

Towards a Greener Tomorrow



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Foreword

The outcome of the international COP21 climate negotiations in Paris is a landmark achievement, with an historic agreement that paves the way for real global action, to unite to deliver a safe and clean future for the generations ahead.

The collective consensus that nations across the World must all play their part in tackling climate change is a momentous step forward. It is recognition of the hard work and dedication of those who have campaigned tirelessly for the strong policies that we need to end our reliance on fossil fuels and reduce our greenhouse gas emissions and it is a tribute to the hundreds of thousands of people across the globe who marched to have our voice heard.

Developed and developing nations worldwide have agreed legally-binding emissions targets to ensure a global rise in temperatures of no more than 2°C. For the very first time, there is recognition that in fact we should be aiming for 1.5°C, to help safeguard some of the world's smallest and most impoverished island nations. Despite this agreement in Paris, at the present rate global warming is still projected to be between 2.7°C and 3°C; well above the threshold set by scientists to avoid irreversible damage.

Over the past decade and more we have seen tremendous progress in reducing global poverty, with one billion fewer people living in extreme poverty than in 2020. But climate change threatens to undo this, with extreme weather conditions causing havoc, seeing millions of people displaced, destroying crops and threatening food security. At the same time, our impact on our natural systems and subsequent decline in biodiversity leaves us more vulnerable to the impacts of climate change.

If we are to meet our vital goals on climate change and biodiversity, we must be ambitious to ensure that Wales plays its part. We must aim for zero-net emissions to win the fight against climate change and repay the historical debt from our country's industrial legacy. We must aim to restore, recreate and reconnect our natural systems and biodiversity.

It is time for fresh ambition and leadership. Climate change is one of the biggest threats we face, and strong and decisive action needs to be taken right now. Tackling climate change shouldn't just be seen as an obligation, but more as an opportunity to build a stronger, greener economy here in Wales.



William Powell AM
Welsh Liberal Democrat Spokesperson
for Energy, Environment and Sustainable Development

Introduction

The Welsh Liberal Democrat vision is for a zero carbon Wales that delivers green growth and green jobs. We recognise that climate change is one of the biggest threats that our generation faces and that governments across the world must do all they can to tackle it.

In the National Assembly we are proud to have led a debate recognising the importance of securing global agreement on a climate change treaty at the 2015 UN Climate Change Conference in Paris. We proposed ambitious targets to be included within the Environment (Wales) Bill, to ensure that we play our part in the fight against climate change. Yet sadly the Welsh Labour Government refuses to raise the bar, rejecting more ambitious targets that would ensure we take this opportunity to develop the strongest possible legislative framework for Wales to help tackle climate change.

The time to act is now if we are to stop climate change from reversing the gains against poverty and from destroying our rich environment and biodiversity. The need for greater action here in Wales is clear; between 2012 and 2013 greenhouse gas emissions in Wales rose by 10%, significantly higher than other UK nations. In fact, we have only seen a decrease of 12% below base levels, compared to a 32% decrease in England and 35% in Scotland.¹

The UK, like other developed countries, is more responsible for historical emissions than the developing nations around the world and we therefore have a responsibility to set more ambitious targets than almost anywhere else in the world. Meeting these targets will require greater investment in energy efficiency, decarbonisation of electricity generation, major afforestation plans and the development of Carbon Capture and Storage. And along with this will come jobs, economic growth and prosperity.

This paper outlines five key evidence-based targets to help Wales become a world leader in our ambition to tackle climate change. Alongside this paper, the **Welsh Liberal Democrat policy document ‘Powering Wales’ Future’ (2014)**² and the Liberal Democrat policy paper **‘Green Growth and Green Jobs’ (2013)** detail a comprehensive set of policies to help meet these targets, by reducing our reliance on damaging fossil fuels, securing the future of low-carbon alternatives for decades to come, and making us more energy efficient as individuals and as a country.

¹ In Brief: Greenhouse Gas Emissions in Wales up by 10% (16 June 2015)

² http://issuu.com/welshlibdems/docs/2014-p02_-_powering_wales_future

Policy context

In One Wales, One Planet (2009), the Welsh Government set out that sustainable development would be the central organising principle for the Welsh Government.³ In it, a statement was made that:

“In Wales, sustainable development means enhancing the economic, social and environmental wellbeing of people and communities, achieving a better quality of life for our own and future generations ... in ways which enhance the natural and cultural environment and respect its limits – using only our fair share of the earth’s resources and sustaining our cultural legacy.”

The Future Generations Act, together with Environmental Bill and the Planning (Wales) Act will legislate for sustainable development to secure the long-term well-being of Wales. Furthermore, the 2014 Climate Change Policy Refresh sets out the following priorities for Wales: driving out climate risk; driving down emissions; driving up energy efficiency; and driving forward low-carbon energy.

Sadly, the Welsh Government’s record on climate change does not match its rhetoric. In 2014 Wales’ Ecological Footprint, although lower than that for the UK on average, was still “more than double the average earthshare”.⁴ Between 2012 and 2013 greenhouse gas emissions in Wales rose by 10%; significantly higher than other UK nations and the Welsh Government missed its 2010 target to halt biodiversity loss.⁵

A recent report shows great cause for concern, with an assessment by Oxfam GB stating that Wales significantly outstrips proposed environmental boundaries in nearly all domains identified, based on the Planetary Boundaries work by the Stockholm Resilience Centre⁶:

- by 55 percent in terms of biodiversity loss (measured via decline in farmland birds);
- by 250 percent in terms of land use change; and
- by 410 percent in terms of climate change (measured by emission of MtCO₂/year).

The COP21 climate change agreement is a clear signal of the collective consensus across the world of the need for ambitious measures to tackle climate change. In Wales, the interim report of the recent ‘The Wales We Want’ initiative highlights that the top two issues of concern for people in Wales are climate change (69.5%) and the natural environment (69%).

³ <http://gov.wales/docs/desh/publications/090521susdev1wales1planeten.pdf>

⁴ <http://gov.wales/docs/statistics/2014/140821-sustainable-development-indicators-2014-en.pdf>

⁵ <http://gov.wales/docs/desh/publications/060517environmentstrategyen.pdf>

⁶ <http://www.stockholmresilience.org/21/research/research-programmes/planetary-boundaries.html>

It is clear that Wales' ecological and environmental record needs to change, that there is clear support from the people and government of Wales, and that there is a clear mandate to put in law clear statutory targets for Wales to work towards “using only our fair share of the earth's resources.”⁷

Proposed targets

The Welsh Liberal Democrats would set the following targets:

- **net-zero greenhouse gas emissions by 2050, with a 50% reduction below a 1990 baseline by 2020 and an 80% reduction by 2030;**
- **100% of electricity demand from renewable sources by 2025;**
- **a 50% reduction in energy used for heating and electricity by 2030;**
- **an increase in cycling rates to 10% by 2025 and 25% by 2050;**
- **halting the loss of biodiversity by 2020 with a 15% increase in biodiversity by 2050 and having 100% of our finest wildlife havens to a favourable condition by 2026.**

⁷ <http://gov.wales/docs/desh/publications/090521susdev1wales1planeten.pdf>

Greenhouse gas emissions

The UK is committed to limiting global temperature increase to 2°C above pre-industrial levels under the United Nations Framework Convention on Climate Change (UNFCCC) Copenhagen Accord (2009) and Cancun Agreement (2010)⁸, and to drive efforts to limit the temperature increase even further to 1.5 °C above pre-industrial levels (Paris 2015).

However, an analysis by the UNFCCC of Intended Nationally Determined Contributions in advance of the Paris climate negotiations found that pledges would mean global warming is still projected to be between 2.7°C and 3°C; well above the threshold set by scientists to avoid irreversible damage. It is therefore clear that the scale of system change required is immense. Cross party consensus must be reached in Wales on the strong ambition that we need to establish a climate policy in line with the science, to play our part in global efforts to tackle climate change.

Under the 2050 Roadmap the EU is committed to reducing GHG emissions (including international aviation and shipping) to 80-95% below 1990 levels by 2050.⁹ At a UK level, the 2008 Climate Change Act set a target of reducing our carbon emissions by 80% by 2050¹⁰ in order for the UK to play its part in limiting the rise in global temperature to 2°C. The UK's carbon budgets (applicable to all GHG emissions in the UK, not just carbon dioxide) set out legally-binding five-year targets for progress on this aim.¹¹

Since then climate change scientists have warned that progress to limit global warming to 2°C is too slow, that climate change risks are greater than originally thought and that impacts are already widespread.

Several analyses translating research summarised by the Intergovernmental Panel on Climate Change (IPCC) in its latest report into the level of global GHG emissions reduction required to meet these ambitions show clearly that there is a gap between current GHG emissions reduction targets and the action necessary to avoid 2°C.¹²

Climate Analytics, a research organisation led by several IPCC authors, published a report stating what GHG emissions reduction targets would be necessary for the agreed avoidance of temperature limits. They state that for a 'likely'¹³ chance of limiting warming to 2°C we

⁸ http://unfccc.int/meetings/cancun_nov_2010/meeting/6266.php

⁹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52011DC0112>

¹⁰ <http://www.legislation.gov.uk/ukpga/2008/27/contents>

¹¹ <http://www.theccc.org.uk/tackling-climate-change/reducing-carbon-emissions/carbon-budgets-and-targets/>

¹² <http://www.unep.org/publications/ebooks/emissionsgapreport2014/>

¹³ <http://www.climateanalytics.org/publications/timetables-zero-emissions-and-2015-emissions-reductions-statescience-adp-agreement>

would require global GHG emissions to fall to net zero between 2080 and 2100. However, for a higher chance (advisable, given the high impact) of avoiding 2°C, or of limiting warming to 1.5°C, this global net zero emissions would have to be achieved between 2060 and 2080.¹⁴ Nearly 120 countries and the EU are supporting a global net-zero goal.¹⁵

There are also multiple issues with what is included in the UK's GHG emissions reduction ambitions. For example, international aviation and shipping are not included in emissions contributing to the Climate Change Act (2008)¹⁶ but form a large part of the UK's impact on climate, and is the fastest growing sector in the UK economy. Furthermore, although in international terms the UK's legally-binding commitment to reduce GHG emissions is strong, it is insufficient to truly tackle climate change. Since any remaining emissions will contribute to increased global atmospheric GHG concentrations (and hence higher global average temperatures), then the ultimate goal must be net zero GHG emissions.¹⁷

According to the Intergovernmental Panel on Climate Change (IPCC), global carbon dioxide emissions from the energy sector need to fall to zero by between 2040 and 2070, and 'below zero' thereafter.¹⁸

How this global budget is apportioned to nations, according to the UNFCCC commitment, must be done on the “basis of equality, and in accordance with historical responsibility, [and] common but differentiated responsibilities” as defined by the UNFCCC.¹⁹ i.e. nations with a historical legacy of emitting carbon dioxide, and with the largest resources must take the responsibility to decarbonise quicker than those without.

With the second largest per capita GHG emissions since the beginning of the industrial revolution,²⁰ and the largest contribution to climate warming that has been observed thus far on a per-capita basis,²¹ there is a strong argument that the UK has the responsibility to set more ambitious targets for GHG emissions reductions than almost anywhere else in the world.

It has also become evident that although UK production emissions are falling in the UK, our consumption emissions (those related to imports) are increasing. This means that whereas

¹⁴ <http://www.climateanalytics.org/publications/timetables-zero-emissions-and-2015-emissions-reductions-statescience-adp-agreement>

¹⁵ <http://track0.org/>

¹⁶ http://www.legislation.gov.uk/ukdsi/2009/9780111478523/pdfs/ukdsiem_9780111478523_en.pdf

¹⁷ http://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf

¹⁸ <http://www.carbonbrief.org/blog/2015/02/briefing-the-15-options-for-net-zero-emissions-in-the-paris-climate-text/>

¹⁹ http://unfccc.int/files/bodies/awg/application/pdf/negotiating_text_12022015@2200.pdf

²⁰ <http://www.theguardian.com/environment/2011/apr/21/countries-responsible-climate-change>

²¹ <http://www.carbonbrief.org/blog/2014/01/uk-tops-list-of-world%E2%80%99s-biggest-greenhouse-gas-emitters/>

the UK's GHG production emissions have fallen to about 26% below 1990 levels, in terms of consumption, emissions now are only 7% lower than 1990 levels.

Researchers at Leeds University have argued that, instead of changing how emissions are accounted for in international climate negotiations, and changing the definition in UK law to move from a production emissions account to a consumption emissions account, the UK should take responsibility for these emissions by making even more ambitious GHG emissions reduction targets here in the UK. They are calling for the Climate Change Committee to review the UK's climate commitments, and to move the 80% reduction target forward to at least 2040, if not earlier.²²

There are arguments, therefore, for the UK's GHG emissions reduction targets to be both set higher, and for the end date to be brought forward.

With multiple reasons for higher ambition throughout the UK, there is sound argument for proposing a target that reflects what is actually necessary for a devolved nation to adhere to the UK Government's commitment to limiting global temperature increase to 2°C above pre-industrial levels. Using an approach that reduces emissions, as the EU repeatedly commits to, “consistent with science and on the basis of equity”²³ then the UK should be committed to at least net-zero emissions by 2050, and Wales should be prepared to put forward this type of target.

In the lead up Climate Change Strategy (2010), the WG was presented with a 3%, 6% and 9% per annum reduction in GHG emissions (including international aviation and shipping) by the Tyndall Centre.²⁴ It argues that:

“In light of the EU and UK’s characterisation of 2°C as delineating acceptable from dangerous climate change, ensuring Wales “lives within environmental limits” and uses “only its fair share” of resources demands urgent and radical reductions commensurate with a minimum 9% p.a. emission-reduction pathway.”

The 9% annual reductions (from 2016) amount to roughly a 50% reduction in emissions (to a 1990 baseline) by 2020; and an 80% reduction by 2030; and near-zero emissions by 2050. Short term targets ensure that reductions are 'front-loaded', with more emissions reductions towards the beginning of the time period than at the end. This is particularly important in reference to the scientific understanding on cumulative emissions but also to ensure that Wales keeps on track.

²² <http://www.emissions.leeds.ac.uk/files/Policy%20Brief%20-%20Consumption%20based%20emissions.pdf>

²³ http://europa.eu/rapid/press-release_MEMO-09-332_en.htm

²⁴ http://www.tyndall.ac.uk/sites/default/files/t3_23.pdf

Liberal Democrats are committed to achieving zero-net greenhouse gas emissions from the UK economy by 2050. Energy will always be imported and exported, and greenhouse gases will always be emitted from some activities. Our aim is that emissions in the UK should broadly be balanced by greenhouse gases sequestered in the UK.

The Welsh Liberal Democrats would set a target of net-zero greenhouse gas emissions by 2050, with a 50% reduction below a 1990 baseline by 2020 and an 80% reduction by 2030. This would include all 'direct' emissions in Wales except those covered by the EU ETS, including emissions from electricity use in Wales by end-user. This would therefore include emissions from transport, the residential sector, the public sector, waste, agriculture and land use, as well as all business and industrial emissions that are not subject to the EU ETS.

We would publish a Carbon Budget alongside the Welsh Government Budget each year so that people can tell what impact our plans will have on the environment. **We would add a carbon impact assessment to all new laws,** so that we can assess their environmental impact and ensure that we remain on track to meet emission reduction targets for Wales.

Decarbonising the electricity sector

The Committee on Climate Change has advised the UK Government to take action to decarbonise electricity completely by 2030, in order to stay on a cost-effective trajectory to achieving the 2050 climate change goals. Electricity generates 25% of all global GHG emissions while heating and transport, the two other major contributors to UK emissions, are more difficult and expensive to decarbonise.

A recent submission to the UK parliament's Environmental Audit Committee (EAC) stated: *“if the emissions of ‘less-developed’ nations peak by 2025 and subsequently reduce at ~7% per annum, then for a ‘reasonable probability’ of 2°C the UK and EU must deliver immediate emission reductions of ~10% p.a., with complete decarbonisation of the energy system by around 2030. Such levels of mitigation are far beyond anything countenanced by those engaged in debates on the UK carbon budget or EU 2030 targets; yet if avoiding the 2°C characterisation of dangerous climate change is to be taken seriously, the maths of the situation are inescapable.”*²⁵

The International Energy Agency (IEA) highlights that reduced demand and cleaner supply will make electricity the largest contributor to emissions savings by 2030.²⁶ Proponents of a UK target on decarbonisation of the electricity supply²⁷ have stated that it would:

- help deliver the Climate Change Act (2008);
- offer cost saving, providing a stepping stone for the cheapest route to cutting emissions;
- have spin-off effects in terms of emissions reductions opportunities for other sectors (e.g. the electrification of transport only saves emissions if the electricity provided is low, or no-carbon);
- provide greater policy certainty for investors;
- prevent carbon 'lock-in' since UK energy infrastructure needs replacing in the next 15 years; and
- be cheaper to do it now, than to do it later.

Progress has been made against the UK's requirement under the EU Renewable Energy Directive 2009 to source 15% of its energy from renewable sources by 2020, with 7% of

²⁵ <http://www.parliament.uk/business/committees/committees-a-z/commons-select/environmental-auditcommittee/news/new-inquiry---progress-on-carbon-budgets/>

²⁶ <https://www.iea.org/publications/freepublications/publication/the-way-forward.html>

²⁷ <http://www.lse.ac.uk/GranthamInstitute/news/behind-the-headlines-the-uk-energy-bill-and-decarbonisation-target/>

energy consumption in 2014 from renewable sources; up from 5.6% cent in 2013.²⁸ There was a significant growth in the contribution of renewable electricity, while the renewable heating and transport contributions also rose. The contribution of all renewables to UK electricity generation was 19.1% in 2014, against a required 30% by 2020.

Liberal Democrat policy commits to a legally-binding decarbonisation target range for 2030 of 50-100g of CO₂ per kWh.²⁹ Complete decarbonisation of the Welsh electricity sector is still not in the hands of the Welsh Government, however the development of renewable energy is. Proposals in the Draft Wales Bill (October 2015) will see the devolution to Wales of responsibility for energy planning development consents for projects up to and including 350MW onshore and in Welsh territorial waters.³⁰ This will give Wales more power to develop renewable sources of electricity than at present, suggesting that more ambitious targets could be achieved than presently set.

A key policy output of devolution is stated to be that devolved governments have identified aims that are above UK targets to meet energy demand from renewables. This is particularly so in Scotland, where targets are set highest and energy policy is devolved giving Scottish Ministers full control over major energy consents and planning both onshore and offshore. Research suggests that devolution of energy policy to nations of the UK may actually be one of the most effective ways for the UK Government to deliver on its energy and climate targets, in part due to the ease in which Wales and Northern Ireland may 'borrow' policy lessons from Scotland.³¹

The Scottish Electricity Generation Policy Statement (2013) includes Scotland's commitment to deliver 100% of electricity demand from renewables by 2020. The Scottish Government has targets to produce 30% of all energy (not just electricity) from renewables by 2020, including 11% of heat, and 10% of transport, aiming for a largely decarbonised heat sector by 2030.

Wales has enormous potential for developing renewable sources of energy, in turn helping to cut emissions, reduce fossil fuel use, create jobs and increase export opportunities. In light of the evidence above, **the Welsh Liberal Democrats would set a target to deliver 100% of Wales' electricity needs from renewable sources by 2025.** This will help ensure we can fulfil our aim within 'Powering Wales' Future' to produce enough renewable and low-carbon electricity to cover all of our energy needs and to provide potential export by 2050.

²⁸ https://www.gov.uk/government/uploads/system/.../DUKES_2015.pdf

²⁹ [Liberal Democrat General Election Manifesto 2015](#)

³⁰ <https://www.gov.uk/government/publications/draft-wales-bill-bil-cymru-drafft>

³¹ <http://cplan.subsite.cf.ac.uk/cplan/sites/default/files/DREUD-FullReport.pdf>

Energy efficiency

Energy efficiency belongs at the heart of a zero-carbon economy. Reducing energy use can cut energy bills for households and businesses, make the UK energy system more sustainable, and reduce greenhouse gas emissions. Energy efficiency can boost the economy in a sector with great potential for future growth, driving innovation in the process.

The EU 2020 Climate and Energy Package (2009), legally binds the EU as a whole to reduce energy use through improved efficiency by 20% against a 2007 business-as-usual projection, by 2020.³² This is being done through the Energy Efficiency Action Plan (2011)³³ and the Energy Efficiency Directive (2012).³⁴

In the UK, the EU Climate and Energy Package (2009) represents an 18% reduction in final energy consumption (equivalent to a 20% reduction in primary energy consumption) relative to the 2007 business-as-usual projection, across all sectors – electricity, heat, transport and industry.³⁵ The Energy Efficiency Strategy (2012) sets out the UK Government's plans for realising these reductions in energy use. Energy consumption in the UK is continuing to fall, and has done so for seven out of the last eight years.³⁶ The 2013 Energy and Emissions Projections suggest the UK is currently on track to meet its target, with final energy consumption in 2020 projected to be 20% below the baseline.³⁷

In 1994, the UK became the first country in Europe to introduce energy efficiency obligations on suppliers which have resulted in subsidised or free insulation being given to millions of homes. In 2005 the UK government banned non-condensing boilers, ahead of European product standards. The Carbon Emissions Reduction Target (CERT) was, between 2008 and 2012, the main legislative driver for improving energy efficiency in homes in the UK.³⁸ The Energy Company Obligation (ECO) replaced CERT in 2013,³⁹ and the Energy Saving Opportunities Scheme (2014) brings into force Article 8 of the EU Energy Efficiency Directive, with a mandate that all large businesses in the UK undertake comprehensive assessments of energy use and efficiency at least once every four years.⁴⁰

³² http://ec.europa.eu/clima/policies/package/index_en.htm

³³ http://ec.europa.eu/energy/efficiency/action_plan/action_plan_en.htm

³⁴ http://ec.europa.eu/energy/efficiency/eed/eed_en.htm

³⁵ http://ec.europa.eu/energy/sites/ener/files/documents/2014_neeap_united-kingdom.pdf

³⁶ http://ec.europa.eu/europe2020/pdf/csr2014/nrp2014_uk_en.pdf

³⁷ http://ec.europa.eu/europe2020/pdf/csr2014/nrp2014_uk_en.pdf

³⁸ <https://www.ofgem.gov.uk/ofgem-publications/58425/certfinalreport2013300413.pdf>

³⁹ <https://www.ofgem.gov.uk/environmental-programmes/energy-companies-obligation-eco>

⁴⁰ <http://www.carbontrust.com/resources/guides/energy-efficiency/energy-savings-opportunity-scheme-esos>

Wales has no specific targets in place relating to energy efficiency, though the Climate Change Strategy for Wales (2010) states that “delivering increased energy efficiency in businesses, homes and the public and third sectors” is a “key area for action” and that the “approach will be to reduce energy consumption and improve energy efficiency first.” The importance of energy efficiency is a common feature in Welsh Government aspirational publications. Buildings, and energy use in buildings, are responsible for 60% of the emissions covered by the 3% GHG emissions reductions target in Wales' Climate Change Strategy (2010).⁴¹

Wales' existing energy efficiency programmes are NEST, Arbed (the Wales Strategic Energy Performance Investment Programme) and UK initiatives such as the Green New Deal and ECO. However, these initiatives fall far short of what is necessary, and fuel poverty is still on the increase in Wales. The average household energy bill has increased by 33% in Wales since 2013. Wales has the oldest housing stock profile in the UK, a high incidence of low income, and a lack of access to mains gas. Wales has the second highest level of households using carbon intense fuels (coal and oil) in the UK. One report states that at the current rate of investment in fuel poverty schemes, Wales would need “over 500 years of financing to improve the energy efficiency of the existing solid walled stock only and will not address the issues posed by other construction forms in existence in Wales.”⁴²

Energy efficiency has multiple benefits. The International Energy Agency (IEA) states that investing in energy efficiency can boost growth, jobs, health, government budgets, industrial productivity – and those are only the benefits currently backed by robust analysis.⁴³

According to their report 'Capturing the Multiple Benefits of Energy Efficiency', the IEA states that energy efficiency can make major contributions to strategic aims shared by most governments across the world:⁴⁴

- create jobs and boost economic growth;
- reduce costs of importing fossil fuels;
- improve public health through improved indoor air quality and warmer homes; and
- reduce public financial outlay – directly by reducing spending on energy, and indirectly through wider employment, fewer health problems and increased tax revenues.

⁴¹ <http://gov.wales/docs/desh/publications/101006ccstratfinalen.pdf>

⁴² <http://www.senedd.assembly.wales/documents/s28598/EEFP%2021%20Wales%20LowZero%20Carbon%20Hub%20WLZCH.pdf>

⁴³ <http://www.iea.org/Textbase/npsum/MultipleBenefits2014SUM.pdf>

⁴⁴ <http://www.iea.org/Textbase/nppdf/stud/14/MultipleBenefits2014.pdf>

The EU is currently on track to meet its obligations for renewable energy under the EU 2020 Climate and Energy Package (2009),⁴⁵ in part due to progress on energy efficiency.⁴⁶ This is a clear indication that major progress in energy efficiency will play a crucial role in meeting UK climate change targets and supporting their delivery.

Energy efficiency measures in buildings in particular can be especially important in delivering annual GHG emissions reductions. In Wales, GHG emissions rose significantly between 2011 and 2012 across the residential, business and public sector – identified to be largely due to the cold winter experienced in 2012. This shows the vulnerability of Wales' ability to meet GHG emissions targets (especially if measured annually) to temperature fluctuations and the associated fuel consumption for heating, due to its poor and inefficient housing stock. Improvements in the heat performance of buildings through renovation and retrofitting – efficiency measures in heating – would be hugely beneficial in keeping Wales on track with GHG emissions reduction targets and European Investment Bank funding is available for investment in energy efficiency projects.

Therefore, it is recommended that Wales put in place a statutory target for energy efficiency reflecting the highlighted commitment, importance and necessity of these measures in delivering other key climate and energy policies by Welsh Government itself and by many other organisations and regulatory bodies. **The Welsh Liberal Democrats would set a target for a 50% reduction in energy used for heating and electricity by 2030;** in particular by improving energy efficiency in domestic, commercial, services and public sector buildings.

⁴⁵https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/414241/20150319_Progress_to_emissions_reductions_targets_final.pdf

⁴⁶ <http://www.carbonbrief.org/blog/2015/03/five-charts-showing-the-eus-surprising-progress-on-renewable-energy/>

Transport

Transport is Europe's second-biggest source of GHG emissions, accounting for about one-fifth of all emissions, 80% of which is due to road transport.⁴⁷ Currently, UK GHG emissions from domestic transport are decreasing in the UK (-4% between 1990 and 2013), although in Wales, emissions from transport are increasing.⁴⁸ Transportation is responsible for about one fifth of the emissions covered by the 3% annual reduction in GHG emissions in the Climate Change Strategy for Wales (2010), which also states that the “long-term vision is for a fully decarbonised transport network.”⁴⁹

Specific sub-targets on transport are included in the EU Renewable Energy Directive 2009, stating that 10% of Member States' fuels for transport must be provided from renewable sources by 2020.⁵⁰ The Renewable Transport Fuel Obligation (RTFO) (2008) states that 2.5% by volume of suppliers' fuel should come from biofuels. It is increased each year to a maximum of 5% in 2013-14.⁵¹

Emissions from flights within Europe are included in the EU-ETS scheme, but not international aviation and shipping from the perspective of the EU. This is of concern, given that emissions from international aviation and shipping increased by 68% from 1990-2013.⁵²

The EU's Energy Union strategy emphasises the need to transform transport systems, 97% of which currently rely on oil.⁵³ EU leaders call for a 'technology neutral' approach for promotion of efficiency and CO₂ reductions in transport. The EU has already put in place a range of policies and legislation aimed at lowering emissions from transport, including.⁵⁴

- A mandatory average CO₂ target for manufacturers of all new cars and light-duty vans registered in the EU set for 2015 (2017 for vans) and 2020 (introduced in 2009, with phase-in from 2012).⁵⁵ These targets do not filter down to Member States, they are for the EU as a whole.
- A strategy to increase the efficiency (and hence reduce CO₂ emissions) from trucks and buses.
- Targets to increase renewable fuels in transport (as stated above).

⁴⁷ http://europa.eu/rapid/press-release_MEMO-15-4485_en.htm

⁴⁸ <http://178.62.20.241/wp-content/uploads/2015/02/CCCW-Annual-Report-2014.pdf> p.21

⁴⁹ <http://gov.wales/docs/desh/publications/101006ccstratfinalen.pdf>

⁵⁰ <http://ec.europa.eu/energy/en/topics/renewable-energy>

⁵¹ http://ec.europa.eu/europe2020/pdf/csr2014/nrp2014_uk_en.pdf

⁵² <https://www.gov.uk/government/publications/total-greenhouse-gas-emissions-from-transport>

⁵³ <http://www.carbonbrief.org/blog/2015/02/how-the-evolving-eus-plan-for-an-energy-union-reveals-underlying-politics/>

⁵⁴ http://europa.eu/rapid/press-release_MEMO-15-4485_en.htm

⁵⁵ <http://www.dft.gov.uk/vca/fcb/cars-and-carbon-dioxide.asp>

- A requirement for public bodies to account for energy use and CO₂ emissions when procuring vehicles.
- Legislation requiring Member States to develop national policy frameworks for the development of markets for alternative fuels and their infrastructure.

However, a report by AEA Technology states that “regulation to improve the energy efficiency of all vehicles – not just the road vehicles that are currently targeted by EU legislation – is needed, coupled with parallel legislation to reduce the GHG intensity of the fuels and energy used by all transport modes.”⁵⁶ It is clear therefore that to meet targets in the Climate Change Act (2008) and EU decarbonisation targets, the decarbonisation of the transport sector must involve both efficiency measures and fuel switching.

The development of a low emission national car fleet will take time, given that the average lifetime of a car in the UK is 13.5 years. Motorists, the automotive industry, and the scientists and researchers investigating low carbon transport all need as much long term certainty as possible as to the direction of government policy. In our federal policy paper ‘Green Growth and Green Jobs’ (2013), Liberal Democrats specify that by 2040, only ultra-low carbon vehicles will be permitted on UK roads for non-freight purposes. If technology permitted, we would bring forward this date. Evidence from Norway highlights that such a target is achievable.⁵⁷

Liberal Democrats support setting further ambitious interim emissions targets for cars of around 70g CO₂/km to take effect in 2025. We also support tightening emissions targets for vans, which at 147g CO₂/km by 2020 are currently far too loose compared to the equivalent target for cars.⁵⁸

There is also considerable potential for improved energy efficiency in transport, and action is needed to encourage people to switch to lower emission fuels and modes. The most energy efficient forms of transport are active transport - walking and cycling. As well as being environmentally beneficial, they are low cost and good for public health. However, the UK’s rates of walking and cycling are still substantially below many other European countries.

In Wales, the Active Travel (Wales) Act aims to increase walking and cycling in Wales, by requiring local authorities in Wales to map and plan for suitable routes for active travel, and to build and improve their infrastructure for walking and cycling every year. It also requires Welsh ministers to publish annual reports on the amount of active travel journeys made in

⁵⁶ <http://www.eutransportghg2050.eu/cms/assets/EU-Transport-GHG-2050-Final-Report-22-06-10.pdf>

⁵⁷ <http://qz.com/447971/in-norway-one-in-three-new-cars-is-electric-in-the-us-its-one-in-100/>

⁵⁸ Liberal Democrat policy paper: Green Growth and Green Jobs (2013)

Wales. The Active Travel (Wales) Act 2013 Annual Report 2015⁵⁹ reveals that the proportion of the population (age 16 and over) who frequently use a bicycle for active travel, that is at least once or twice a week, was 6% in 2014-15. The proportion who frequently walk for active travel purposes, that is at least several (3+) times a week, was 43%.

Welsh Liberal Democrats would set a target within the Active Travel (Wales) Act 2013 to increase the proportion of the population (age 16 and over) who frequently use a bicycle for active travel to 10% by 2025 and 25% by 2050. We would work with the Climate Change Commission for Wales to set a long term target for a fully decarbonised transport network for Wales.

Liberal Democrats would also include international aviation and shipping emissions in the UK's statutory targets to reduce emissions and the carbon budget framework. The aim of the Climate Change Act is to demonstrate British leadership in the international effort to avoid dangerous levels of greenhouse emissions. If aviation and shipping emissions remain excluded, the overall target reduction for all other sectors would need to be increased.⁶⁰

⁵⁹ <http://gov.wales/topics/transport/walking-cycling/activetravelact/?lang=en>

⁶⁰ Liberal Democrat policy paper: Green Growth and Green Jobs (2013)

Biodiversity

The interdependence of climate change and biodiversity is highlighted by the Intergovernmental Panel on Climate Change in its Technical Paper V on ‘Climate Change and Biodiversity.’ This states that ‘climate change is projected to affect individual organisms, populations, species distributions, and ecosystem conservation and function both directly (for example, through increases in temperature and changes in precipitation and in the case of marine and coastal ecosystems also changes in sea level and storm surges) and indirectly (for example, through climate changing the intensity and frequency of disturbances such as wildfires). Processes such as habitat loss, modification and fragmentation, and the introduction of non-native species (INNS) will affect the impacts of climate change.’⁶¹

The 1992 UN Convention on Biodiversity (CBD) states an overall global strategic objective of “the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.” The convention commits signatories to develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity, and to integrate them, as far as is possible, into relevant sectoral or cross-sectoral plans, programmes and policies.⁶²

At the tenth Conference of the Parties to the CBD held in Nagoya in 2010, a global Strategic Plan for Biodiversity 2011-2020, and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from their Utilisation (ABS Protocol) were adopted, and a strategy was formed to mobilise resources for global biodiversity.⁶³

The CBD's Strategic Plan for Biodiversity 2011-2020 provides a flexible framework for all Parties to commit to drive action on biodiversity. All Parties agreed to translate this framework into revised and updated strategic action plans on biodiversity within two years.⁶⁴ 192 countries and the EU agreed to an ambitious conservation plan to protect global biodiversity, with:⁶⁵

- a vision that “by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people”; and

⁶¹ [Intergovernmental Panel on Climate Change: Climate Change and Biodiversity, Technical Paper V](#)

⁶² <http://www.cbd.int/>

⁶³ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0244&from=EN>

⁶⁴ <https://www.cbd.int/sp/>

⁶⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf

- an ambition to “take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services...”⁶⁶

To deliver this ambition, Parties agreed on a set of five strategic goals and a series of 20 targets – the Aichi Biodiversity Targets – to deliver by 2020.⁶⁷

The EU Biodiversity Strategy (EUBS) (2011) contains a headline target to meet the ambition laid out by the CBD's Strategic Plan, of “halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss.”⁶⁸ Target 2 includes the restoration of at least 15% of degraded ecosystems by 2020.⁶⁹

In the UK, while ultimate responsibility for CBD implementation lies with the Department for Environment, Food and Rural Affairs (Defra), it is shared among England, Northern Ireland, Scotland, Wales and its Overseas Territories and Crown Dependencies. To date, England and Scotland have completed revisions of their strategies in the light of the 2010 Nagoya outcomes.⁷⁰ The Habitats Directive has been transposed into national law, with regulations in force from 1994, with several amendments over the years.⁷¹ The Conservation of Habitats and Species Regulations (2010)⁷² consolidate all the various amendments made to the 1994 Regulations in respect of England and Wales.

A UK Post-2010 Biodiversity Framework has also been developed with the purpose of providing a broad enabling structure for action on delivering the Aichi targets and EUBS across the four countries of the UK up to 2020.⁷³ Key legislation in the UK includes:

- the Natural Environment and Rural Communities (NERC) Act (2006);
- the Wildlife and Countryside Act (1981);
- the Conservation of Habitats and Species Regulations (2010); and
- the Marine and Coastal Access Act (2009).

Recent analysis states that on current trajectories, “despite accelerating policy and management responses to the biodiversity crisis, the impacts of these efforts are unlikely to

⁶⁶ <https://www.cbd.int/sp/>

⁶⁷ <http://biodiversity.europa.eu/policy/target-1-and-related-aichi-targets>

⁶⁸ <http://ec.europa.eu/environment/nature/biodiversity/comm2006/2020.htm>

⁶⁹ <http://biodiversity.europa.eu/policy/target-1-and-related-aichi-targets>

⁷⁰ [https://www.cbd.int/nbsap/about/latest/default.shtml#United Kingdom](https://www.cbd.int/nbsap/about/latest/default.shtml#United%20Kingdom)

⁷¹ <http://jncc.defra.gov.uk/page-1374>

⁷² <http://www.defra.gov.uk/wildlife-pets/wildlife/protect/bird-habitat/habitat2010.htm>

⁷³ <http://jncc.defra.gov.uk/page-6189>

be reflected in improved trends in the state of biodiversity by 2020.”⁷⁴ The study makes some observations about measuring progress on biodiversity targets. For example:

- there are time-lags before outcomes become detectable, suggesting perhaps, that longer timescales for targets may be appropriate;
- the responses in terms of policy and management may be insufficient (i.e. there is not currently enough action to change the outcome); and
- some indicators are less well-aligned with targets (and so do not reflect a change in outcome).

These are important points to take on board in the development of a target for biodiversity. Longer timescales are crucial, supplemented by shorter interim timescales to stimulate action and ensure progress. However the study also highlights that the rapid development of online databases and analysis of indicators are improving our ability to quantify progress towards targets; and that their main conclusion of analysis is that “efforts need to be redoubled” to meet the 2020 targets. It is also vital to consider the synergy between policies and spending on biodiversity and other areas, in particular agriculture, as part of an integrated approach to ensure that action is sufficient to change the outcome.

The Environment Strategy for Wales (2006) stated commitments to halt biodiversity loss by 2010 (in line with then CBD targets) and for recovery to be underway by 2026 (with all our best areas for biodiversity to be in favourable condition).⁷⁵ Wales missed the 2010 target and recent reports show reasons for concern on the current state of biodiversity in Wales, with 60% of the species we know about in decline and fewer than 10% of children regularly playing in wild places.⁷⁶

An assessment by Oxfam GB states that Wales has superseded proposed 'safe' boundaries (based on the Planetary Boundaries work by the Stockholm Resilience Centre⁷⁷) by 55% in terms of biodiversity loss.⁷⁸ This is not only a problem for Wales. In the EU, only 17% of habitats and species and 11% of key ecosystems protected under EU legislation are in a favourable state despite action taken to combat biodiversity loss since the EU 2010 biodiversity target set back in 2001.⁷⁹

⁷⁴ <http://www.sciencemag.org/content/346/6206/241.abstract>

⁷⁵ <http://gov.wales/docs/desh/publications/060517environmentstrategyen.pdf>

⁷⁶ The Wildlife Trusts in Wales Manifesto 2016

⁷⁷ <http://www.stockholmresilience.org/21/research/research-programmes/planetary-boundaries.html>

⁷⁸ <http://policy-practice.oxfam.org.uk/publications/the-welsh-doughnut-a-framework-for-environmental-sustainabilityand-social-just-346207>

⁷⁹ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0244&from=EN>

A review of England's Wildlife Sites and Ecological Network found that 'the essence of what needs to be done to enhance the resilience and coherence of England's ecological network can be summarised in four words: more, bigger, better and joined.'⁸⁰ According to the review, there are five key approaches which encompass this. We must:

- (i) Improve the quality of current sites by better habitat management.
- (ii) Increase the size of current wildlife sites.
- (iii) Enhance connections between, or join up, sites, either through physical corridors, or through 'stepping stones'.
- (iv) Create new sites.
- (v) Reduce the pressures on wildlife by improving the wider environment, including through buffering wildlife sites.

The biodiversity targets proposed here are ambitious and will require much greater cooperation with the third sector to understand and address the impact of our changed environment on species and habitats. Improvements must be made on data collection, monitoring and reporting, together with the development of appropriate indicators for the measurement of biodiversity in relation to any targets set in legislation, although this must not become an excuse for inaction. There must also be greater efforts to reconnect people with nature on their doorstep, through investment in green infrastructure in our communities.

The inter-linkage between climate change and biodiversity loss needs to be better understood and taken into account in the development of targets on biodiversity. For example, many biodiverse habitats hold a substantial amount of carbon (e.g. peatlands). Currently, many of these habitats are damaged from agricultural activities and are releasing carbon, but they have the potential to sequester carbon if managed well.⁸¹ As such, restoring and protecting these habitats has the dual benefit of capturing carbon (and helping deliver GHG emissions targets), and protecting or enhancing biodiversity.⁸² It also ensures that we do not go beyond critical thresholds where damage becomes irreversible.

Equally important, however, is the impact of climate change on biodiversity.⁸³ Many factors are responsible for the current decline in biodiversity globally, and climate change is not currently the main driver; however it will likely play a larger role in the future if unabated.⁸⁴ Since biodiversity is sensitive to climate change, any adaptation to changes in the climate

⁸⁰ [Making Space for Nature: A review of England's Wildlife Sites and Ecological Network \(Professor Sir John Lawton CBE FRS\) 2010](#)

⁸¹ http://jncc.defra.gov.uk/pdf/jncc442_webFinal.pdf

⁸² <http://www.cbd.int/climate/intro.shtml>

⁸³ [http://webarchive.nationalarchives.gov.uk/20110303145213/http://ukbap.org.uk/Library/BRIG/CBCCGuidance.p](http://webarchive.nationalarchives.gov.uk/20110303145213/http://ukbap.org.uk/Library/BRIG/CBCCGuidance.pdf)

⁸⁴ <http://www.cbd.int/gbo3/?pub=6667§ion=6711>

already expected must also be evident in measurements of biodiversity, and in legislation relating to SSSI and SAC, priority habitats and species, as recognised by Natural Resources Wales.⁸⁵

It must be noted, therefore, that progress on biodiversity also depends on global efforts to tackle climate change. As such, targets on climate and targets on biodiversity present a coherent environmental package for Wales, but Wales cannot be in control of the impact that climate change will have on biodiversity, especially on longer time-frames into the future, where the severity of the impact depends highly on global efforts to mitigate climate change.⁸⁶

That said, through devolved powers, Wales does have control over all other main drivers of loss of biodiversity: habitat loss, fragmentation and degradation, soil erosion and depletion, excessive nutrient load and other forms of pollution, overexploitation and unsustainable use of ecosystems. As such we should be able, especially in conjunction with a framework that encompasses adaptation, to deliver on statutory biodiversity targets, given a good framework and adequate indicators.

The RSPB 'State of Nature' report reveals that 60% of species studied have declined over recent decades. More than one in ten of all the species assessed are under threat of disappearing from our shores altogether. However, it also illustrates that targeted conservation techniques are proving successful and that 'with sufficient determination, resources and public support, we can turn the fortunes of our wildlife around.'⁸⁷

The Welsh Liberal Democrats would create a statutory target to halt the loss of biodiversity by 2020 with a 15% increase in biodiversity by 2050 and having 100% of our finest wildlife havens to a favourable condition by 2026. This combined approach is based upon current EU targets, while also recognising that time-frames must be long enough to reflect change in outcome to negate difficulties with measurement and lag-times in ecosystem response to interventions.

Restoration of Natura 2000 sites in Wales will play a key role in meeting these targets on biodiversity. The 112 Natura 2000 sites in Wales cover over 700,000 ha., equating to nearly 7% of the Welsh land area and nearly 36% of Welsh territorial waters, but around two thirds of species and habitat features are in unfavourable condition and most are adversely affected by current pressures and potential threats. According to Natural Resources Wales,

⁸⁵ <http://178.62.20.241/wp-content/uploads/2015/02/CCCW-Annual-Report-2014.pdf>

⁸⁶ <http://www.cbd.int/gbo3/?pub=6667§ion=6711>

⁸⁷ [RSPB 'State of Nature' report \(2013\)](#)

nearly 3,600 actions to address issues and risks on Natura 2000 in Wales have been logged both at a site and unit level, with a total estimated cost of approximately £120 million. If costs are extrapolated at current rates, to include uncosted actions, then the total is £144 million and £1.3 million per site.⁸⁸

There is a diverse range of other funding options available with potential for Natura 2000 financing, including existing Glastir and agri-environment schemes; European Investment Bank funding; private, lottery and voluntary sector funds; and alternative and innovative funding mechanisms. The benefit-cost ratio of investment is high, through opportunities for flood mitigation and water management, tourism, farming and pollination, carbon sequestration, recreation, health and well-being, education and conservation of our most endangered species and valuable natural habitats. Investing in natural capital via catchment management has strong projected cost to benefit ratios of 65 to 1 or better⁸⁹, while a report by Defra on the benefits of SSSIs states that 'estimates from this and other studies show that the economic value of the benefits delivered by SSSIs is substantial and significantly exceeds the costs of the policy.'⁹⁰

According to recent European Commission studies, the protection of all 300 Natura 2000 sites in Scotland was estimated to have an overall benefit-cost ratio of around seven over a 25-year period. This means that overall national welfare benefits are seven times greater than the national costs, representing good value for money.

The total economic benefits from Natura 2000 are estimated to be in the order of €200 to €300 billion per year, with 1.2 to 2.2 billion visitor days to Natura 2000 sites each year, generation recreational benefits of between €5 and €9 billion per annum. In Europe, around 4.4 million jobs, and €405 billion in annual turnover, are directly dependent on the maintenance of healthy ecosystems, along with 4.5 to 8 million FTE jobs provided in tourism and recreation. With costs associated with managing and protecting Natura 2000 sites estimated at around €5.8 billion/year, a fraction of its potential worth to society, it is clear that a well-managed Natura 2000 network in Wales will more than repay the investment.⁹¹

⁸⁸ <http://www.naturalresources.wales/media/674556/life-n2k-summary-report-print-version.pdf>

⁸⁹ Defra: Water for Life (2011) p.32

⁹⁰ Defra: Benefits of Sites of Special Scientific Interest (2011)

⁹¹ <http://ec.europa.eu/environment/nature/natura2000/financing/docs/Economic%20Benefits%20Factsheet.pdf>

Conclusion

Climate change and biodiversity are two of the most pressing issues of this time and it vital that we have integrated action in Wales to address them. The targets proposed in this report are ambitious and would be breaking new ground in statutory targets, but they are based on the science and in line with the ambition that we need if Wales is to play its part in tackling climate change.

In Paris, the UK has committed to an action plan that will help keep the global rise in temperature below 2°C, but already there is recognition that we must go further than this and aim for a 1.5°C cap if we are to avoid irreversible damage. It is therefore crucial that we raise the bar in Wales, with even greater ambition than the UK has agreed on our behalf. We must show the leadership and ambition for a strong legislative framework and radical reform of energy and biodiversity policies, to ensure that we can proudly leave behind a safe and clean environment for the generations ahead.