The Path to Net Zero in Wales

Advice on Wales climate targets
Our approach
Our approach
A balanced pathway to keep options open

Further behaviour change

Widespread Engagement

Headwinds

Widespread innovation

High behaviour change

High innovation

Further innovation
Our approach
A balanced pathway to keep options open
Our approach
A balanced pathway to keep options open

- Further behaviour change
- High behaviour change

- Widespread Engagement
- Tailwinds

- Headwinds
- Widespread innovation

Balanced Net Zero Pathway
Our recommended pathways
Our recommended path for Wales
The recommended 2050 target and interim targets

- Emissions vs 1990
- First Carbon Budget
- Second Carbon Budget (current legislation)
- Second Carbon Budget (recommended)
- Third Carbon Budget
- Range of scenarios beyond 2030
- Historical emissions
- The Balanced Net Zero Pathway
- Balanced Net Zero Pathway without greenhouse gas removals

Source: CCC Analysis
Our recommended path for Wales

Scenarios for Wales without engineered removals

Recommendations

- Headwinds
- Widespread Engagement
- Widespread Innovation
- Tailwinds
- Balanced Net Zero Pathway

Source: CCC Analysis
Our recommended path for Wales
A route to Net Zero in Wales

Emissions vs 1990

- 63% reduction
- 89% reduction
- Net Zero
- Historical emissions
- Balanced Net Zero Pathway without greenhouse gas removals
- The Balanced Net Zero Pathway

Source: CCC Analysis
Supporting UK targets and international efforts
Wales supporting the UK’s Sixth Carbon Budget

The recommended Sixth Carbon Budget and the 2030 NDC already submitted by the UK

Notes:
Emissions shown including emissions from international aviation and shipping (IAS) and on an AR5 basis, including peatlands. Adjustments for IAS emissions to carbon budgets 1-3 based on historical IAS emissions data; adjustments to carbon budgets 4 and 5 based on IAS emissions under the Balanced Net Zero Pathway.

Source:
Wales supporting the UK's Sixth Carbon Budget
Like-for-like comparison of emissions pathways, excluding aviation and greenhouse gas removals

Annual GHG emissions (2020 = 100)

Source: CCC Analysis
Wales supporting the UK's Sixth Carbon Budget
Contributing to UK targets

- Wales
- Rest of UK
- Scotland residual
- Greenhouse gas removals
- Historical and baseline
- UK Balanced Pathway (no GGRs)

Mostly agriculture and aviation
Engineered removals (GGRs) required for UK Net Zero

8% of emissions today
8% of abatement action

Source: CCC Analysis

MtCO₂e
Wales supporting the UK at COP26

Per person emissions in Wales vs global requirements of Paris

Historical - World

Source: CCC Analysis
Wales supporting the UK at COP26

Per person emissions in Wales vs global requirements of Paris

Source: CCC Analysis
Delivering Net Zero in Wales
Emissions abatement

Meeting the Net Zero requires actions across four key areas – with some additional flexibility required to meet the Net Zero

1. Demand reduction and efficiency
   - Reduced demand for carbon-intensive activities
   - Greater efficiency in use of energy and resources

2. Take-up of low-carbon solutions
   - Electrification
   - Hydrogen and other low-carbon technologies
   - CO2 capture from fossil-fuels and industry

3. Expansion of low-carbon energy
   - Low-carbon hydrogen and electricity production

4. Offsetting emissions
   - Natural carbon storage and greenhouse gas removals

5. Flexibility to meet Net Zero
   - Through greenhouse gas removals or further action
Investing for Net Zero

Major investment programme in Wales, delivering offsetting operating cost savings

Source: CCC analysis.
Resource costs

Change in resource costs over time in Wales

Source: CCC analysis.
Well-being of Future Generations

Net Zero is consistent with Wales’ Well-being Goals

A prosperous Wales

Consistent with Paris Agreement and Wales’ SDGs

Investment programme will boost economic recovery and create new jobs

A resilient Wales

Increased domestic energy security

A healthy Wales

Recommendations can support preparations for a changing climate

A more equal Wales

Warmer homes, healthier travel, cleaner air, new ways of working, better quality diets

A Wales of cohesive communities

A Wales of vibrant culture and thriving Welsh Language

A Just Transition for all people in Wales is necessary to support these goals

Source: CCC Analysis

Delivering Net Zero in Wales
What does Net Zero look like?
Changes in energy demand
Oil (TWh)

Source: CCC Analysis
Changes in energy demand
Natural gas (TWh)

Source: CCC Analysis

What does Net Zero look like?
Changes in energy demand
Electricity (TWh)

What does Net Zero look like?

Source: CCC Analysis
Changes in energy demand
Hydrogen (TWh)

What does Net Zero look like?

Source: CCC Analysis
2021 will be busy

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<thead>
<tr>
<th>Date</th>
<th>Outcomes and Milestones</th>
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<tbody>
<tr>
<td>Before COP 26</td>
<td>• Wales to legislate Net Zero and interim targets</td>
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<tr>
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<td>• 2021 Senedd election</td>
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<td>• Wales’ next Low Carbon Delivery Plan</td>
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<td>November 2021</td>
<td>• UK to legislate the Sixth Carbon Budget at 965 MtCO$_2$e, including emissions from International Aviation and Shipping (IAS)</td>
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<td>• Net Zero strategy</td>
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<td>• Energy White Paper</td>
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<td>• Heat and Buildings Strategy</td>
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<td>• New carbon pricing regime following EU ETS</td>
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<td>• Transport decarbonisation plan</td>
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<td>• Final HMT Net Zero review</td>
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<td>• Hydrogen strategy, and consultation on hydrogen business models</td>
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<td>• Rail decarbonisation strategy</td>
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<td>• Industrial decarbonisation strategy</td>
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<td>• Net Zero carbon hospital standard, and further commitments towards delivering a Net Zero NHS</td>
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<td>• Publication of Greening Government Commitments</td>
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<td>• Ofgem’s final business model approvals for the RIIO-ED2 period should accommodate network upgrades for EVs and heat pumps</td>
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<td>• Aviation decarbonisation strategy</td>
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<td>• Next Contract-for Difference allocation round, targeting large volumes of renewables, towards 40 GW offshore wind by 2030</td>
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- Build on the UK’s NDC to increase global climate ambition in the run up to COP26
- Strengthened UK Adaptation Plans
- Updated Green Book guidance on climate change
- Decision on funding model for CCS infrastructure
- MOD review of climate change and defence
- Call for evidence on policy for GHG Removals (GGRs)
- Consultation on mandatory food waste reporting
- Consultation on including maritime in Road Transport Fuel Obligation (RTFO)
- Conclusion of Green Jobs Taskforce
- Environmental Land Management pilots
- Implementation of minimum device standards for EV chargers