan for delivering the changes needed for the Welsh economy to transition to an 80% reduction of emissions by 2050.¹

The plan set out the vision, context, methodological approach and sectoral landscapes, and suggested the most important policy steps to be taken in the next years.

The delivery plan used the Committee's analysis from our 2017 advice to present a trajectory to 2050. The Plan provided a breakdown of economic sector pathways and how the Welsh Government would achieve emissions reductions in each one, using the analysis provided by the Committee in our 2017 Advice Report.

It also emphasised the importance of leadership and integration in implementing climate policy, and brought together key strategic policies across the economy, either planned or already in existence, to see how they would feed into emissions reductions and examine areas of co-benefits. The Plan also committed to the development of a monitoring and reporting system to track progress, and integrated decarbonisation into Wales' Prosperity for All strategy.

The next Low Carbon Plan is due to be published in 2021, and if the Welsh Government adopts a Net Zero target, it will need to reflect that through more ambitious plans, greater integration and synergies between policies, and progress in implementing planned policy and delivering results. It should also provide guidance on and precede a developed monitoring system.

b) Engaging the public and embedding climate action into all Welsh Government decisions

Getting to Net Zero will not only require targets and sector-specific policies from the UK and Welsh Government. Reducing emissions and adapting to a changing climate should be a consideration of every relevant policy decision from the Welsh Government.

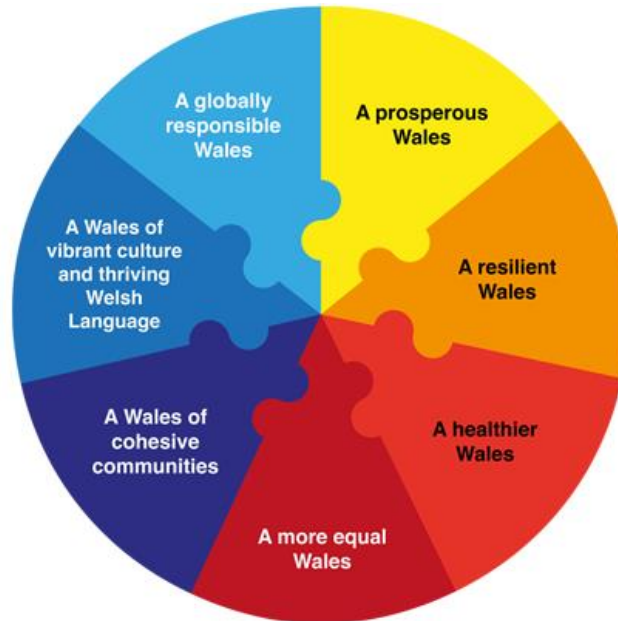
The Well-Being of Future Generations Act is an important policy instrument in Wales that can help to embed climate objectives (Box 3.1):

- We set out in the Advice Report how a just transition to Net Zero and adapting to climate change is consistent with Wales' well-being goals.
- The Future Generations Commissioner for Wales has an important advisory role to play in Wales. In June 2019 the Commissioner published a White Paper which identified ten areas for investment where action needs to be prioritised and scaled up to meet the "climate emergency" challenge.²

Box 3.1

Wales' Future Generations Act

The Well-Being of Future Generations (Wales) Act 2015 puts in place seven well-being goals, which should guide public sector bodies in their decision making (Figure B3.1). They are not to be taken individually but as a holistic set of goals that all public sector bodies should work towards achieving.



Source: Future Generations Commissioner for Wales

Public engagement will be instrumental in giving Welsh citizens a sense of ownership of and participation in designing climate policy that benefits everyone. Working with the private sector to offer certainty and mobilise private investment can also be decisive across crucial areas, from developing renewable capacity to transitioning to electric vehicles:

- **Wider engagement** around the need for climate action will be essential in reaching Wales' climate objective, including public information about how to reduce emissions and involvement in decisions on how best to achieve a transition.
 - The UK's Climate Assembly that was convened by the UK Parliament has been a welcome step towards understanding public attitudes to achieving Net Zero (Box 3.2).
 - The Welsh Government has not summoned a Climate Assembly, but it can apply the lessons learned from the UK Climate Assembly. Any programme to engage with citizens and understand the considerations in Wales that are distinct and different from the rest of the UK would be welcomed by the Committee.
- **Planning for a just transition.** Investing in green jobs, safeguarding livelihoods, and ensuring the costs and benefits of decarbonisation are distributed fairly are crucial aspects of the transition to Net Zero.

- Areas of particular concern in Wales are the decarbonisation of heavy industry and reducing emissions from agriculture. The Welsh Government's commitment to a Climate Just advisory group is an important first step, while the HM Treasury Net Zero review will have important implications for people in Wales.
 - Lessons can be learned from Scotland's Just Transition Commission, which identified the key elements of an effective just transition strategy for Scotland, including developing transition plans across the economy, widespread public engagement, fair sharing of costs and support for the vulnerable, starting from today.³
- **Green finance.** The UK Government published its Green Finance Strategy in 2019, as a response to the Green Finance Taskforce. The delivery of the Strategy will be carried out by the Green Finance Institute, which will bring together the public and private sector. The UK Government has made several recent announcements, including the intention to make Task Force on Climate-related Financial Disclosure aligned disclosures mandatory before 2025 as well as the introduction of a sovereign green bond. The Welsh Government has a role to play in supporting Welsh businesses to secure finance from UK-wide initiatives, including the new UK Infrastructure Bank.
 - **Planning policy.** In December 2018, Wales refreshed its National planning policy by revising Planning Policy Wales (PPW),⁴ the guidance for making planning decisions, and preparing to launch *Future Wales: The National Development Framework*, which will set the direction for development until 2040. PPW and Future Wales will take a 'placemaking'⁵ (community-centric) approach, with sustainability as a central consideration. This policy update is also meant to integrate the co-benefits of decarbonisation in planning decisions. A number of mitigation policies will be impacted by PPW and Future Wales, including active travel, extraction of fossil fuels, charging points for electric vehicles, and promoting renewable energy developments.
 - **Low-carbon infrastructure.** In 2018, Wales established the National Infrastructure Commission for Wales to focus on the economic and environmental infrastructure needs of Wales, with an evaluation approach based on the Future Generations Act. The Commission has already published an annual report taking stock of Wales' infrastructure and setting out its focus on decarbonisation, resilience and connectivity, with a major report expected by the end of 2020. The Wales Infrastructure Investment Plan is framed around a low-carbon approach in the decision making on economic, social, environmental and social infrastructure.
 - **Local government.** The 22 Local Authorities in Wales have a duty under the Future Wellbeing of Generations Act 2015 to place sustainable development at the heart of their work. In 2016 The Welsh Government set out a framework for the decade highlighting the steps that could be taken to do this, such as Public Service Boards including annual reporting by local authorities and partnerships. The majority of these Local Authorities have now also declared climate emergencies and are looking to deliver ambitious climate action in their local areas. Separately, the Welsh Government is developing four regional energy strategies, including an energy vision, energy modelling and an economic assessment identifying regionally relevant opportunities.

Box 3.2

Lessons from Climate Assembly UK

In June 2019, six Select Committees of the House of Commons commissioned a citizens' assembly on climate change. The mission of the assembly was to provide a better understanding of "public preferences on how the UK should tackle climate change because of the impact these decisions will have on people's lives."

Participants convened over six weekends in the period January to May 2020. In September 2020, the assembly published its full report, *The path to net zero*, identified seven recurring themes that the assembly, should constitute principles of the climate policy decision-making process:

- **Education and information** on climate change available to everyone.
- **Fairness** of the solutions, as they affect people working and living in a wide spectrum of conditions.
- **Freedom of choice** wherever and as much as possible, when it comes to solutions.
- **Co-benefits** to help address tangential issues that can benefit from the action to tackle climate change, such as the improvement of health and the reduction of pollution.
- **Nature**, which needs to be restored and accessible to everyone.
- **Strong and clear leadership** from government to forge cross-party consensus and allow for certainty and long-term planning in climate policy.
- **A joined-up approach** across society which will incentivise everyone to play their part, a necessary condition for effective change.

Source: Climate Assembly UK (2020) *The path to net zero: Climate Assembly UK full report*

c) Policies for a 'green recovery'

Measures to reduce greenhouse gas emissions and adapt to climate change can support the recovery from COVID-19. Planning must be reset across the whole of Government:

- In the short term, with the economy operating well below capacity, action by Government must protect workers and businesses, restore confidence, stimulate spending and rebuild a greener economy, particularly for the most affected regions and sectors. These objectives can be strongly complementary to Wales' climate goals and must avoid locking into carbon-intensive activities in the long term.
- For the longer term, Wales must invest in key assets to build capacity and enable productive activity in the future. This means investing in climate-resilient low-carbon infrastructure, job creation in low-carbon and climate-resilient industries, and training and reskilling of the workforce. It also requires investments in building knowledge, and natural, social and institutional capital. Public money should not support industries or infrastructure in a way that is not consistent with a future Net Zero economy or that increase exposure to climate risks.

In April 2020, we wrote to the Prime Minister and the First Minister of Wales advising on why climate change measures should play an integral role in the recovery from the pandemic, and setting out six principles for a resilient recovery:⁶

1. Use climate investments to support the economic recovery and jobs.
2. Lead a shift towards positive long-term behaviours.
3. Tackle the wider 'resilience deficit' on climate change.
4. Embed fairness as a core principle.
5. Ensure the recovery does not 'lock-in' greenhouse gas emissions or increased climate risk.
6. Strengthen incentives to reduce emissions when considering fiscal changes.

The Committee's Costs and Benefits Advisory Group on Net Zero, which reconvened for the UK Progress Report, endorsed those six principles and concluded that "the economic recovery from COVID-19 gives the UK a chance to grow back in a way that is fit for the low-carbon future to which it aspires, and that can benefit from the industrial and economic developments that this future offers."

In Chapter 5 of our 2020 UK Progress Report, we set out further evidence demonstrating that a range of low-carbon and climate adaptation 'green stimulus' measures fulfil both the short-term and long-term requirements of policies to support an economic recovery. We highlighted the clear economic, social, and environmental benefits from immediate expansion of the following measures:

- Investments in low-carbon and climate-resilient infrastructure.
- Support for reskilling, retraining and research for a Net Zero, climate-resilient economy.
- Upgrades to our homes and other buildings ensuring they are fit for the future.
- Action to make it easy for people to walk, cycle, and work remotely.
- Tree planting, peatland restoration, green spaces and other green infrastructure.

The Welsh Government is already taking steps towards integrating these principles in its policy plans:

- The Counsel General has convened several **roundtables** and an **advisory group** to advise Ministers on the priority areas for a post-pandemic recovery. The group provides independent expert advice on how services such as the NHS, schools and transport can operate in a post-COVID world, and includes two members of the Climate Change Committee.
- The Committee welcomes the focus on decarbonisation within the Welsh Government's list of policy priorities published in October 2020. The *Challenges and Priorities* report takes into account the unequal distributional impacts of the pandemic, and sets out the Welsh Government's short- and long-term priorities to address them.⁷ It links the post-COVID-19 reconstruction to the Well-being of Future Generations Act, particularly on the provisions on prosperity, equality, and a greener Wales. The biggest priorities identified by the Welsh Government include:

- **Economic.** This includes the reduction of unemployment caused by the response to the pandemic, increasing investment in town centres to build resilient communities, and supporting businesses long-term to decarbonise and offer fair work.
- **Environmental.** Using the pandemic recovery to integrate decarbonisation in the economy and ensure low-emissions post-recovery, increasing the availability of and access to low-carbon housing, reforming transport to be more responsive to demand, and strengthening the resilience and adaptation of communities to climate change.
- **Social.** Making sure that younger generations are not unfairly and disproportionately affected due to a loss in education and economic opportunities, supporting the NHS to make up for lost treatment due to coronavirus, and restructuring further and higher education to emphasise vocational and flexible learning opportunities.

3. Electricity supply

The electricity supply sector has driven the majority of decarbonisation in Wales in the last five years. A significant amount of the UK's fossil fuel generation capacity is located in Wales, and the Welsh Government has limited policy levers it can apply to the sector without support from the UK Government.

The Welsh Government has taken some steps to support the move away from fossil-fuelled generation and towards low-carbon sources:

- **Planning and consenting.** The Welsh Government's permitting powers were expanded through Planning Policy Wales (PPW) in 2019, giving the Welsh Government increased decision-making powers for infrastructure planning, including power stations. The Welsh Government intends to use PPW and the National Development Framework to implement a combination of policies to limit fossil fuel generation and incentivise low-carbon generation and innovation in the power sector.
- **The closure of Aberthaw** in March 2020 was an important milestone for Wales. In 2019, the Welsh Government stated that it intends to develop a policy to reduce the combustion of fossil fuels for power, but this is yet to be published. The transition away from fossil-fired power in Wales will require policies to deliver a just transition, including creation of new jobs in low-carbon industries.
- **Targets for renewable generation.** The Welsh Government has set a target for renewable electricity to meet 70% of electricity consumption by 2030, but the rate of building up renewables generation capacity has slowed since 2015, with only 126 MW of capacity installed in 2018 compared to more than 900 MW in 2015. Around half (51%) of gross Welsh electricity consumption was met by renewables in 2019.
- **Emissions trading.** Wales has seven major power stations covered by the EU Emissions Trading System. Beyond 2020, Wales will be reliant on the UK-level policy that replaces the EU ETS. The Welsh Government has jointly consulted on a UK-wide Emissions Trading Scheme with the rest of the UK.
- **Support for low-carbon generation** projects in Wales including nuclear and marine energy.

Success in this sector is contingent on the UK Government action to capitalise on progress made in the last decade. The UK and Welsh Governments must work together closely to achieve the full decarbonisation of the sector in line with UK and Welsh emissions targets, and providing the platform for decarbonisation of other sectors through electrification.

4. Manufacturing, construction and fuel supply

In the 2020 Wales Advice Report, and in our advice on the Sixth Carbon Budget, the Committee has elected to break down the 'Industry' sector into 'Manufacturing & Construction' and 'Fuel Supply' to provide a clearer distinction of the activities taking place and the rate at which different industrial activities will decarbonise.

Manufacturing, construction and fossil fuel supply all make up a considerable share of Welsh emissions, and are concentrated in the South Wales cluster.

The Welsh Government has limited powers on industrial policy, but has made some progress:

- **The South Wales Industry Cluster** has been established with grant funding from UK Research and Innovation (UKRI) and the support of the Welsh Government. The project brings together different sectors in South Wales, including oil refining, paper, nickel, insulation, chemicals, LNG import, coin production, general manufacturing, steel and cement. The group aims to identify the best options for decarbonisation in South Wales and identify shared infrastructure needs, including hydrogen, large-scale carbon capture, use and storage (CCUS) and CO₂ transportation, as well as onsite opportunities specific to each industry.
- **Wales' planning policy** is designed to help Wales reduce carbon emissions from fuel supply and in manufacturing through restricting extraction and use of fossil fuels by placing them at the bottom of the 'energy hierarchy'.
- New powers were devolved for the **licencing of onshore oil and gas extraction** in the Wales Act 2017. Welsh Government policy for petroleum extraction is to not undertake any new petroleum licensing in Wales or support fracking.
- **Draft coal policy**. The Welsh Government has consulted on a draft coal policy which would end new licences or extensions for coal extraction, and not permit new coal mines to open for power production. Coal production in Wales dropped significantly from 2.4 Mt in 2016 to 1.1 Mt in 2018.

Despite Welsh Government progress in areas where powers are devolved, a coherent long-term strategy for industrial decarbonisation is needed across the UK to drive change in manufacturing at the required scale and pace alongside a strengthening of UK competitiveness.

5. Surface transport

Most demand-side transport levers are devolved in Wales. Despite multiple policy strategies in the last decade – particularly around active travel – very little progress has been made to date in reducing transport emissions in Wales.

The pandemic has increased attention on the transport sector and the need to make low-carbon modes of transport the default option for journeys in Wales. The Committee welcomes the recent publication of Wales' draft transport strategy which places a central focus on decreasing emissions from transport:

- **Wales Transport Strategy: Llwybr Newydd – New Path.**⁸ In November 2020, the Welsh Government launched a consultation on a draft transport strategy for the next twenty years. The strategy sets out a range of new ambitions to reshape transport in Wales, including a new sustainable transport hierarchy that should help shape investments towards greener travel options. It identifies a set of 'five-year priorities' to tackle the most urgent issues in Wales:
 - **Planning for better connectivity.** Planning ahead for better physical and digital connectivity, more local services, more home and remote working and more active travel.
 - **Public transport services.** Maintaining and increasing financial support for public transport and improving services.
 - **Safe, accessible, well-maintained transport infrastructure** including the provision of infrastructure to support active travel and electric vehicle charging.
 - **Making sustainable transport more attractive and affordable.** Support for incentive schemes that encourage walking, cycling and public transport, public engagement and the provision of better information.
 - **Support innovations that deliver more sustainable choices.** Support for digital, technological and operational innovations that help more people and businesses adopt more sustainable transport choices.
- **Active travel.** The Welsh Government introduced the Active Travel (Wales) Act 2013, the first of the UK nations to do so. Along with the school-targeting programme Active Journeys, the Act aims at promoting behaviour change to increase levels of cycling and walking. The Act placed a legal requirement on local authorities to continuously improve walking and cycling routes and to remove any barriers to their use. However, the Act has been criticised for failing to increase cycling and walking as modes of transport, attributed to a lack of leadership and insufficient funding.⁹ The last annual report monitoring the implementation of the Act was published in 2017.
- **Low emissions vehicles.** Wales has set a target of a zero-emissions taxi, bus and private hire fleet by 2028. The Welsh Government will need to work closely with the UK Government to implement the Road to Zero strategy and ensure the transition to electric vehicles by the early 2030s works for all road users in Wales.

- **Public transport.** In 2019, the Welsh Government introduced the Public Transport (Wales) Bill. Wales has pledged widespread improvements of its local and regional transport systems, including a reform of its bus network, and the Bill is meant to provide local authorities with the planning tools to deliver these plans. Through the Local Transport Fund, the Welsh Government has awarded £60 million to local public transport infrastructure schemes between 2017 and 2020.
- **Railway network improvement.** In 2018, the UK Government announced a £2 billion investment in Network Rail Wales and Borders, in addition to the Welsh Government's £5 billion investment programme to modernise and increase the use of the railway network, and roll out new services. The investment was to be delivered through Transport for Wales. Following a drop in passenger numbers due to COVID-19, the Welsh Government has nationalised its rail network – it is unclear how this will impact services and plans for future investment in rail.

6. Residential and non-residential buildings

Heat policy – excluding policies involving the gas grid and the existing GB-wide Renewable Heat Incentive scheme – was devolved to the Welsh Government as part of the Wales Act 2017, while policies to promote energy efficiency in Welsh homes and non-residential buildings are devolved.

This, combined with the expansion of the Welsh Government's permitting powers through Planning Policy Wales, will play an important role in the future of heat policy in Wales.

- **The Renewable Heat Incentive (RHI).** Wales has participated in the GB-wide RHI scheme since it opened in 2011 for non-domestic buildings and 2014 for homes. The policy has not successfully delivered an increase in the number of heat pumps sold in Wales that is consistent with achieving Net Zero – with fewer than 10,000 heat pumps installed in total in Wales. The RHI scheme will close for new domestic installations in 2022 and the Welsh Government will choose whether they continue to participate in a shared scheme with England.
- **Future support for low-carbon heat.** The UK Government consultation on low-carbon heat covered support for households and businesses in Wales. The Welsh Government has stated their preference that the design of the proposed Clean Heat Grant scheme can be used in Wales in conjunction with existing Welsh Government programmes.¹⁰
- **Warm Homes Programme.** Wales has continued to support households in fuel poverty for energy efficiency retrofits through the programme, which is demand-led.
- **Energy performance of homes.** The UK Government has recently announced a consultation to bring forward the target date, from 2030 to 2028, for privately rented homes to achieve EPC Band C across England and Wales. The consultation will close in December 2020, with plans for regulations to amend the private rented sector regulations to follow in the autumn of 2021.
- **New-build standards.** The Welsh Government has consulted on Building Regulations Part L to raise energy efficiency standards for new-build homes.
- **Rented commercial and public buildings.** Existing regulations require all privately rented properties in England and Wales to be at least EPC E by April 2023. In October 2019 the UK Government published proposals for all non-residential private-rented buildings in England and Wales to meet EPC B by April 2030 where cost-effective, based on meeting a seven-year payback test.
- **The Heat Networks Innovation Programme (HNIP).** The £320m programme is designed to increase heat network capacity across England and Wales. Two schemes in Wales have received funding, and the Welsh Government has provided additional loan funding to one HNIP project in Cardiff Bay.
- **Behavioural change** is also part of the approach of reducing energy demand for heating: the Welsh Government will include low-carbon heat considerations in administering the Help to Buy scheme and the Smart Flexible and Digitalised System.

Despite policy progress in several areas, there is no coherent, long-term strategy for heat and energy efficiency in Wales' homes and other buildings. Much of this will be contingent on decisions in the forthcoming UK Heat and Buildings Strategy, particularly the future of the gas grid in Wales.

7. Agriculture and land use, land-use change and forestry

In the past decade, policy to reduce emissions from agriculture in Wales has been dominated by a voluntary approach, focused on supplying advice and information. The sector has relied upon money provided under agri-environmental schemes covered under the EU's Common Agricultural Policy for funding many activities, including afforestation.

Agriculture emissions have not fallen under the voluntary approach, while tree-planting rates have remained low. Wales' departure from the Common Agricultural Policy represents an opportunity to introduce a new rural support scheme that is consistent with its climate goals.

A priority in Wales must be for an investable and long-term policy that works for land managers, incentivises tree planting, and ensures the social and cultural benefits of farming are maintained.

Since 2016 the Welsh Government has taken the following steps towards a post-EU policy framework for agriculture:

- **Developing a rural support scheme to replace the Common Agriculture Policy.** The Welsh Government plans to introduce a Wales (Agriculture) Bill this Assembly term. Certain aspects of the UK Agriculture Bill – such as Direct Payments rules – apply to Wales, but this is intended to be a temporary measure.¹¹
- **Sustainable Farming Scheme.** In 2019, the Welsh Government ran a consultation on developing a scheme to offer support and reward farmers that operate sustainable farming systems and deliver wider environmental and social benefits, per the Future Generations Act. The scheme would be linked to delivering Sustainable Land Management outcomes, which the Welsh Government is pursuing as an objective.
- **Improving the efficiency of livestock production.** The Welsh Government has a number of programmes in place that aim at optimising livestock production without increasing animal numbers or intensifying farming. The focus is on sustainable food production, and programmes cover a wide range, from genetic research (Red Meat Development Programme) to business support for farming optimisation (Farming Connect Programme).
- Better **management of crops and nutrients** can reduce emissions with the co-benefit of improving water and air quality. Funding for soil management is covered by a number of multi-purpose (Farming Connect, Farm Business Grant, Sustainable Production Grant) and specialised programmes (Nitrate Vulnerable Zones).
- Reducing emissions through **increasing energy efficiency in farms and farm fuel.** Support and funding are provided as part of wider improvement programmes (Farming Connect, Farm Business Grant, Zero Waste strategy, Sustainable Production Grant).

As a carbon sink, LULUCF in Wales has been providing a net reduction of emissions, but the sector includes both sinks and sources of emissions. Forestry is a key area of focus, and afforestation has proven particularly challenging for Wales over recent years.

Soil and peatland management also provide an important contribution that is likely to become more visible after methodological changes to the emissions inventory are introduced.

- **Tree-planting strategy.** Wales has reduced its tree-planting target from 5,000 hectares per year to '2,000 hectares a year, rising to 4,000 as rapidly as possible'. A new strategy has not yet been introduced, but the Welsh Government has stated it must overcome barriers to planting, both real and perceived. This increase in tree planting must take place while ensuring that biodiversity is maintained and enhanced.
- **Peatland restoration.** Restoration of peatlands can contribute to greenhouse gas reductions in Wales. Wales only contains around 3% of all UK peatland area, so the potential for emissions savings is relatively small compared to other parts of the UK. There are clear co-benefits for peatland restoration in addition to the greenhouse gas benefits. The Welsh Government has a policy to bring semi-natural peatlands into sustainable management, but the majority of Wales' peatland emissions are associated with peatlands under grassland and arable land use and therefore not covered by this policy.

8. Aviation and shipping

Under the Climate Change (International Aviation and International Shipping) (Wales) Regulations 2018, international aviation and shipping emissions are now subject to the overall targets set out in the 2016 Environment (Wales) Act.

Although aviation and shipping are not large sources of emissions in Wales, the sectors are generally harder-to-treat, and they are characterised by a lack of specific targets and policies to achieve them.

- **Jet Zero and greener maritime.** At a UK level, shipping and aviation were included in the Ten Point Plan presented by the Prime Minister in November 2020. Through the Plan, the UK Government pledged to support research projects for zero-emission planes and ships, including a £15 million competition for sustainable aviation fuel, and £20 million for a Clean Maritime Demonstration Programme.
- **Cardiff airport.** The Welsh Government acquired Cardiff airport in 2013, following a decline in customer numbers. The acquisition added important infrastructure to the Welsh Government portfolio and made the airport subject to the 2016 Environment Act emissions targets. Emissions from energy use in the airport terminal and ground operations have fallen by 53% since 2015, but other than air traffic improvements, there are no specific policies targeting airline jet fuel emissions.¹² However, the emissions reduction at the airport does not cover emissions from the airlines using it, leaving an important policy gap.
- **The Welsh National Marine Plan** was subject to formal consultation and is expected to set out Welsh Ministers' approach to the sustainable development of Wales' seas. As the Plan incorporates considerations for the management of marine natural resources and environmental protection, it will affect shipping and port infrastructure decisions.

9. Waste

Wales is leading the UK on waste policy, with substantial reductions in emissions to date, and policies in place that will continue to reduce them.

In December 2019, the Welsh Government consulted on a new circular economy strategy '*Beyond Recycling*'.¹³ This contains a number of ambitious near-term and longer-term targets:

- A 'zero waste' goal for 2050, aiming to phase out residual waste to landfill and incineration (an effective 100% recycling rate from all sectors).
- Development of minimum preparation for re-use targets for local authorities, and prioritisation of re-used and remanufactured content in the goods that the public sector procures.
- A 50% reduction in food waste by 2025, against a 2006-07 baseline, and looking to go further after 2025.
- 70% recycling of all waste by 2025, as well as statutory local authority recycling targets at the same level. A £6.5 million fund is available for local authorities and public bodies to increase their recycling rates. Improved waste collections for Welsh businesses are also being implemented,¹⁴ with bans on the landfilling or incineration of specified separately collected recyclable materials.

Wales' current '*Towards Zero Waste*' strategy from 2010 has similar recycling targets, along with targets for <10% of municipal waste to be landfilled by 2020, and <5% by 2025.¹⁵ These existing targets may be built on or superseded by other metrics when Wales' final circular economy strategy is published. Wales' Landfill Allowance Scheme, which focused on reducing landfill of biodegradable municipal waste, also ended in March 2020. New policy may be required to further reduce biodegradable waste sent to landfill.

However, overall, Wales' waste policy and long-term targets are ambitious and – if delivered successfully – would put Wales on track to substantially reduce emissions from this sector.

10. F-gases

EU regulations on the use of F-gases will no longer apply from 1 January 2021, but most of their requirements will be transferred into UK law through the Ozone-Depleting Substances and Fluorinated Greenhouse Gases (Amendment etc.) (EU Exit) Regulations, a GB-wide instrument.

The Regulations will follow the EU schedule to ban the most harmful F-gases and phase out the use of HFCs by 79% by 2030 (with 2009 or 2012 as the baseline year).

The implementation of the Regulations in Wales will be carried out either by the Environment Agency, if it receives the direction of the Welsh Government, or by Natural Resources Wales, the principal Welsh environmental regulator.

Endnotes

- ¹ Welsh Government (2019) *Prosperity for All: A Low Carbon Wales*.
- ² Future Generations Commissioner for Wales (2019) *10 point plan to fund Wales' climate emergency*.
- ³ Just Transition Commission (2020) *Interim Report*.
- ⁴ Welsh Government (2018) *Planning Policy Wales*.
- ⁵ Welsh Government (2019) *Prosperity for All: A Low Carbon Wales*.
- ⁶ Committee on Climate Change (2020) *Letter to the Prime Minister: Building a resilient recovery from the COVID-19 crisis*.
- ⁷ Welsh Government (2020) *COVID-19 reconstruction: challenges and priorities*.
- ⁸ Welsh Government (2020) *Llwybr Newydd: a new Wales transport strategy*.
- ⁹ National Assembly for Wales Economy, Infrastructure and Skills Committee (2018) *Post-Legislative Scrutiny of the Active Travel (Wales) Act 2013*.
- ¹⁰ Welsh Government (2020) Letter from Lesley Griffiths AC/AM to Rt Hon Kwasi Kwarteng MP: Response to consultation on future support for low carbon heat.
- ¹¹ House of Commons Library (2020) Briefing paper: *The Agriculture Bill 2019-2021*.
- ¹² BusinessLive (2019) *Cardiff Airport sees a big fall in its carbon emissions*.
- ¹³ Welsh Government (2019) *Beyond Recycling*.
- ¹⁴ Welsh Government (2019) *Increasing Business Recycling in Wales: Consultation Document*.
- ¹⁵ Welsh Government (2010) *Towards Zero Waste, One Wales: One Planet*.

Policy priorities for Net Zero

1. Policy priorities for Net Zero

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1. Policy priorities for Net Zero

The Committee is required to provide advice on policies to meet the existing legislated climate targets as part of this Progress Report. In this Chapter, we summarise the key policy recommendations from our Advice Report for Wales to get on track for Net Zero. Any policies that are appropriate for Net Zero are – by definition – capable of delivering an 80% reduction in emissions in Wales by 2050.

The next year will be crucial for policy in Wales. In our Advice Report, we have recommended that Wales set a Net Zero target for 2050. This, along with COP26 hosted in November 2021 by the UK, provides a window to address policy deficits and establish a credible position of international leadership. Key elements of an ambitious Net Zero policy package should be put in place in the coming year.

A green recovery from the impact of COVID-19 will be central to this effort. As Wales takes steps to recover from the most immediate impacts of the pandemic, we can now also begin to assess the extent to which our advice on a resilient recovery has been taken into account.

UK Government policy will also play a crucial role in driving decarbonisation in Wales. Our most recent assessment of UK policy actions is set out in our 2020 Progress Report to Parliament.

Our full advice on policies for a Net Zero Wales is set out in the Advice Report. The following sections summarise the Committee's recommendations for Wales:

- 1. Legislate ambitious targets for a whole-economy transition to Net Zero by 2050.** The shift from a target of 80% reduction to Net Zero will require significant effort from all sectors of the Welsh economy. Legislating a set of ambitious long-term targets for Wales is the first step, providing a clear signal to Welsh people and businesses. Policies must then be implemented to target all sectors of the economy.
- 2. The full range of devolved and reserved policy levers must be used together.** Delivering the transition in Wales will require effective collaboration between the Welsh and UK governments, and a strong policy framework that works across all levels of government. The UK cannot achieve Net Zero in 2050 without strong policy from Wales across key areas – including planning, agriculture, land use, housing regulations, and local government – and the Welsh Government cannot meet its target without the right policy and financial commitments from Westminster.
- 3. Net Zero and adaptation are the responsibility of all ministers, directorates and public bodies.** Historically, climate action has been led by the parts of government which deal with energy and the environment. Increasingly, action on reducing emissions to Net Zero and ensuring policies are resilient to climate change will need to be led by all directorates and driven from the centre of government.
- 4. Support a resilient recovery from COVID-19.** There is evidence that a range of low-carbon and climate adaptation 'green stimulus' measures fulfil both the short-term and long-term requirements of policies to support an economic recovery from COVID-19, while also building resilience to climate change and driving the transition to Net Zero.

- 5. Deliver a just transition for Future Generations.** Climate policies that fail to consider the need for a just transition and the fair distribution of costs in their formulation, announcement and delivery, risk being derailed due to public concern over regressive impacts (either real or perceived).

An integrated and ambitious plan is required to ensure co-ordinated progress across all areas, and by all parties, to set up Wales for the next decade of delivery of climate ambition. The strategic priorities for the Welsh Government are:

- A **coherent long-term strategy for the future of low-carbon heat and energy efficiency** in Wales' homes and other buildings. This will be highly contingent on UK Government decisions such as the future of the gas grid and energy taxation and pricing.
- A new **rural support scheme** that will drive deep emissions reductions in the agriculture sector while supporting forestry.
- A **final Transport Strategy** for Wales that makes it easy to walk, cycle and use public transport and ensuring that the transition to electric vehicles works for all Welsh road users.
- Lead a strong cross-government **response to the most urgent national risks set out in the third UK Climate Change Risk Assessment.**
- **Accelerate investments in low-carbon and climate adaptation infrastructure** where possible, to stimulate Wales' economy, build long-term productive capacity and improve climate resilience.
- **Engage with people and businesses in Wales** – building on the insights the Future Generations Commission and Climate Assembly UK – to develop skills for the Net Zero transition, help people understand what the transition means for their lives, and make it easy to make low-carbon choices.

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Progress Report: Reducing emissions in Wales

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