

Prosperity for All: A low carbon Wales Sustainability Appraisal (SA)

SA REPORT

**Prepared for the Welsh Government
by Enfusion and RPA**

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1.0 INTRODUCTION

Prosperity for All: A low carbon Wales

1.1 The Environment (Wales) Act 2016 places a duty on the Welsh Ministers to reduce greenhouse gas (GHG) emissions by at least 80% in 2050, against the 1990 baseline. The Ministers must set interim targets for 2020, 2030 and 2040, and 5 yearly carbon budgets, commencing 2016 – 2020 and ending 2046 - 2050. For each budgetary period Ministers must publish a report of policies and proposals setting out how they will meet the carbon budget for that period. Prosperity for All: A low carbon Wales ("the Plan") is the report for the first carbon budget period (2016-20).

1.2 The independent expert advisory body, UK Committee on Climate Change (UKCCC), must provide advice to the Welsh Ministers and report on progress made against the budgets and targets. The Climate Change (Wales) Regulations 2018 were developed with advice from the UKCCC and were passed by the National Assembly for Wales in December 2018¹. The Regulations include setting out the interim targets and the first two carbon budgets. The interim targets are:

- 2020 – 27% reduction against the baseline
- 2030 – 45% reduction
- 2040 – 67% reduction

The first carbon budget runs from 2016-20 and requires an average reduction of 23% against the baseline; the second carbon budget (2021-25) requires an average reduction of 33% against the 1990 baseline.

1.3 The Plan sets out the policies for the first carbon budget (2016-20). The UK Committee on Climate Change (UKCCC) recognises that Wales is already over halfway through the first carbon budget period and that there is little scope for new policy actions to affect emissions to 2020. Therefore, the first budget will be delivered through existing policy commitments. The Plan also includes proposals for policies that can be further investigated and developed to deliver the second carbon budget (2021-25) and future carbon budgets.

¹ <https://gov.wales/topics/environmentcountryside/climatechange/emissions>

Sustainability Appraisal (SA)

- 1.4 Sustainability Appraisal (SA) is a systematic process that aims to promote sustainable development through assessing the extent to which an emerging plan or project will help to achieve relevant objectives. Sustainable Development means the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the well-being goals.² The Act gives a legally-binding common purpose through the seven well-being goals for public bodies and details how they should work together, as shown in Figure 1.1.

Figure 1.1: Well-being Goals and Ways of Working³



² <https://gov.wales/topics/people-and-communities/people/future-generations-act>

³ <http://futuregenerations.wales/about-us/future-generations-act/>

- 1.5 The National Strategy Prosperity for All (2017)⁴ places key commitments to well-being and sustainable development in a long-term context within four key themes, as follows:

Figure 1.2: Key Themes and Well-Being Objectives

Well-Being Objectives			
Support people and businesses to drive prosperity	Deliver quality health and care services for the future	Support young people to make the most of their potential	Build resilient communities, culture and language
Tackle regional inequality and promote fair work	Promote good health and well-being for everyone	Build ambition and encourage learning for life	Deliver modern and connected infrastructure
Drive sustainable growth and combat climate change	Build healthier communities and better environments	Equip everyone with the right skills for a changing world	Promote and protect Wales' place in the world
Prosperous and Secure	Healthy and Active	Ambitious and Learning	United and Connected
Key Themes			

- 1.6 Prosperity for All initially identified five priority areas: Early Years; Housing; Social Care; Mental Health; Skills and Employability. In reviewing actions and progress through 2018⁵, the Welsh Government decided that decarbonisation will also be an area for cross-government action and is included as a sixth priority area. This recognises the significance of the benefits for reducing emissions and that these positive effects will be wide and contribute to improve health and well-being and promote new economic opportunities.
- 1.7 The statutory impact assessments (IAs) of Equality Impact Assessment, the Welsh Language Impact Assessment, and the Children's Rights Impact Assessments are tools that demonstrate how legal requirements⁶ are met by the Welsh Ministers. The Welsh Government also requires policies and plans to be tested through further impact assessments (Climate Change; Regulatory Impact Assessment; Health; and Rural Proofing) and has brought these together into one Integrated Impact Assessment.
- 1.8 Strategic Environmental Assessment (SEA)⁷ is a statutory process that aims to provide a high level of protection for the environment and to promote sustainable development during the preparation of certain plans and programmes, when judged against reasonable alternatives. The requirements

⁴ <https://beta.gov.wales/prosperity-all-national-strategy-well-being-statement-2017>

⁵ <https://gov.wales/docs/strategies/181002-prosperity-for-all-annual-report-en.pdf>

⁶ Equality Act 2010; Welsh Language (Wales) Measure 2011; United Nations Convention on the Rights of the Child (UNCRC)

⁷ <http://www.legislation.gov.uk/wsi/2004/1656/contents/made> SEA Regulations Wales (2004)

for SEA may be integrated into the SA process, for example, as in development planning legislation⁸.

- 1.9 The Welsh Government has chosen to undertake an initial Sustainability Appraisal (SA) of the Plan. There is no requirement for it to be subject to statutory SEA. However, the Welsh Government has chosen to undertake a SA that takes into account the principles and approach of the SEA process, as well as the principles and objectives of sustainable development and well-being.

Purpose of this SA and Structure of SA Report

- 1.10 The purpose of this SA is to provide an independent and objective assessment of the Plan and to help demonstrate that the Well-Being of Future Generations Act (WFG) formed an integral part of preparation of the document and embedding it into future policy development. The existing policies included in the Plan have been subject to various assessments, including statutory Impact Assessments (IAs) and SA/SEA where relevant through the policy development process. Therefore, this SA seeks to consider the effects of the implementation of the policies collectively within the Plan and in the context of the Well-Being of Future Generations Act. This SA seeks to consider the inter-relationships between sustainability topics and investigate cumulative, synergistic and secondary effects. It aims to make suggestions for how to maximise the contribution of the Plan to the well-being goals, where possible, and in particular for future plan-making.
- 1.11 The UKCCC has advised that there is little scope for new policy actions to affect emissions to 2020.⁹ However, the Plan has included some suggested proposals for further investigation towards policy actions in the future and this SA has considered likely significant effects where possible. Thus, the approach and methods used in this SA may help to scope the next round of plan-making and SA when there may be alternative policy proposals to investigate through the SA process.
- 1.12 Following this introductory section, the approach to the SA and methods used is described in Section 2. The SA of the Plan is reported in Section 3 with the conclusions and next steps outlined in Section 4.

⁸ Planning (Wales) Act 2015; Planning and Compulsory Purchase Act 2004

⁹ <https://www.theccc.org.uk/publication/building-low-carbon-economy-wales-setting-welsh-carbon-targets/> (p.8-9)

2.0 APPROACH and METHODS

Developing the Scope of the SA

- 2.1 The SA forms part of an extensive cross government programme working at all levels to ensure that the regulation and policies for decarbonisation maximise the Well-Being Goals and Objectives. There is no requirement for the Plan to be subject to statutory SEA or SA. The Welsh Government has chosen to undertake a Sustainability Appraisal to provide an independent assessment of the plan as a whole and to help demonstrate that Well-Being Goals and Objectives formed an integral part of the plan-making process. The SA is structured around the principles and approach of the SA/SEA process, the principles and objectives of sustainable development and well-being (as detailed in the Well-Being of Future Generations Act), along with Welsh Government Well-Being Objectives and the National Strategy, and awareness of the requirements for Impact Assessments (IAs).
- 2.2 The SA approach follows the established SA/SEA process – scoping; alternatives and assessment; reporting - as outlined in Figure 2.1, as follows:

Figure 2.1: Outline of SA Process

Process Stage	Methods as applied to the SA of the Plan
1 Developing the scope of the SA (context and other plans and programmes (PP); baseline characterisation; SA Framework)	Relevant PPs with their objectives and the baseline characterisation has drawn upon key information from national sources. Key issues and opportunities relevant to the sphere of influence of the Plan were identified from the PP review and baseline. The SA Framework of sustainability objectives that forms the basis against which the Plan is appraised was developed taking into account the identified key issues and opportunities; the well-being principle, ways of working, goals and objectives; and the Impact Assessments (IAs).
2 Appraising the Plan (Refining Alternatives and Assessing Effects)	The Plan comprises current policies and suggests proposals for future policies that will be further investigated in the next round of plan-making. Thus, there are no realistic alternatives to investigate through SA at this stage. The SA uses professional judgment and the baseline information to assess the Plan against the SA Framework of sustainability/well-being objectives. The assessment seeks to identify where possible major/minor, negative/positive, direct/indirect ¹⁰ , and

¹⁰ Any aspect of a plan that may have an impact (positive or negative), but that is not a direct result of the proposed plan.

	wider/cumulative ¹¹ , antagonistic/synergistic effects ¹² , and reporting any uncertainties such as gaps in information. For any adverse effects identified, the SA seeks to suggest mitigation measures to avoid, offset or minimise significant effects.
3 Reporting the SA	The SA report has been prepared in the format of established SA/SEA methods and reporting. This SA is published alongside the Plan in March 2019.

- 2.3 A Regulatory Impact Assessment (RIA) was published alongside the Climate Change (Wales) Regulations 2018¹³. The RIA principally examined the high-level impacts of options around meeting the first two carbon budgets for the periods 2016-20 and 2021-25 and interim emissions targets for 2020, 2030 and 2040. The RIA is a standalone analysis, but the opportunity was taken to align the RIA process with the SA process to enhance integration and promote collaborative ways of working.
- 2.4 A detailed sustainability matrix tool was developed that identified the potential benefits or disbenefits that could arise through the low carbon transition and the identified pathways for greenhouse gas emissions. Each relevant benefit/dis-benefit [potential effect - positive/negative] was investigated against a list of 44 factors for change that were scoped as being relevant to the both the Climate Change (Wales) Regulations 2018 and the Plan. This cross-cutting and collaborative approach informed both the RIA and the SA.
- 2.5 The sustainability matrix tool was developed taking into account the Sustainable Development Principle with Ways of Working, and the WFG Goals and Well-Being Objectives in the National Strategy 2017. The matrix also considered the integration of the Welsh Government Impact Assessments (IAs) where available.
- 2.6 The Plan was subject to strategic SA as described in this report and using the established approach to SA in a pragmatic way that allows for the approach and timescales involved in the Plan. The SA provides an independent high-level assessment of the Plan. The next round of plan-making will explore other policy options, including investigation through SA.
- 2.7 As the Plan is the first report required under Part 2 of the Environment (Wales) Act 2016, with current policies and suggested proposals for future plans, a proportionate approach has been taken to the SA. The current policies were subject to the Welsh Government's requirements for impact assessment during their development. This includes SA/SEA, for example, the Natural

¹¹ Incremental effects resulting from a combination of two or more individual effects, or from an interaction between individual effects – which may lead to a synergistic effect (i.e. greater than the sum of individual effects), or any progressive effect likely to emerge over time.

¹²These arise from the interaction of a number of impacts so that their combined effects are greater than the sum of their individual impacts.

¹³ <http://www.legislation.gov.uk/wsi/2018/1303/made>

Resources Policy (NRP 2017), the draft Welsh National Marine Plan (WNMP 2017), and the draft National Development Framework (Issues and Options, Preferred Option 2018). It is anticipated that this initial SA could help scope future SAs, including testing identified policy options through comparative assessment to inform decision-making.

Embedding the Ways of Working

2.8 The ways of working have been integral to the development of the Plan and the SA, as outlined in Figure 2.2.

Figure 2.2: Embedding the Ways of Working

Way of Working	Developing the Plan and the SA
Long Term	<p>The carbon budgets and the Plan are considering the long-term with the overall requirement for meeting the 2050 target. The Plan focuses on the short-term to 2020 but incorporates an approach that is also looking to the longer term to 2050.</p> <p>The SA reviews other plans/programmes and baseline evidence that consider the short, medium and long term, including comparisons and future trends. This informs the identification of issues and opportunities that help develop the SA framework of objectives against which the Plan is assessed.</p>
Prevention	<p>The Plan incorporates policies from Welsh Government departments that have varying roles and duties to identify and resolve issues or problems in order to prevent them occurring or getting worse.</p> <p>The SA process is founded on the principle of the mitigation hierarchy for addressing potential negative effects: avoid; minimise/reduce; remedy/rehabilitate/restore; offset – with avoidance or prevention being the preferred approach.</p> <p>The Plan and the SA will be subject to a programme of monitoring and review to track progress against meeting their objectives, including preventative protection measures.</p>
Integration	<p>The Plan has been developed through working groups from the departments to identify policies that will help deliver the low carbon transition in an integrated approach. Representation from across government thus informed the development of the policy proposals to ensure that impacts on others are considered and that their objectives are integrated into plan-making.</p> <p>The sustainability matrix tool was developed with consideration of emission pathways and cross-cutting factors; an approach was developed that addressed</p>

	<p>individual policy sectors and then considered their inter-relationships. The development of the Plan considered the implications for the WFG Goals and Objectives – demonstrating an integrated approach.</p> <p>The SA is a process that integrates economic, social, cultural and environmental factors within a framework of objectives; it seeks to help address identified issues and opportunities, including any potential synergies. Consideration of the interrelationships of topics is embedded in the SA process. The SA also considered the implications for the WFG Goals and Objectives, as well as the requirements in the Impact Assessments (IAs) – demonstrating an integrated approach.</p>
Collaboration	<p>The Plan can only deliver the low carbon economy and achieve the carbon budget by working with others. It can require, encourage, support and facilitate policy actions by others, helping to develop complementary approaches to maximise positive outcomes and help achieve the well-being goals. The Plan can consider both the national/international and the local community implications of the low carbon transition. It is structured in a way which shows an outcome for a sector but the policies to deliver the outcomes are cross-sectoral, and it clearly sets out the strong collaborative approach required.</p> <p>The SA has identified key issues and opportunities through review of plans, programmes and baseline evidence from others to inform the development of the SA framework.</p>
Involvement	<p>Involving people is integral to the development of the Plan. As there is relatively little scope for new policy actions to affect emissions to 2020, the Welsh Government is involving stakeholders on what actions should be taken to reduce emissions to 2030. The consultation document Achieving our Low Carbon Pathway to 2030 sought views through a 12-week public consultation period 12 July – 4 October 2018¹⁴, including supporting events and information. Comments received were taken into account in the development of the Plan. There was also a call for evidence that informed the UKCCC advice. The Plan will be published in March 2019.</p> <p>As there is relatively little scope for new policy actions to affect emissions in Wales to 2020, this first SA represents a pragmatic approach to involving people. The initial scoping and appraisal stages are gathered within the first SA report that is published at the same time as the Plan. There will be opportunities for using the SA process to investigate the proposed options for future policies. SA has a strong role to play in comparative assessments of strategic options,</p>

¹⁴ <https://beta.gov.wales/low-carbon-pathway-wales>

	including through workshops with cross-sectoral and key stakeholder involvement.
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Context and Baseline

- 2.9 The SA process reviewed other key plans and programmes to identify any objectives and baseline information that should be considered in the SA, including key documents, as follows:
- Prosperity for All: National Strategy 2017 and Annual Report 2018
 - Prosperity for All: Economic Action Plan 2017
 - Public Health Wales Creating a Healthier, Happier and Fairer Wales 2017
 - Cymraeg 2050: Welsh Language Strategy 2017
 - Child Poverty Strategy 2015
 - A Plan for all Children and Young People 2016-2019
 - Strategic Equality Plan and Equality Objectives for Wales 2016
 - Education in Wales: Our national mission 2017-21
 - A Smarter Energy Future for Wales 2016
 - National Strategy for Flood and Coastal Erosion Risk in Wales 2011
 - The Wales Transport Strategy¹⁵
 - National Development Framework (NDF) (Issues and Options stage 2018)
 - Towards Zero Waste 2017
 - Our Strategy Woodlands for Wales 2018
 - National Marine Plan (consultation draft 2017-2018)
 - Natural Resources Policy NRP 2017
 - Planning Policy Wales Edition 10, December 2018
 - Western Wales and Dee River Basin Management Plans (RBMPs) 2015-2021
 - Future Landscapes: Delivering for Wales 2017
 - Delivering a Digital Wales 2010; Digital Inclusion Strategic Framework Statement 2016
 - UK Clean Growth Strategy 2017, updated April 2018
- 2.10 The established approach for SA involves analysis of the baseline characterisation relevant to the sphere of influence of the plan to be assessed. This helps to identify key issues and opportunities that can be used in the development of the framework of SA objectives that form the basis for assessment. The baseline characterisation was organised according to the key themes in the National Strategy and considered information in the plans/programmes as listed above and other key sources, as follows:
- Future Trends Report (2017)

¹⁵ <https://beta.gov.wales/sites/default/files/publications/2017-09/wales-transport-strategy.pdf>

- UK Climate Change Risk Assessment (2017) Summary for Wales
- State of Natural Resources Report (SoNaRR 2016)
- Welsh Government Statistics and Research¹⁶

Baseline Characterisation: Prosperous and Secure

- 2.11 There has been a long-term trend of global economic growth of around 2% per year that appears to be shifting from the western countries and towards Asia. Since the recession in 2008, a productivity slowdown has sharply reduced growth rates in the UK and Wales. It particularly affected Wales's performance on Gross Value Added (GVA)¹⁷. GVA is a measure where Wales has historically performed less well compared to other areas of the UK¹⁸. However, in recent years the labour market has performed well compared to other parts of the UK¹⁹.
- 2.12 Data for the 3 months to November 2018 show that the employment rate in Wales was exactly the same rate as the UK as a whole (75.8%). This is the first time that this has happened since records began, with Wales historically always having an employment rate below the UK average²⁰. The unemployment rate in Wales was 3.9% of the economically active population during September to November 2018, down 0.9% from a year earlier. The UK rate for the same period was 4.0%, down from 4.3% a year earlier²¹. Economic inactivity in Wales was 21%, some 2.6% down on the year; this compares with the UK, also at 21%, but only down 0.2% on the year²². Workplace based average gross weekly earnings of full-time employees in Wales increased slightly to £509 between April 2017 and April 2018, compared to the UK at £569.²³. A relatively high proportion of people are of retirement age²⁴.
- 2.13 The Low Carbon and Renewable Energy (LCRE) sector generated total turnover of £1.8 billion by direct activities in 2017, 4% of total UK turnover in the LCRE economy²⁵. Total employment in Wales from direct activity in the LCRE economy was 9,300 full-time equivalent jobs (FTE), 4.4% of total UK employment in the LCRE economy. Wales has great untapped growth

¹⁶<https://gov.wales/statistics-and-research>

¹⁷ ONS Regional gross value added (income approach) (2018)
<https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/regionalgrossvalueaddedincomeapproach>

¹⁸ Ibid

¹⁹ Welsh Government (2017) Future Trends Report

²⁰ ONS [Regional labour market statistics in the UK: January 2019](https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/regionallabourmarket/january2019)
<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/regionallabourmarket/january2019>

²¹ Ibid

²² Ibid

²³ ONS Employee earnings in the UK: 2018
<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/annualsurveyofhoursandearnings/2018>

²⁴ ONS Statistics (2018) <https://www.ons.gov.uk/help/localstatistics>

²⁵ <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2017>

potential to generate energy, including from renewable sources, especially at the local level²⁶.

- 2.14 Inequalities in well-being are associated with a range of personal characteristics, social and economic factors. Whilst poverty levels are a little higher in Wales than the rest of the UK, in terms of overall wealth, levels are higher than most areas outside the South of England²⁷. The Institute for Fiscal Studies (IFS) project that relative child poverty in the UK will increase substantially between 2015 and 2021, rising from 29.7% to 36.6%. This is attributed to two main factors. First, low income families with children get a relatively small share of their income from earnings. Therefore, when earnings rise, median income tends to increase faster than the incomes of low income households with children. Second, the incomes of these households are sensitive to the ongoing benefit cuts²⁸.
- 2.15 Poverty levels in Wales have been stable over recent years, rising by 1 percentage point in the latest data, having been at 23% for the five previous time periods²⁹. The percentage of pensioners living in relative income poverty has been rising for the past 4 periods (reaching 20 per cent between 2014-15 and 2016-17) but it is still below what it was in the mid to late 1990s. The IFS project that relative child poverty will increase markedly across all regions of the UK between 2013-15 to 2019-21. The smallest increases are in the south, but even there, relative child poverty is projected to rise by at least 4 percentage points. The northern regions, the Midlands, Wales and Northern Ireland are projected to see increases of at least 8 percentage points³⁰.
- 2.16 Households in the UK spend 80% of their energy costs on heating space and water in the home³¹. In 2014, 30% of households in Wales were estimated to have experienced fuel poverty, however the estimates fell to 23% in 2016 as a result of (moderately) rising household incomes, increased energy efficiency, reduced energy consumption and a decrease in oil and gas prices³². The predicted national levels of fuel poverty for Wales are higher than in England but lower than in Scotland or Northern Ireland³³.
- 2.17 There are significant impacts to Wales from climate change risks: flooding and coastal change; health, wellbeing and productivity; shortages of water; change to ecosystems, soils and biodiversity. Infrastructure is already exposed

²⁶ Ibid

²⁷ <https://gov.wales/docs/statistics/2017/170505-future-trends-report-2017-en.pdf>

²⁸ <https://www.ifs.org.uk/uploads/publications/comms/R136.pdf>

²⁹ DWP Household Below Average Income (HBAI) report (2018): <https://gov.wales/statistics-and-research/households-below-average-income>

³⁰ <https://www.ifs.org.uk/uploads/publications/comms/R136.pdf>

³¹ BEIS Energy Consumption in the UK (2018):

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729317/Energy_Consumption_in_the_UK_ECUC_2018.pdf

³² Welsh Government (2017) The Production of Estimated Levels of Fuel Poverty in Wales: 2012-2016: <https://gov.wales/docs/caecd/research/2016/160711-production-estimated-levels-fuel-poverty-wales-2012-2016-en.pdf>

³³ Ibid

to a range of climate hazards that are projected to increase both in frequency and severity; flooding poses the greatest long-term risk³⁴.

Baseline Characterisation: Healthy and Active

- 2.18 Wales' population is projected to increase over the next 20 years, possibly by around 5% and immigration will still likely continue to some extent³⁵. The percentage of the population over 65 and 75 is projected to increase; the number of young people (aged under 16) will continue to account for around 18%. Life expectancy increases look set to continue but there is a lot of uncertainty – from very little to around 15% increase. The number of households is projected to grow faster than the overall population, including smaller household sizes³⁶.
- 2.19 Overall life expectancies are increasing but with significant differences between the most and least deprived. In terms of different types of illness, there are mixed trends: illnesses such as heart conditions and arthritis have slightly decreased over the last 10 years; mental illnesses have increased. With an ageing population, there could be an increase in dementia sufferers with over 50,000 by 2025. There are mixed trends with regard to healthy lifestyles in Wales: smoking continues to reduce but obesity levels look set to increase slightly³⁷.
- 2.20 Healthy communities are closely related to healthy environments. Wales, along with the rest of the UK and other countries, failed to meet its national and international biodiversity targets³⁸. Wales' biodiversity and habitats will be under even greater pressure in the future and this mirrors the global situation. Although water quality has improved as have some elements of air quality, many of the natural resources and resilience of Wales' ecosystems are continuing to decline (SoNaRR 2016) with concern over resilience and capacity to provide services and benefits into the futures³⁹.
- 2.21 The decline in heavy industry has resulted in a reduction in emissions of some pollutants, such as particulate matter; however, emissions from industry are still a significant source accounting for some 29% of Welsh emissions in 2016⁴⁰ and are dominated by iron/steel production and petroleum refining. Other emission sources, such as transport, agriculture, and domestic heating, have become more of a concern. It is estimated that air pollution contributes to 2000 deaths per year in Wales⁴¹.

³⁴ Welsh Government (2017) Future Trends Report

³⁵ *ibid*

³⁶ *ibid*

³⁷ Welsh Government (2017) Future Trends Report

³⁸ National Resources Wales (2017) Well-being statement 2017/18

³⁹ Welsh Government (2017) Future Trends Report

⁴⁰ GHG Inventories for England, Scotland, Wales and N Ireland: 1990-2016

⁴¹ National Assembly for Wales- Robert Abernethy (February 2018) Research Briefing- Air Quality

- 2.22 The number of properties (homes and businesses) at medium or high risk of flooding from rivers and the sea was 61,108 in 2014⁴². Average annual costs of flooding in Wales are in the region of £200 million⁴³. The Western Wales and the Dee River Basins include some water bodies that have failed to meet good or better ecological status. Physical modification is the biggest factor, with pollution from abandoned mines and from rural areas also being significant factors; also, pollution from wastewater^{44 45}.
- 2.23 By 2050, average river flows in winter may rise by 10-15%, but in summer and autumn they could reduce by over 50% and as much as 80% in some places. Droughts and flood events may become more common. Soil carbon has been stable in improved land for 30 years and in woodland for around 10 years. There has been good progress in waste reduction but there is more to do.⁴⁶

Baseline Characterisation: Ambitious and Learning

- 2.24 Wales has considerable relevant expertise within the Higher Education sector and has established a significant economy in the renewable and low carbon sectors – the Low Carbon and Renewable Energy (LCRE) sector generated total turnover of £1.8 billion by direct activities in 2017, 4% of total UK turnover in the LCRE economy⁴⁷. There is an existing gap in educational success between the least deprived and the most deprived groups⁴⁸. The national mission focuses on raising standards for all, reducing the attainment gap, and delivering an education system that is a source of pride and public confidence⁴⁹. There has been an increase in the encouragement of apprenticeships, including recognising the importance of STEM (Science, Technology, Engineering and Maths)⁵⁰ that is particularly important for progressing a low carbon economy.

Baseline Characterisation: United and Connected

- 2.25 The number of Welsh speakers has stabilised since 1991 although challenges remain to ensure that young people retain the language post-compulsory education⁵¹. Wales has a rich history, and this is strongly reflected in the historic environment of Wales. Heritage theft and vandalism, and the decline of some historic features into a state of disrepair are existing issues⁵².

⁴² <https://gov.wales/statistics-and-research/well-being-wales>

⁴³ Ibid

⁴⁴ Welsh Government (December 2015) Western Wales River Basin Management Plan 2015 – 2021 Summary

⁴⁵ Welsh Government (October 2015) Dee River Basin Management Plan 2015 – 2021

⁴⁶ Welsh Government (2017) Future Trends Report

⁴⁷ <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalesimates/2017>

⁴⁸ Welsh Government (2017) Annual Report on Equality 2016-2017

⁴⁹ Welsh Government (2017) Our Action Plan for Education in Wales 2017-2021

⁵⁰ Welsh Government (2016) Science, Technology, Engineering and Mathematics: A delivery plan for Wales

⁵¹ Welsh Government (2017) Annual Report on Equality 2016-2017

⁵² Welsh Government (May 2013) Historic Environment Strategy for Wales

- 2.26 The provision of broadband infrastructure is developing rapidly after a slower start relative to the rest of the UK – due in part to the high level of rural households that are harder to connect to conventional wired broadband. 34% of the adult population are digitally excluded (through lack of infrastructure, personal choice, or due to socio-economic status)⁵³.
- 2.27 Current trends suggest that, despite growth in rail use, private vehicles are set to remain the dominant mode of transport in Wales – at least in the short to medium term⁵⁴. There is a downward trend in the number of people choosing to walk or cycle shorter journeys which needs to be reversed⁵⁵. Rail use continues to grow, although in places demand exceeds capacity⁵⁶.

Identifying Key Issues and Opportunities

- 2.28 The established approach to SA incorporating SEA considers the objectives of other relevant plans/programmes and the baseline characterisation in order to identify key issues and opportunities that are within the sphere of influence of the plan to be assessed. These are then used to help develop the SA Framework of objectives for sustainability, tailored to the plan being investigated. The key issues and opportunities identified for the SA of the Plan are summarised in Table 2.1, organised according to their main effects on the Key Themes in the National Strategy, as follows:

Table 2.1: Key Issues and Opportunities

Prosperous and Secure
Encourage investment in the economy with inclusive growth built on strong foundations, supercharged industries of the future, and productive regions
Address levels of unemployment and the low primary income by providing new, skilled jobs
Continue to invest and aim to be at the forefront of the renewable and low carbon sector
Promote sustainable economic growth, increasing economic diversification and sustaining business competitiveness
Support a strong tourism and recreation economy with care for environmental and heritage assets
Address levels of fuel poverty
Reduce poverty levels within communities, and address existing issues of inequalities between the most deprived and least deprived areas of society
Reduce greenhouse gas emissions and help combat climate change
Healthy and Active: People and Communities
Reduce the gap in life expectancy between the most and least deprived areas, and address the increase in mental health illness amongst the adult population
Adapt to an ageing population and the associated increase in health

⁵³ Welsh Government (2018) Digital Inclusion Progress Report and Forward Look

⁵⁴ Welsh Government (2017) Future Trends Report

⁵⁵ Welsh Government (2016-2017) Walking and Cycling in Wales: Active Travel 2016-2017

⁵⁶ Welsh Government (2016-2017) Rail Transport 2016-2017

issues such as dementia
Encourage and increase the use of sustainable transport, including walking and cycling
Improve access to good quality and affordable housing for everyone
Healthy and Active: Better Environments
Protect and enhance biodiversity for people and wildlife with healthy functioning and resilient ecosystems
Manage natural resources more sustainably and help address the causes of climate change including increasing energy efficiency
Protect people and assets from flood risk and make ecosystems more resilient to climate change
Improve water quality and sustainable use of water resources
Improve soil quality and sustainable management of land
Reduce emissions from vehicles and improve air quality through encouraging more sustainable transport modes and reducing need to travel by cars/trucks
Ambitious and Learning
Reduce gap in educational success between least deprived and most deprived groups
Continue to develop leading-edge skills in the renewable and low carbon sector
United and Connected
Promote Welsh culture and use of the Welsh language
Increase connectedness and sustainable transport, reducing reliance on the private car
Continue to invest in digital infrastructure so excluded communities gain access to fast broadband
Promote sustainable and cohesive communities – in both rural and urban areas
Protect and enhance the historic environment

The SA Framework

- 2.29 The sustainability matrix tool (Level 1) was developed by considering 32 likely effects (positive or negative) against 44 scoped factors for change, associated with each of the emission pathways and relevant sectors. The detailed assessment for Level 2 considered likely potential direct and wider benefits (and dis-benefits where there may be negative impacts) resulting from the changes described in Level 1. The potential effects (changes and benefits/dis-benefits) have been considered against the Welsh Government's 12 Well-Being Objectives.
- 2.30 The strategic SA framework equates to Levels 4-5 in the sustainability matrix tool and provides an appropriate high-level framework to test the Plan overall. The SA Objectives align with the Welsh Government's Well-Being Objectives that set out how the WFG Act will be used to deliver the Government's programme and contribute to the national Goals. Each SA Objective is further defined by appraisal-aiding questions – to organise the assessment by key factors relevant to the Plan and to avoid double counting as so many factors are cross-cutting. The appraisal-aiding questions were developed from the effects/changes identified in Level 1 of the sustainability matrix tool, the plan/programme review and baseline characterisation, and to reflect the key issues/opportunities identified as relevant to the Plan.
- 2.30 The SA Framework used to assess the Plan is as set out in Table 2.2.

Table 2.2: Strategic SA Framework

Strategic SA Objective/Appraisal-Aiding Questions	Well-Being Goals
<p>1 To support and encourage people and businesses to help drive prosperity for all</p>	
<p>Will the Plan/Policy...</p> <ul style="list-style-type: none"> ▪ Support job security and the number of jobs through helping to improve productivity, increase earnings and reduce costs? ▪ Create opportunities for sectors: Energy; Transport; Buildings; Industry and Business; Agriculture; Land Use/Forestry; Public Sector; Waste? ▪ Create opportunities to improve the productivity of businesses? ▪ Create opportunities to reduce administrative costs to businesses of low carbon delivery? ▪ Create opportunities to reduce the costs of energy bills to residential and commercial properties? ▪ Create opportunities to improve energy security and reduce supply interruptions? ▪ Support and encourage business innovation for low carbon to increase productivity and reduce costs? ▪ Support business diversification? ▪ Support sustainable recreation and tourism? 	<p>Prosperous Resilient Healthier More Equal Cohesive Communities Globally Responsible</p>
<p>2 To support and encourage employment opportunities for all to help tackle regional inequality</p>	
<p>Will the Plan/Policy...</p> <ul style="list-style-type: none"> ▪ Consider costs of the low carbon economy on households and people's earnings? ▪ Consider costs of the low carbon economy and help to reduce the pay gap associated with gender or skills? ▪ Sustain and support opportunities for enhancements to the rural economy, including SMEs, micro-businesses and digital connectivity? ▪ Create opportunities for reductions in fuel poverty especially through costs of heating and transport? ▪ Support opportunities to increase employment for all working age groups? 	<p>Prosperous Resilient More Equal Cohesive Communities</p>

<p>3 To encourage and support sustainable growth and combat climate change</p>	
<p>Will the Plan/Policy...</p> <ul style="list-style-type: none"> ▪ Create, encourage and support opportunities to reduce greenhouse gas emissions (GHGs)? ▪ Create, encourage and support opportunities to reduce the demand for energy and improve security of supply? ▪ Create, encourage and support opportunities to improve energy generation from renewables? ▪ Support investment in cleaner technologies? ▪ Help protect and enhance land and assets from emissions of GHGs – crop yields, forestry, buildings? ▪ Support an ecosystem approach to biodiversity and services – air, water and soils qualities and resources, carbon sequestration and storage? ▪ Reduce GHGs emissions from waste? 	<p>Prosperous Resilient Healthier More Equal Cohesive Communities Globally Responsible</p>
<p>4 To contribute to improving good health and wellbeing for everyone</p>	
<p>Will the Plan/Policy...</p> <ul style="list-style-type: none"> ▪ Contribute towards a reduction in health inequalities, especially vulnerable groups – children and older people? ▪ Contribute to reductions in levels of child poverty through helping to reduce fuel poverty? ▪ Contribute to improvements in mental and physical health through sustaining job security and business survival through the low carbon transition? ▪ Improve physical health through changes to air quality and reductions in respiratory illnesses? ▪ Contribute to improvements in mental and physical health by supporting provision and access to good quality housing/buildings? ▪ Contribute to improvements in mental and physical health through provision of green space/recreational areas? ▪ Contribute to the improvements in mental and physical health through promotion of integrated transport networks including green infrastructure (GI)? ▪ Contribute to improvements in mental and physical health by helping to sustain connectivity – transport and digital? ▪ Protect and improve mental and physical health by managing risks to health from climate change and more extreme weather conditions – erosion, flooding and wind damage; also heat? ▪ Contribute to improvements in mental health through reductions in light and noise pollution; maintaining areas of tranquillity? ▪ Contribute to mental health through supporting family 	<p>Prosperous Resilient Healthier More Equal Cohesive Communities</p>

<p>and community cohesion, supporting social networks, supporting skills development, and creating involvement in local decisions?</p>	
<p>5 To contribute to building healthier communities to improve social cohesion and equality</p>	
<p>Will the Plan/Policy...</p> <ul style="list-style-type: none"> ▪ Support accessibility to good quality housing through ensuring security, efficiency and costs of energy? ▪ Create opportunities and support accessibility to appropriately skilled employment to promote a sense of identity and belonging? ▪ Create opportunities to reduce the vulnerability of communities during the low carbon transition and increase community cohesion by increasing belonging and a sense of identity? ▪ Encourage and support energy generation from renewables to improve the sense of identity? ▪ Protect buildings, heritage and cultural assets from air quality damage and to improve identity and belonging? ▪ Support the provision of greenspace and recreational areas? 	<p>Prosperous Resilient Healthier More Equal Cohesive Communities Vibrant Culture and Thriving Welsh Language Globally Responsible</p>
<p>6 To contribute to building better environments</p>	
<p>Will the Plan/Policy...</p> <ul style="list-style-type: none"> ▪ Contribute to protection and enhancement of landscape/seascape character and quality? ▪ Reduce the demand for energy, especially the minerals, water and waste sectors? ▪ Create opportunities for better environments from renewable energy – landscape, biodiversity and water? ▪ Improve the resilience and adaptability of ecosystems, including carbon sequestration and storage? ▪ Help to enhance biodiversity and ecosystems on land and marine for the benefit of wildlife and people, including managing risks from erosion, flooding and wind and promoting green infrastructure? ▪ Contribute to an improvement to air quality for biodiversity? ▪ Contribute to an improvement in water quality and more sustainable use of water resources? ▪ Contribute to an improvement in soil quality and more sustainable management of land resources, including crop yields and forestry? ▪ Contribute to more sustainable use of minerals and waste management? 	<p>Prosperous Resilient Healthier More Equal Cohesive Communities Vibrant Culture and Thriving Welsh Language Globally Responsible</p>

<p>7 To contribute to equipping everyone with the skills for a changing world and to encourage learning for life</p>	
<p>Will the Plan/Policy...</p> <ul style="list-style-type: none"> ▪ Create opportunities and support skills development in low carbon technology for all, seeking to reduce inequality on age, gender or disability? ▪ Support businesses through access to appropriately skilled employment and support networks (know-how)? ▪ Support Research and Development (R and D) to promote innovative and leading-edge low carbon economy? ▪ Contribute to opportunities for children and young people to realise their potential? 	<p>Prosperous Resilient Healthier More Equal Cohesive Communities Vibrant Culture and Thriving Welsh Language Globally Responsible</p>
<p>8 To help build resilient communities, culture and language</p>	
<p>Will the Plan/Policy...</p> <ul style="list-style-type: none"> ▪ Support job security and access to good housing - to help sustain resilient communities? ▪ Contribute to family and community cohesion? ▪ Involve local decision-making? ▪ Support and enhance traditions and culture through helping to protect heritage, identity and a sense of belonging, and landscape? ▪ Contribute to management of risks from erosion, flooding and wind damage – reducing vulnerability of communities and increasing resilience? ▪ Contribute to the future well-being of the Welsh language? 	<p>Prosperous Resilient Healthier More Equal Cohesive Communities Vibrant Culture and Thriving Welsh Language</p>
<p>9 To contribute to the delivery of modern and connected infrastructure</p>	
<p>Will the Plan/Policy...</p> <ul style="list-style-type: none"> ▪ Help to deliver sustainable resilient infrastructure – transport or digital - to support social networks? ▪ Help to deliver sustainable resilient infrastructure – transport or digital - to support use of the Welsh language? ▪ Help to deliver sustainable resilient infrastructure – transport or digital - to support skills development and involvement in local decisions? ▪ Create and support opportunities to improve provision and access to digital services, and including digital connectivity on the move? ▪ Create and support opportunities to improve provision and access to sustainable integrated transport, including green infrastructure (GI)? ▪ Contribute to management of risks through erosion, flood and wind damage to infrastructure - energy; transport; telecommunications? 	<p>Prosperous Resilient Healthier More Equal Cohesive Communities Vibrant Culture and Thriving Welsh Language</p>

10 To contribute to the promotion and protection of Wales' place in the world	
<p>Will the Plan/Policy...</p> <ul style="list-style-type: none"> ▪ Encourage and support low carbon products and services; and renewable energy, resilient energy and telecommunications infrastructure for export – to promote Wales as a leader in low carbon economy? ▪ Support and help facilitate movement of goods into and out of Wales? ▪ Support connections to the wider world, including promotion of traditions and culture; use of the Welsh language; and recreation and tourism? ▪ Support sustainable air travel? 	<p>Prosperous Resilient Healthier More Equal Cohesive Communities Vibrant Culture and Thriving Welsh Language</p>

Appraising Prosperity for All: A low carbon Wales

- 2.32 Likely effects (positive/negative; direct/wider; high/medium/low) were identified for each emission pathway by sector using the identified factors in Levels 1 and 2 and detailed assessment to inform the setting of carbon budgets and the RIA.
- 2.33 Each identified current policy or groups of policies was appraised against the SA Framework using professional judgment supported by the baseline evidence. The nature of the likely sustainability/wellbeing effects (including major/minor, positive/negative, duration (short, medium or long term), permanent/ temporary, secondary⁵⁷, cumulative⁵⁸ and synergistic⁵⁹) were described in the appraisal commentary, together with any assumptions or uncertainties.
- 2.34 Where possible, the SA makes suggestions or recommendations to mitigate any negative effects or promote opportunities for enhancement of positive or neutral effects. A summary appraisal commentary reports any significant effects identified and likely residual effects. SA is informed by the best available information and data; however, data gaps and uncertainties exist, and it is not always possible to accurately predict effects, particularly at a high-level of assessment such as for this national plan.
- 2.35 The summary SA findings of each current policy or groups of policies were then considered for the relevant sections of the Plan. Overall SA findings were then collated for the plan as a whole and with particular consideration of potential cumulative effects and any key gaps. These overall SA findings were considered according to the key themes in the National Strategy, as follows:

⁵⁷ Any aspect of a plan that may have an impact (positive or negative), but that is not a direct result of the proposed plan.

⁵⁸ Incremental effects resulting from a combination of two or more individual effects, or from an interaction between individual effects – which may lead to a synergistic effect (i.e. greater than the sum of individual effects), or any progressive effect likely to emerge over time.

⁵⁹ These arise from the interaction of a number of impacts so that their combined effects are greater than the sum of their individual impacts.

- Prosperous and Secure
- Healthy and Active
- Ambitious and Learning
- United and Connected

Consultation

- 2.34 The UKCCC has advised that there is relatively little scope for new policy actions to affect emissions to 2020⁶⁰. Therefore, the Plan comprises current policies – and proposals for the future; it is these that have been tested through the SA (Levels 4-5). Achieving our Low Carbon Pathway to 2030 (consultation document 12 July – 4 October 2018) invited suggestions on what actions should be taken and included ideas for reducing emissions by 2030. Comments received were taken into account where relevant for the preparation of the Plan, including progressing suggestions for proposed policies in the future.

Compliance with the Well-Being Duty

- 2.35 This approach and methods for plan-making and integrated sustainability appraisal demonstrates how the work has sought to comply with the Well-Being Duty. The Sustainable Development Principle and Ways of Working have been embedded, including through cross-sectoral working groups, into both the plan-making and the assessment processes. The factors for change and likely effects from policies and proposals have been mapped against the Well-Being Objectives. The SA has aligned strategic objectives for testing the draft plan with the Well-Being Objectives and Ways of Working, and then presented the overall findings according to the Key Themes in the National Strategy.

⁶⁰ <https://www.theccc.org.uk/publication/building-low-carbon-economy-wales-setting-welsh-carbon-targets/> (p.8-9)

3.0 SA OF PROSPERITY FOR ALL: A LOW CARBON WALES

Introduction

- 3.1 All policies in the Plan were subject to SA using the SA Framework. The SA also commented on any significant effects that might be particularly relevant with regard to proposals for further study and policy actions in future plan-making. This may help to scope the next SA when there may be meaningful opportunities for investigating reasonable options for policy actions.
- 3.2 As previously explained, existing policies were subject to the Welsh Government's requirements for impact assessments, including SA, and with consideration of the interactions between policy areas. The Climate Change (Wales) Regulations 2018 were informed by the RIA sustainability matrix that is aligned with the SA Framework for assessing the Plan – as shown in Figure 2.3. Thus, the development of the Plan has been prepared within an overall process of integrated and aligned assessment processes. This is confirmed through the independent strategic assessment reported in this SA.
- 3.3 The summary findings of the SA are presented in the following sections organised according to the Key Themes of the Well-Being Objectives so that the inter-relationships and cumulative effects may be more clearly considered.

Prosperous and Secure

SA Objectives:

- 1 To support and encourage people and businesses to help drive prosperity for all
- 2 To support and encourage employment opportunities for all to help tackle regional inequality
- 3 To encourage and support sustainable growth and combat climate change

- 3.4 By embedding Clean Growth, Innovation and Skills at its heart, the Plan has recognised that employment and an adequate income is essential for people, communities, and their health and well-being. The Plan states that decarbonisation is not just about reducing emissions but that wider benefits can be achieved at the same time. The plan acknowledges that there are challenges, for example, aligning power and sustainable transport, and the need to restore biodiversity and ensure the resilience of ecosystems. By recognising these challenges and potential negative effects at an early stage with the Plan, further plan-making can explore possibilities to avoid or mitigate such potential negative effects and promote opportunities for positive effects.
- 3.5 Decarbonisation is now a Priority Area in Prosperity for All (2018) such that a low carbon approach should be embedded in the drive for sustainable growth and to combat climate change through all policy areas. The Plan

explains clearly how it can create the right conditions for Clean Growth and sets out clear commitments such as for the Economic Contract⁶¹, Innovation and Skills – all of which integrate economic growth with a low carbon economy and society – indicating minor positive effects that could be synergistic and cumulative in the longer term as opportunities are seized and encourage further development.

- 3.6 Spatial, land use and marine planning are cross-cutting policy areas that have strong roles to support SA objectives with the potential for major positive effects for employment and economic growth. Planning policy Wales (PPW)⁶² includes a planning energy hierarchy: extraction of coal, fracking, and onshore oil/gas for the purposes of energy generation are at the bottom of the hierarchy. PPW has recently been amended to restrict extraction for coal and planning permission will not be granted thus controlling greenhouse gas emissions from coal mining (mostly carbon dioxide and small amounts of methane).
- 3.7 The NDF⁶³ can help reduce GHG emissions by directing new development to sustainable locations, requiring reduced emissions and encouraging sustainable design to be an integral part of new development; this will also support investment in clean technologies with the potential for positive effects. Strong policies are emerging to support renewable energy and encourage reductions in greenhouse gas emissions with positive effects for low carbon objectives and increase resilience to climate change.
- 3.8 The emerging Welsh National Marine Plan (WNMP)⁶⁴ seeks to understand opportunities for colocation of activities and optimise opportunities for all sectors including renewable energy (wave, tidal, wind). It seeks to plan for sustainable provision of fisheries and aquaculture; also, recreation and leisure – with the potential for positive effects for job security and numbers of jobs through cross-cutting policy for Blue Growth. The WNMP recognises the potential significant future growth in certain sectors, in particular the low carbon sector – indicating a strong synergy with the Plan.
- 3.9 By embedding leadership, collaboration and involvement into the heart of the Plan and aiming to demonstrate effective implementation of low carbon into the public sector, the Welsh Government establishes support and encouragement for people and businesses by strong example and leadership, including through demonstrator case studies.
- 3.10 Policies and proposals are likely to progress positive effects, including communicating progress through the Annual Conference, and the proposal

⁶¹ <https://gov.wales/newsroom/businessandconomy/2018/180521-new-economic-contract-for-businesses-seeking-welsh-government-support>

⁶² <https://beta.gov.wales/planning-policy-wales-edition-10> (December 2018)

⁶³ Consultation stage April 2018 Issues and options and Preferred Option <https://beta.gov.wales/national-development-framework-issues-options-and-preferred-option>

⁶⁴ Consultation draft WNMP (December 2017) <https://beta.gov.wales/draft-welsh-national-marine-plan>

for supplying public sector buildings with renewable electricity by 2020 and low carbon heat by 2030 sets a strong example and commitment that will be explored in more detail in the next round of plan-making. Overall, positive effects are indicated that are likely to be synergistic and cumulative in the longer term, as awareness, collaboration, and implementation proceeds, including the use of new technologies.

- 3.11 The Power (generation of electricity) and Industry sectors contribute major proportions of Welsh emissions – 34% and 29% respectively in 2016⁶⁵. Wales has some devolved powers, but many of the regulation, contracts and markets policies are set at UK and EU level. The Welsh Government has limited levers for direct influence and the Plan recognises the importance of continued negotiation with the UK Government to promote Welsh interests and the need to work closely with the Industry sector. The Welsh Government will receive greater consenting, planning and permitting powers in 2019 and this will allow more influence over levels of emissions from the power sector for developments over 350MW, with the potential for positive effects.
- 3.12 The UKCCC⁶⁶ recognises that Wales has a higher share of emissions from the hard to reduce sectors than the rest of the UK. Further energy efficiencies, alongside electrification of heat and possible growth of bioenergy, will need longer term innovation – in both technology and how industry operates and invests. The UK Government has confirmed that energy intensive industry will continue to benefit from Climate Change Agreements (CCA) until 2023 – this aims to protect such industries where competitiveness can be affected by tax costs and to incentivise improvements in energy efficiency and carbon reduction – thus providing mitigation measures for potential negative effects.
- 3.13 The Plan explains that it needs to find a timely balance for targets and regulation within devolved powers to help encourage businesses to decarbonise whilst helping to ensure that costs to businesses are kept manageable and competitive. This indicates that potential negative effects have been anticipated and mitigation measures are being developed.
- 3.14 Innovation has been embedded into the heart of the Plan and its importance to the Industry sector is reiterated. The proposal for an Industry-Led Decarbonisation Group to be set up later in 2019 will help to promote innovation and collaborative working with the potential for positive effects, and identification of suitable mitigation measures for negative effects for industry and business. Similarly, the proposal for Industrial Emission Support Reduction beyond 2020 for carbon-intensive businesses recognises that Wales is different and indicates a commitment to find appropriate means to incentivise industry to decarbonise – with the potential to support positive effects.
- 3.15 The Buildings sector covers emissions from heating, lighting and cooking. The dominant source of emissions is residential buildings, which account for 82% of

⁶⁵ Greenhouse Gas Inventories for England, Scotland, Wales and N Ireland 1990-2016, available at http://naei.beis.gov.uk/reports/reports?section_id=3

⁶⁶ Greenhouse Gas Inventories for England, Scotland, Wales and N Ireland 1990-2016, available at http://naei.beis.gov.uk/reports/reports?section_id=3

Building sector emissions and 7.5% of total Welsh emissions⁶⁷. The Plan supports reducing demand through new build and retrofit, supporting behavioural change, and supporting an increase in low carbon heat – indicating overall positive effects in the buildings sector. Standards and regulations ensure that mitigation measures to reduce emissions are implemented – Building Regulations control new construction with its opportunities for incorporating new highly efficient energy systems – and it includes a proposal to set higher standards which would enhance the contribution of this sector to meeting targets. The key policy improving the energy efficiency of existing buildings is the Welsh Housing Quality Standards and this indicates positive effects.

- 3.16 As around 1 in 5 of Welsh homes are not connected to the gas grid, a higher proportion than the UK as a whole, more homes in Wales will need individual low carbon heating solutions. The Plan recognises that heating constitutes a major part of the decarbonisation challenge, and also acknowledging that the need for cooling is predicted to increase – thus mitigation measures are needed for such indicated negative effects. The Plan recognises that behavioural changes are needed to combat climate change effects and policies such as Help to Buy, and Smart Systems include support for energy efficiencies with positive effects.
- 3.17 The Transport sector accounted for 14% of Welsh emissions in 2016, significantly less than the UK average of 33%; however, transport is the third largest carbon emitting sector following power and industry – and mostly associated with road transport. The transport sector affects all other sectors and sustainability factors, with fundamental effects and interactions for progressing decarbonisation and Clean Growth. Current trends suggest that, despite growth in rail use, private vehicles are set to remain the dominant mode of transport in Wales – at least in the short to medium term⁶⁸ - and this is a particular characteristic for Wales with a greater proportion of distance driven by rural residents on rural roads.
- 3.18 Large parts of Wales lack the supporting infrastructure required for EV charging points – this is recognised by the Plan with the need to integrate policy development between transport and power, indicating that mitigation measures are being planned to help resolve negative effects in the longer term. Current policies seek to increase Active Travel (walking and cycling) and increase travel by rail and bus. PPW⁶⁹ and the NDF include requirements to reduce reliance on the private car, support a modal shift to walking, cycling and public transport, and plan for new development such that employment, housing and accessibility to services and facilities are co-located – with positive effects for the low carbon transition.
- 3.19 Waste accounted for 3% of Welsh emissions in 2016. Wales has a well-established policy framework with standards, targets and regulation for waste management that has already achieved one of the best recycling records in

⁶⁷ Greenhouse Gas Inventories for England, Scotland, Wales and N Ireland 1990-2016, available at http://naei.beis.gov.uk/reports/reports?section_id=3

⁶⁸ Welsh Government (2017) Future Trends Report

⁶⁹ <https://beta.gov.wales/planning-policy-wales-edition-10>

the world by increasing municipal waste recycling to 63% in 2018 and less than 10% going to landfill. The policies to generate renewable energy from waste – anaerobic digestion of food waste, recovery from waste wood in biomass plants, energy recovery from residual waste, and utilisation of landfill gas – will all contribute to overall reductions in emissions of greenhouse gases with positive effects.

- 3.20 The policy commitment aims to move towards a circular (resource efficient) economy by decarbonising products manufactured in Wales. The Plan explains how this will involve using fewer raw materials in production and use; waste materials will be increasingly used, and there will be an aim to reduce imported consumption-based carbon emission – all with the potential for positive effects in the longer term. The new Waste Strategy will be consulted upon in Spring 2019 and includes proposals that will have positive effects for low carbon through ambitions to halve food waste and new targets for municipal recycling.
- 3.21 The Plan explains how the Land Use and Forestry sector is the only one that has the capacity to remove carbon dioxide from the atmosphere to help resolve the effects of past emissions – all other sectors focus on reducing future emissions. This capacity to act as a carbon sink is primarily through forest land removing carbon dioxide from the atmosphere and this sector aims to increase the sink significantly, in line with the UKCCC recommendation. Current policies, including the NRP, PPW, NDF and the Woodland Strategy for Wales (updated June 2018)⁷⁰ all seek to increase woodland with likely positive effects.
- 3.22 However, the sector can also contribute to emissions – mostly through conversion of grassland to cropland and to settlements. The Plan, with constraints and targets - including the NRP, PPW, NDF and the Woodland Strategy - seeks to reduce these emissions providing mitigation measures. Overall, the unique possibilities from forestry and land use change to enhance a net reduction in Welsh emissions indicate the potential for major positive effects that will be cumulative in the longer term.
- 3.23 The rate of planting so far has been less than hoped, in part due to concerns from landowners. The proposal to identify preferred areas for tree planting, including for commercial woodlands and planting at medium-large scale will provide certainty for landowners and applicants with the potential for significant positive effects in the longer term. The Plan and the Natural Resources Policy (NRP) includes commitment to support higher value use of timber resources, in particular in the construction of high quality housing – but it is not clear how this would be implemented, so there is some uncertainty for positive effects at this early stage of the Plan.
- 3.24 Agriculture accounted for 12% of Welsh emissions in 2016. These are dominated by emissions of methane, largely from sheep and cattle. Fertiliser use for agricultural soils is another significant source of emissions, comprising

⁷⁰ <https://beta.gov.wales/woodlands-wales-strategy>

some 21% of agricultural emissions⁷¹. Policies include the rural Development Programme 2014-20, Red Meat Programme 2018-23, the Animal Health and Welfare Framework, Farming Connect 2015-19, the Farm Business Grant, the Wales Land Management Forum, and Glastir funding that all seek to support agriculture including increasing the efficiency and productivity of livestock and improving soils/nutrient management. The Plan recognises that continuing with the provision of data and collaborative working with farmers will be pivotal in understanding how the sector can become low carbon indicating that mitigation measures are being considered to minimise negative effects on the farming economy and employment objectives.

- 3.25 Overall, the approach and structure of the Plan, with overarching themes for Clean Growth and Integration across all sectors, together with Leadership, Collaboration and Involvement – supported by detailed policy and information relevant to each sector – indicates positive effects for encouraging and supporting the drive for sustainable growth and to combat climate change. The Plan makes clear the role of current policies to 2020 and suggests proposals that can be further investigated in order to improve low carbon delivery at the next plan-making stage.

Healthy and Active

SA Objectives:

- 4 To contribute to improving good health and wellbeing for everyone
- 5 To contribute to building healthier communities to improve social cohesion and equality
- 6 To contribute to building better environments

- 3.26 Low carbon delivery can affect mental and physical health and overall well-being through changes to energy costs, number and types of jobs, and risk to health from climate change – heat, extreme weather, harm from erosion, flooding and wind. Employment, with adequate income and housing, is one of the most important determinants of physical and mental health⁷²; the long-term unemployed have a lower life expectancy and worse health than those in work. The focus of the Plan is that decarbonisation should be implemented without loss of business competitiveness indicating that mitigation measures are in place to minimise potential negative effects on health through loss of employment.
- 3.27 A healthy standard of living is associated with many positive health outcomes. This is strongly recognised by the Plan and current policies such as the Warm Homes Programme have been shown to be addressing chronic health conditions of participating households – reducing longer term pressures on health and social care services. Further work is ongoing to

⁷¹ Greenhouse Gas Inventories for England, Scotland, Wales and N Ireland 1990-2016, available at http://naei.beis.gov.uk/reports/reports?section_id=3

⁷² For example, please see <https://www.gov.uk/government/publications/health-profile-for-england/chapter-6-social-determinants-of-health#employment>

establish the wider benefits and actions needed to scale-up the retro-fit programme – indicating further positive effects.

- 3.28 Current policies seek to increase Active Travel (walking and cycling) and increase travel by rail and bus. PPW⁷³ and the NDF include requirements to reduce reliance on the private car, support a modal shift to walking, cycling and public transport, and plan for new development such that employment, housing and accessibility to services and facilities are co-located and integrated with existing communities – all with the potential for positive effects on health and well-being that will be synergistic and cumulative in the longer term.
- 3.29 Current policies including the NRP, PPW and NDF, have a strong role in increasing woodlands particularly with greater connectivity and accessibility within urban areas and linking to rural areas – all with potential for positive effects on health and well-being that can be synergistic and cumulative in the longer term.
- 3.30 The Natural Resources policy (NRP)⁷⁴ is placed at the heart of the Plan, recognising that is cross-cutting with all sectors and stakeholders. The strong synergies between biodiversity and limiting the changes to climate are clearly explained – reducing emissions will support biodiversity and well-functioning ecosystems (land and marine) that in turn will build resilience, support livelihoods and health and well-being.
- 3.31 The NRP sets out national priorities for managing Wales' natural resources sustainably. Wales, along with the rest of the UK and other countries, failed to meet its national and international biodiversity targets⁷⁵ and the resilience of Wales' ecosystems is continuing to decline (SoNaRR 2016)⁷⁶. The Plan recognises that environmental sustainability must be embedded in policies and action for the low carbon pathway to 2050 and that the NRP will drive action across the Welsh Government – providing strong mitigation for potential negative effects.
- 3.32 The Plan recognises that the development of renewable and low carbon technologies will have positive effects on environmental sustainability by helping to address the effects of climate change. However, as with any development, they can have negative effects on environmental quality and management of natural resources, for example, wind projects on landscape/seascape; wave/tidal on biodiversity and ecosystem functioning; solar farms with visual impacts, especially cumulative effects in rural areas valued for recreation and tourism; concerns for management of waste from nuclear. However, this depends upon the type of renewable and low carbon development and location.

⁷³ <https://beta.gov.wales/planning-policy-wales-edition-10>

⁷⁴ <https://gov.wales/topics/environmentcountryside/consmanagement/natural-resources-management/natural-resources-policy>

⁷⁵ National Resources Wales (2017) Well-being statement 2017/18

⁷⁶ <https://naturalresources.wales/evidence-and-data/research-and-reports/the-state-of-natural-resources-report-assessment-of-the-sustainable-management-of-natural-resources>

- 3.33 The Plan shows that there are diverse strong extant mechanisms with standards, regulations and policies, including through PPW, the NDF, WNMP, NRP and river basin management planning, to investigate and avoid or minimise negative effects, and seek synergies to help optimise opportunities such as enhancing the green infrastructure network that has wider benefits for both people and wildlife. The Plan recognises that the Welsh coastline is heavily designated to protect the unique environment indicating that mitigation measures are in place.
- 3.34 The Welsh Government has confirmed policy⁷⁷ that there will be no new onshore petroleum licensing in Wales, nor will there be support for fracking – all providing strong mitigation for negative effects on environmental resources and quality. Fossil fuel extraction is at the bottom of the energy hierarchy in PPW, further ensuring mitigation. The energy hierarchy indicates potential positive effects for environmental objectives.

Ambitious and Learning

SA Objectives:

7 To contribute to equipping everyone with the skills for a changing world and to encourage learning for life

- 3.35 The Plan recognises that we need to equip everyone with the right skills for a changing world and the first plan makes a commitment to start working with the Regional Skills Partnerships⁷⁸ to focus on priority growth sectors identified in the regions; also, to explore skills gaps and flexibility working closely with employers, and to help prepare the next generations. This is unlikely to be significant in the lifetime of this first plan, so neutral effects indicated in the short term, but minor positive effects indicated if progressed assertively in the next round of plan-making.
- 3.36 The Plan recognises that guidance and training is vital to progress the low carbon transition. Various tools have already been developed in the public sector and in due course a Decarbonisation through Procurement Toolkit will be established. Innovation and Initiatives have a strong role to play in equipping everyone for changing skills and, for example, many of the Smart Living Demonstrator projects include collaboration with Cardiff University and the University of South Wales. The proposal to host an Annual Conference and establish a Climate Just Advisory Group will further contribute to upskilling with positive effects.

⁷⁷ <https://beta.gov.wales/petroleum-extraction-policy-wales>

⁷⁸ <https://businesswales.gov.wales/skillsgateway/regional-skills-partnerships>

United and Connected

SA Objectives:

8 To help build resilient communities, culture and language

9 To contribute to the delivery of modern and connected infrastructure

10 To contribute to the promotion and protection of Wales' place in the world

- 3.37 The Plan sets out collaboration with business and the Third Sector, together with involvement with people, at the heart of the plan – recognising the effects can be wide and will be cross-cutting. The policy to establish a Climate Just Advisory Group in 2019 makes a clear commitment to involving people through citizen engagement with positive effects likely for supporting more resilient communities that are involved in decision-making about climate change and the low carbon transition. The commitment to 2019 means that the policy will be implemented in the timeframe of the Plan with likely positive effects for SA Objectives for community cohesion and resilience.
- 3.38 Continuing policy on reducing emissions from Listed Buildings and Scheduled Monuments contributes to reducing carbon footprints and protects heritage assets and their surroundings – all contributing to positive effects on cultural assets and identity. There is strong evidence to suggest that access to green spaces has a beneficial impact on physical and mental wellbeing through both physical access and use⁷⁹. The NRP, PPW and the NDF have strong roles to coordinate effective development of green infrastructure, including linkages between urban and rural areas, and improving connectedness with sustainable transport networks.
- 3.39 The Plan introduces the changes to the transport sector with adoption of Low Emission Vehicles and the expectation of autonomous vehicles becoming widespread in urban areas in the 2020s. It recognises that this provides both challenges and opportunities for public services to be delivered differently. It is acknowledged that leadership and innovation in this aspect for the public sector will take some time and the plan includes a proposal for all new cars and LGVs in the public sector fleet to be ultra low emission by 2025, and where practicably possible, all HGVs to be ultra low emission by 2030. The Plan explains the issues associated with this proposal and this will be investigated further through the next round of plan-making; reasonable options that develop can be tested through SA.
- 3.40 Regulation of industry sectors helps deliver the implementation of targets and contracts that will contribute to the management of risks through erosion, flood or wind damage to key infrastructure – energy, transport and digital – helping ensure resilience and with the potential for positive effects. Spatial and marine planning have strong roles to support objectives with potential for positive effects for resilience/connectedness of infrastructure and building healthier communities - with the potential for positive effects.

⁷⁹ <https://www.gov.uk/government/publications/health-profile-for-england/chapter-6-social-determinants-of-health#sustainable-communities-and-places>

3.41 Innovation and Initiatives, that might involve different ways of thinking and living, will be essential to delivery of resilient infrastructure – transport or digital – with potential for positive effects in the longer term through promotion of more sustainable integrated transport with green infrastructure, security and resilience of key infrastructure, and improvements to digital accessibility, including on the move. Demonstrating strong leadership, collaboration and involvement through the public sector for the low carbon transition with products, processes and services has the potential for positive effects contributing to promotion of Wales' place in the world.

Summary SA of implementing Prosperity for All: A low carbon Wales

3.42 The overall summary SA findings are shown in the Table 3.2. The categories of significance used were as follows:

Table 3.1: SA Significance Key

Categories of Significance of Effects		
Symbol	Meaning	Sustainability Effect
++	Major Positive	Proposal or policy encouraged as would resolve existing sustainability problem
+	Minor Positive	No sustainability constraints and proposal or policy acceptable
0	Neutral	Neutral effect
?	Uncertain	Uncertain or Unknown Effects
-	Minor Negative	Potential sustainability issues: mitigation and/or negotiation possible
--	Major Negative	Problematical and improbable because of known sustainability issues; mitigation likely to be difficult and/or expensive

Table 3.2: Summary SA of implementing the Plan

	Programme for Government key themes									
	Prosperous and Secure		Healthy and Active		Ambitious and Learning		United and Connected			
	SA Objectives (2016-20)									
Prosperity for All: A low carbon Wales	1 Encourage Prosperity	2 Support Employment for all	3 Combat Climate Change	4 Health and Wellbeing	5 Healthier Communities	6 Better Environments	7 Skills and Learning	8 Resilient Communities	9 Connected Infrastructure	10 Wales' place in World
Vision	++	+	++	+	++	++	0	++	+	+?
Leadership, Integration, Collaboration and Involvement	++	+	++	+	+	+	+	+	0	0
Power	+	+?	+	+	+?	+	0	+	+	+?
Industry	+	+?	+	+	0	+	0	+	+	+?
Buildings	0	0	+	++	+	+	0	0	0	0
Transport	+	0	0	+	+	+	0	0	0	0
Waste	+	0	+	+	+	+	0	0	0	0
Land Use and Forestry	0?	+?	+	+	+	+	+	0	+	0
Agriculture	+	+	+	+	+?	+	+	0	0	0
Methodological approach	+	+	++	+	+	+	+	+	+	+

- 3.43 Existing policies in the Plan were subject to the Welsh Government's requirements regarding impact assessment during their development to identify and resolve potential negative effects. Therefore, and as might be expected, there were no significant negative effects identified with the implementation of the Plan.
- 3.44 Mostly minor positive effects were identified, and this reflects the continuing policy approaches that seek to promote decarbonisation and the low carbon transition whilst protecting economic activity and important natural resources. Some uncertainty of the significance of such positive effects was reported at this early stage of low carbon delivery, for example, how effective support for more woodlands, forestry and timber for housing might progress in the shorter term. Other effects were negligible or likely to be neutral as they were not directly relevant.
- 3.45 Major positive effects were indicated by the overarching cross-cutting approaches set out in the Plan and, particularly for SA Objectives on encouraging prosperity and combatting climate change. Further positive effects were indicated for SA Objectives on healthier and more resilient communities and better environments that are likely to be synergistic and cumulative in the longer term as innovation, knowledge and implementation of the low carbon society become more normalised.
- 3.46 Major positive effects were indicated for progressing a healthy standard of living through progressing policies to deal with housing quality, heating, and addressing emissions from buildings. The unique possibilities from forestry, land use, and land use change to enhance a net reduction in Welsh emissions indicate the potential for major positive effects that will be cumulative in the longer term.

SA suggestions for Prosperity for All: A low carbon Wales

- 3.47 There were no significant negative effects identified and therefore, no recommendations arising from the SA. The SA made some suggestions for the Plan that could help enhance well-being and sustainable development or contribute to the next round of plan-making and SA, as follows:
- Spatial and marine planning could have strong roles in supporting development of a multi-vector system with energy being converted into different forms to address a range of needs, rather than the current model with separate and centralised system; this could align positively with regional/localised energy generation and use, including the proposals for City Regions; wider effects on contracts and the electricity market would need to be addressed.
 - The Task and Finish Innovation Group proposed to be established in 2019 could be key to helping address the complexities of decarbonisation with Clean Growth; identifying and promoting those innovations that are appropriate for Wales (national and regions); and to identify those aspects that could support Wales as a global leader in low carbon. With limited funds, support for innovation must be carefully chosen to aim for maximising benefits. Therefore, it is suggested that

the Terms of Reference for the Group include ways of working, such as using disruptor and tipping point techniques, that can help to stimulate the radical approaches and thinking that the Plan recognises will be needed.

- The Plan can help ensure that targets, standards and regulation facilitate synergies for low carbon, recognising the linkages between marine and spatial planning and promoting regional/localised low carbon energy generation and use.
- Spatial and marine planning have an opportunity to find synergies that optimise employment with integration between marine and land associated jobs – and this requires strategic planning with sustainable transport objectives; the overarching requirements for a low carbon economy could help coordinate and guide for the longer term.
- The proposal for an Industry-Led Decarbonisation Group to be set up later in 2019 should be progressed as this demonstrates commitment to helping resolve the issues raised for those most challenged by decarbonisation.
- The proposal to investigate evidence regarding people's travel choices seems to be vital evidence and the SA suggests that the Plan should make clear that this will be undertaken in 2019; such evidence will also inform spatial and marine planning, as well as wider transport planning.
- The Plan includes the proposal to increase tree planting and this includes noting maintenance of renewable products such as timber and wood fibre. The Plan and NRP includes commitment to support higher value use of timber resources, in particular in the construction of high quality housing – but it is not clear how this would be implemented, so uncertainty for positive effects. Therefore, the SA suggested that this intention could be made more explicit – perhaps with targets and/or links with design guidance.

How this SA has been taken into account

- 3.48 The SA found that the Plan will have positive effects for the low carbon transition. Potential negative effects on economy/employment and natural resources/ecosystems will need to be mitigated through strong policies including relevant standards, regulations and targets to help ensure that they are implemented. The suggestion from the SA for a clear commitment to educating young people on low carbon will be progressed and is in line with the consultation feedback during 2018. Other SA suggestions will be taken into account in the next stage of plan-making.

4.0 CONCLUSION and NEXT STEPS

- 4.1 In line with advice from the UK Committee on Climate Change (UKCCC) and recognising that we are over halfway through the first carbon budget period, there is little scope for new policy actions to affect emissions to 2020. Therefore, the first budget will be delivered through existing policies that have been subject to the Welsh Government's requirements for impact assessments during their development. The Plan comprises current policies and suggests proposals for future policies that will be further investigated in the next round of plan-making.
- 4.2 Consequently, the SA is somewhat limited in what it can assess. For example, there are no realistic alternatives to investigate through SA at this initial stage of low carbon delivery planning. Nonetheless, this SA sought to consider the effects of the implementation of the collection of policies within the Plan and in the context of the Well-Being of Future Generations Act. It aimed to make suggestions for enhancing sustainability, where possible, and in particular for proposals for policies in future plan-making.
- 4.3 The policies in the Plan have been tested through SA and there were no significant negative effects identified, either individually or in consideration of inter-relationships and cumulative effects. Many of the effects identified were predicted to be minor positive and some were found to have negligible or neutral effects. Major positive effects were indicated through the overarching approaches in the Plan. Whilst all the factors are inter-related and cross-cutting, the particular issues for energy generation and transport are identified.
- 4.4 Overall, the Plan has identified current policies and proposals to meet the first carbon budget. In developing the first plan, policies and proposals were selected that would reduce the potential for negative effects and seek to promote positive effects. It includes proposals for a monitoring, reporting and verification system to track the progress of the Plan. It is considered that further monitoring regarding the SA and predicted effects is not required.
- 4.5 The structure of the SA and the alignment of the SA framework with the details in the RIA that informed the preparation of the Climate Change (Wales) Regulations 2018 provide an independent and objective assessment of the Plan and help demonstrate that the Well-Being of Future Generations Act (WFG) formed an integral part of preparation of the Plan, embedding it into future policy development.
- 4.6 The Plan and this SA Report will be published in March 2019. Work will then continue to prepare the next report of policies and proposals for 2021-2025, taking into account the results of the review and monitoring, continuing predictions, and updated evidence, and including investigating options for future policy actions and testing them through SA.